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SEC. 1: 5ESS Switch Form - Text Cross Reference

1. GENERAL

This section contains the latest listing of 5ESS Switch ODA Forms. The listing is presented in alphabetical order by ODA Form Name. The Listing provides the corresponding Title, Office Record Number and TG-5 Division and Section.

Also, Division 0, Section 2 and 3 provide a cross reference for the corresponding Recent Change Views. Section 4 provides a cross reference for ODA Office Records. An alphabetic listing by title is included under Figure 1 in Division 19, Section 1.

2. ODA FORM NAME INDEX TABLE

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rpma	REMOTE PERIPHERAL SITE MISCELLANEOUS ALARMS	5957	Div. 5 Sec. 5N
rsmcar	OSPS RSM/CARRIER DATA FORM	5421	Div. 3 Sec. 4V
rsmink	RSM LINK ASSIGNMENT FORM	5517	Div. 3 Sec. 5Q
rterm	REMOTE TERMINAL (TR303/TR008)	5174-1/2/3/4	Div. 3 Sec. 1S
rtidx	ROUTE INDEX FORM	5303	Div. 3 Sec. 3P
rtlist	ROUTE INDEX LIST FORM	5574	Div. 3 Sec. 5BO
rxschd	ROUTINE EXERCISE SCHEDULE FORM	5515	Div. 3 Sec. 5O
saalhs1	SAAL HIGH SPEED SS7 LINK - SAALHSL	6016	Div. 9 Sec. 10V
saalprm	SAAL Link Parameter Set	6017	Div. 9 Sec. 10W
sacscr	SCD SCREENED SERVICE ACCESS CODES FORM	5552	Div. 3 Sec. 6C
scfam	STRUCTURE CODE FAMILY FORM	5536	Div. 3 Sec. 5AJ
scfd	SPEED CALLING FEATURE DEFINITION FORM	5627-1	Div. 4 Sec. 27A
sclist	SPEED CALLING LIST FORM	5627-5	Div. 4 Sec. 27E
sclpa	SPEED CALLING LINE PARAMETER FORM	5627-2	Div. 4 Sec. 27B
scmpa	SPEED CALLING MLHG/TERM LINE PARAMETER FORM	5627-3	Div. 4 Sec. 27C
scridxpa	SCREENING INDEX PARAMETER ASSIGNMENT	5543	Div. 3 Sec. 5AQ
scrcode	SCREEN CODE TABLE FORM	5415	Div. 3 Sec. 4P
scrnrg	CALLING PARTY NUMBER SCREENING RANGES FORM	5212	Div. 3 Sec. 2N
scroar	OSPS BACK NUMBER ALTERNATE ROUTING	5481	Div. 3 Sec. 4CG
sctpa	SPEED CALLING TRUNK PARAMETER FORM	5627-4	Div. 4 Sec. 27D
sctpasc	SCTP ASSOCIATION	5889	Div. 5 Sec. 3AK
sctpfepd	SCTP FAR ENDPOINT DEFINITION	5888	Div. 5 Sec. 3AJ
sctpnepd	SCTP NEAR ENDPOINT DEFINITION	5886	Div. 5 Sec. 3AH
sctpparm	SCTPPARM	5885	Div. 5 Sec. 3AG
sequest	OSPS ACCS RESTRICTED SEQUENCE TN FORM	5429	Div. 3 Sec. 4AD
servdata	OSPS SERVICE DATA FOR LISTING SERVICES CALLS	5466	Div. 3 Sec. 4BS
servdest	OSPS DESTINATION DATA FOR LISTING SERVICES CALLS	5467	Div. 3 Sec. 4BT
setid	OSPS IMPROVED THIRD NUMBER ACCEPTANCE TIME SET FORM	5461-2	Div. 3 Sec. 4BJ
sfsys	SECURED FEATURE SYSTEM ASSIGNMENT FORM	5713-1	Div. 3 Sec. 5AR
shtn	PRIMARY OR SECONDARY ONLY KEY SYSTEM FORM	5902	Div. 5 Sec. 1C
sipgsm	SIP-T GLOBAL SM	5880	Div. 5 Sec. 3AB
sippstn	SIP PSTN Interworking Parameters Set	5893	Div. 5 Sec. 3AQ
siptparm	SIP-T PARAMETERS DEFINITION	5882	Div. 5 Sec. 3AD
siptsms	SIP-T CALL PROCESSING SMS	5881	Div. 5 Sec. 3AC
slcalm	SLC-96 ALARM TYPE ASSIGNMENT FORM	5105	Div. 3 Sec. 1E
slccu	SLC-96 CHANNEL UNIT FORM	5107	Div. 3 Sec. 1G
slcrt	SLC-96 REMOTE TERMINAL FORM	5106	Div. 3 Sec. 1F
sljob	SLIM TEST JOB	5555	Div. 3 Sec. 5BA
slen	SLIM OE LIST	5548	Div. 3 Sec. 5AX
slsess	SLIM TEST SESSION	5556	Div. 3 Sec. 5BB
slthrs	SLIM THRESHOLD LIST	5554-1/2	Div. 3 Sec. 5AZ
sltset	SLIM TEST SET	5549	Div. 3 Sec. 5AY

smltit	LDIT AND ASSOCIATED SM LIST	5315	Div. 3 Sec. 3AB
spabs	SPECIAL ACCESS BAND SCREENING FORM	5319	Div. 3 Sec. 3AF
spaenxx	SPECIAL ACCESS EXEMPT NXXs FORM	5320	Div. 3 Sec. 3AG
specl	OSPS IMPROVED THIRD NUMBER ACCEPTANCE SPECIAL AREA CODE FORM	5461-3	Div. 3 Sec. 4BK
srdsn	SIMULTANEOUS RINGING MDN LIST	5651	Div. 4 Sec. 31J
sreincr	SRE INCREMENTAL GLOBAL PARAMETERS	5547	Div. 3 Sec. 5AW
srfd	SIMULTANEOUS RINGING FEATURE DEFINITION	5650	Div. 4 Sec. 31I
srvcdesc	ATS FEATURE BUTTON SERVICE DESCRIPTION FORM	5985	Div. 6 Sec. 27A
srvdsg	OSPS SERVICE DESIGNATION FOR 1+800 AATOS/SDN NRA OR AATLSOS CALLS - SRVDESIG	5474	Div. 3 Sec. 4BZ
sspann	NETWORK ANNOUNCEMENTS FORM	5535	Div. 3 Sec. 5AI
stinfo	OSPS SERVING TEAM INFORMATION FORM	5402	Div. 3 Sec. 4C
stparm	ACD SERVING TEAM PARAMETERS	5638	Div. 4 Sec. 32C
sxdisp	ACD SEIZURE DISPLAY	5641	Div. 4 Sec. 32F
tccattr	OSPS TELEPHONE CREDIT CARD (TCR) ATTRIBUTES	5473	Div. 3 Sec. 4BY
tccid	OSPS TELEPHONE CREDIT CARD ISSUER IDENTIFICATION	5454	Div. 3 Sec. 4BC
tcitg	OSPS CAMA TRANSFER TRUNKS FORM	5422	Div. 3 Sec. 4W
tcsc	TERMINATING CODE SCREENING AND PCC FOR COUNTRY CODE FORM	5438	Div. 3 Sec. 4AM
tcsnpa	TERMINATING CODE SCREENING FOR NPA-NXX FORM	5437	Div. 3 Sec. 4AL
tcstext	TERMINATING CODE SCREENING TEXT AND RESTRICTIONS FORM	5436	Div. 3 Sec. 4AK
tdmaopt	TDMA OFFICE OPTIONS	5572	Div. 3 Sec. 5BM
tdr	TIME DEPENDENT ROUTING	5571	Div. 3 Sec. 5BL
telmon	TSM MONITORING TO MONITORED FORM	5932-1/2/3/4	Div. 5 Sec. 3M
tgattd	TERMINAL GROUP ATTENDANT FORM	5611	Div. 4 Sec. 12A
tgalec	TGN TO LEC INDEX FORM	5443	Div. 3 Sec. 4AR
tgntnsc	LDP TRUNK TERMINATING NSC	5569	Div. 3 Sec. 5BJ
tgstfd	TERMINAL GROUP AND STATION RESTRICTION	5607-1/2	Div. 4 Sec. 8A
tgstipa	TERMINAL GROUP AND STATION RESTRICTION LINE (TN) PARAMETER FORM	5607-3	Div. 4 Sec. 8B
tgstmpa	TERMINAL GROUP AND STATION RESTRICTION LINE (MLHG/TERM) PARAMETER FORM	5607-4	Div. 4 Sec. 8C
tgsttpa	TERMINAL GROUP AND STATION RESTRICTION TRUNK PARAMETER FORM	5607-5	Div. 4 Sec. 8D
timing	DIGIT ANALYSIS TIMING FORM	5520	Div. 3 Sec. 5T
tkblkcd	BLOCKED TRUNK GROUP ASP FCD CODES	5275	Div. 3 Sec. 2X
tkedsld	EDSL CALL-BY-CALL FEATURES FORM	5209	Div. 3 Sec. 2K
tkgrpfa	FEATURE ASSIGNMENT TRUNK GROUP FORM	5206	Div. 3 Sec. 2E
tkgrp	TRUNK GROUP FORM	5202	Div. 3 Sec. 2A
tlws	TRUNK AND LINE WORK STATION FORM	5511	Div. 3 Sec. 5K
tmzn	NPA TIME ZONES FORM	5426	Div. 3 Sec. 4AA
tniclist	TRANSIT NETWORK IDENTIFICATION CODE FORM	5928	Div. 5 Sec. 3I
tntyp	TONE TIME FORM	5504	Div. 3 Sec. 5D
todcl	TIME OF DAY CODE LIST DEFINITION FORM	5610-2	Div. 4 Sec. 11B
todfd	TIME OF DAY FEATURE DEFINITION FORM	5610-1	Div. 4 Sec. 11A
todlpa	TIME OF DAY LINE PARAMETER FORM	5610-3	Div. 4 Sec. 11C
todmpa	TIME OF DAY MLHG TERMINAL PARAMETER FORM	5610-4	Div. 4 Sec. 11D
todtpa	TIME OF DAY TRUNK (TGN/MEMB) PARAMETER FORM	5610-5	Div. 4 Sec. 11E
tpccc	OSPS INTERNATIONAL TERMINATING RESTRICTIONS	5464	Div. 3 Sec. 4BQ
tpnnpa	OSPS TERMINATING NPA NXX RESTRICTIONS FORM	5465	Div. 3 Sec. 4BR

treat	OSPS IMPROVED THIRD NUMBER ACCEPTANCE CALL TREATMENT FORM	5461-4	Div. 3 Sec. 4BL
trfoparm	TRFO ECHO CANCELLATION PARAMETERS FORM	5593	Div. 3 Sec. 5CI
trfsep	TRAFFIC SEPARATIONS CELL GROUPING FORM	5308	Div. 3 Sec. 3U
trkcl	TRUNK TRANSMISSION CLASS FORM	5203	Div. 3 Sec. 2B
trunkfa	FEATURE ASSIGNMENT TRUNK GROUP MEMBER NUMBER FORM	5205	Div. 3 Sec. 2D
trunk	TRUNK FEATURES AND ASSIGNMENTS FORM	5204	Div. 3 Sec. 2C
tsthd	TSTHD	5747	Div. 8 Sec. 93
udppath	UDP PATH DEFINITION	5891	Div. 5 Sec. 3AN
udpptset		5879	Div. 5 Sec. 3BA
uttkgrp	UTILITY TELEMETRY TRUNK GROUP FORM	5215	Div. 3 Sec. 2R
valoffc	OSPS NXX LIST FOR BILLING NUMBER ON ONI/ANIF CALLS FORM	5423	Div. 3 Sec. 4X
vdchn	VOICE AND DATA CHANNELS	5918	Div. 5 Sec. 3W
x75cug	X75 CLOSED USER GROUP FORM	5930	Div. 5 Sec. 3K
x75pvc	TRUNK PACKET SWITCHING PVC LCN ASSIGNMENT FORM	5926	Div. 5 Sec. 3G
xat	X.25 PACKET SWITCHING CHANNEL ASSIGNMENT FORM	5909-1/2/3	Div. 5 Sec. 1J

SEC. 2: ODA Form Name Versus Recent Change Cross Reference

1. GENERAL

This section contains the latest listing of 5ESS Switch ODA Translation Forms and corresponding 5ESS Switch Recent Change Translation Forms.

The list is presented in alphabetical order by the 5ESS Switch ODA Form mnemonics.

The associated 5ESS Switch ODA Record Number is identified along with the corresponding Recent Change View Number, TG-5 Division and Section, and Software Release. The Software Release indicates when the ODA form is available.

2. ODA FORM CROSS-REFERENCE TABLE

ODA Form Name	Office Record	RC View Number	Division / Section	Software Release
acblpa	5616-2	1.20	Div. 4 Sec. 17B	ALL
acbmpa	5616-3	1.20	Div. 4 Sec. 17C	ALL
accst	5428	26.40	Div. 3 Sec. 4AC	5E4(2) and later
acctfd	5623-1	12.42	Div. 4 Sec. 24A	ALL
acctgp	5623-2	4.21	Div. 4 Sec. 24B	ALL
acctlpa	5623-4	1.42	Div. 4 Sec. 24D	ALL
acctmpa	5623-5	1.42	Div. 4 Sec. 24E	ALL
acctrtp	5623-3	4.22	Div. 4 Sec. 24C	ALL
accttpa	5623-6	5.42	Div. 4 Sec. 24F	ALL
acdbparm	5645	6.9	Div. 4 Sec. 32K	5E11 and Later
acdctp	5412-A/D	26.9	Div. 3 Sec. 4M	5E4(2) and later
acdctvn	5644	6.8	Div. 4 Sec. 32I	5E11 and later
acdtn	5631-1	4.15	Div. 4 Sec. 32A	5E9(1) - 5E10
acdvt	5643	6.7	Div. 4 Sec. 32H	5E11 and later
acofrf	5968	12.6	Div. 6 Sec. 11A	5E4(2) and later
acqs	5425	26.11	Div. 3 Sec. 4Z	5E4(2) and later
acsrfd	5959-1	12.50	Div. 6 Sec. 2A	5E5 and later
acsrgp	5959-2	4.47	Div. 6 Sec. 2B	5E5 and later
acsrlpa	5959-3	1.49	Div. 6 Sec. 2C	5E5 and later
acvtf	5967-1	12.46	Div. 6 Sec. 10A	5E4(2) and later
acvtgp	5967-2	4.46	Div. 6 Sec. 10B	5E4(2) and later
acvtlpa	5967-3	1.46	Div. 6 Sec. 10C	5E4(2) and later
acvtmpa	5967-4	3.46 (5E4(2) to 5E6) 1.46 (5E7 and later)	Div. 6 Sec. 10D	5E4(2) and later
agntid	5639	6.3	Div. 4 Sec. 32D	5E11 and later
aiscls	5469	21.57	Div. 3 Sec. 4BV	5E6(2) and later
alrmvlvs	5769	8.29	Div. 3 Sec. 5CD	ALL
amact	5506	10.12	Div. 3 Sec. 5F	ALL
amlbdsi	5447	21.34	Div. 3 Sec. 4AV	ALL
animod	5560	8.50	Div. 3 Sec. 5BD	5E10 and later
anitable	5561	8.51	Div. 3 Sec. 5BP	5E10 and later
anitbl	5561	8.51	Div. 3 Sec. 5BE	5E10 and later
annapl	5529	8.64	Div. 3 Sec. 5AC	5E4(2) and later
anndg	5532	8.60	Div. 3 Sec. 5AF	ALL
annhd	5531	8.61	Div. 3 Sec. 5AE	ALL
anntr	5533	8.62	Div. 3 Sec. 5AG	ALL
aowner	6446	21.28	Div. 3 Sec. 4ES	5E13 and later
apca	5620-1	24.3	Div. 4 Sec. 21A	ALL
apcomm	5507	24.1	Div. 3 Sec. 5G	ALL
apfma	5620-3	24.5	Div. 4 Sec. 21C	ALL
apgfp	5620-2	24.4	Div. 4 Sec. 21B	ALL
aphss	5620-4	24.12	Div. 4 Sec. 21D	5E4(2) and later
apxannc	5051	10.38	Div. 7 Sec. 1B	5E9(1) and later
apxparm	5050	8.28	Div. 7 Sec. 1A	5E9(1) and later
arsfd	5608-1	12.11	Div. 4 Sec. 9A	ALL
arsfrl	5608-7	10.8	Div. 4 Sec. 9G	ALL
arsgpa	5608-2	10.5	Div. 4 Sec. 9B	ALL

arslpa	5608-3	1.21	Div. 4 Sec. 9C	ALL
arsmpa	5608-4	1.21	Div. 4 Sec. 9D	ALL
arsscrn	5608-6	10.6	Div. 4 Sec. 9F	ALL
arssig	5608-9	10.7	Div. 4 Sec. 9I	ALL
arstcm	5608-8	10.9	Div. 4 Sec. 9H	ALL
arstpa	5608-5	5.21	Div. 4 Sec. 9E	ALL
asifd	5630-1	12.61	Div. 4 Sec. 30A	5E8 and later
asigp	5630-4	4.61	Div. 4 Sec. 30D	5E8 and later
asilpa	5630-2	1.61	Div. 4 Sec. 30B	5E8 and later
asimpa	5630-3	1.61	Div. 4 Sec. 30C	5E8 and later
asdpd	5632-5	12.64	Div. 4 Sec. 31E	5E9(1) and later
aspdf	5632-1	12.64	Div. 4 Sec. 31A	5E9(1) and later
asplpa	5632-2	1.64	Div. 4 Sec. 31B	5E9(1) and later
aspmmpa	5632-3	1.64	Div. 4 Sec. 31C	5E9(1) and later
asopt	5670	8.49	Div. 4 Sec. 31G	5E12 and later
asprp	5634	4.64	Div. 4 Sec. 31F	5E9(2) and later
asptpa	5632-4	5.64	Div. 4 Sec. 31D	5E9(1) and later
asscparm	5887	33.20	Div. 5 Sec. 3AI	ALL
assocset	5890	33.23	Div. 5 Sec. 3AL	ALL
atc	5446	27.40	Div. 3 Sec. 4AT	5E4(2) and later
athac	5619-3	4.18	Div. 4 Sec. 20C	ALL
athfcos	5619-4	4.19	Div. 4 Sec. 20D	ALL
athfd	5619-1	12.41	Div. 4 Sec. 20A	ALL
athgp	5619-2	4.17	Div. 4 Sec. 20B	ALL
athlpa	5619-5	1.41	Div. 4 Sec. 20E	ALL
athmpa	5619-6	1.41	Div. 4 Sec. 20F	ALL
athtpa	5619-7	5.41	Div. 4 Sec. 20G	ALL
atmlink	5592	22.27	Div. 5 Sec. 5P	5E17(1) FR 1 and later
atsdata	5052	14.9	Div. 7 Sec. 1C	5E9(1) and later
atsparm	5053	14.10	Div. 7 Sec. 1D	5E9(1) and later
auto	5505-1/2	14.1	Div. 3 Sec. 5E	ALL
bclidfd	5629-1	12.62	Div. 4 Sec. 29A	5E8 and later
bclidgp	5629-2	4.62	Div. 4 Sec. 29B	5E8 and later
bclidlpa	5629-3	1.62	Div. 4 Sec. 29C	5E8 and later
bclidmpa	5629-4	1.62	Div. 4 Sec. 29D	5E8 and later
bearernet	5935	33.15	Div. 5 Sec. 3AM	ALL
bfg	5625	12.9	Div. 4 Sec. 26A	5E4(2) and later
bfg	5626	12.9	Div. 4 Sec. 26B	5E4(2) and later
blk900	5482A	26.59	Div. 3 Sec. 4CH	5E8 and later
blvex	5442	27.11	Div. 3 Sec. 4AQ	5E4(2) and later
blvnpa	5441	27.10	Div. 3 Sec. 4AP	5E4(2) and later
ca2ipmap	5897	22.35	Div. 5 Sec. 3AU	ALL
cacdparm	5458	8.30	Div. 3 Sec. 4BF	5E6 and later
caicom	5984	23.23	Div. 6 Sec. 3D	5E9(1) and later
carscr	5551	1.60	Div. 3 Sec. 6B	5E5 and later
cascon	5455-A/B	27.53	Div. 3 Sec. 4BD	5E5 and later
casicon	5456-A/B	27.54	Div. 3 Sec. 4BE	5E5 and later
cc7pr	6001-1/2	16.2	Div. 9 Sec. 10A	5E11 and later
cccopt	5432	21.99	Div. 3 Sec. 4AG	5E4(2) and later
ccgsm	6008	16.1	Div. 9 Sec. 10H	5E11 and later
cclnk	6004-1/2	16.6	Div. 9 Sec. 10D	5E11 and later
ccname	5463	27.81	Div. 3 Sec. 4BP	5E6 and later
ccnet	6010	16.20	Div. 9 Sec. 10K	5E11 and later
ccpbd	6012	16.22	Div. 9 Sec. 10M	5E11 and later
ccpdl	6002	16.3	Div. 9 Sec. 10B	5E11 and later
ccp	5316	9.16	Div. 3 Sec. 3AC	5E5 and later
ccsgt	6015	16.25	Div. 9 Sec. 10N	5E11 and later
ccspr	6011	16.21	Div. 9 Sec. 10L	5E11 and later
ccsrti	5313	10.26	Div. 3 Sec. 3Z	ALL
ccstcap	5567	8.42	Div. 3 Sec. 5BH	5E12 and later
cctgm	6013	16.23	Div. 9 Sec. 10P	5E11 and later
cctt	6014	16.24	Div. 9 Sec. 10O	5E11 and later
cdim	5300-6	9.7	Div. 3 Sec. 3E	ALL
cdmaopt	5599	8.75	Div. 8 Sec. 80	5E15 and later
cfggrp	5964	12.5	Div. 6 Sec. 7A	5E4(2) and later
cfl	5712	12.1	Div. 8 Sec. 11	ALL
cfwfd	5614-1/2	12.12	Div. 4 Sec. 15A	ALL
cfwlpa	5614-3	1.22	Div. 4 Sec. 15B	ALL
cfwmpa	5614-4	1.22	Div. 4 Sec. 15C	ALL

cgasp	5514	8.10	Div. 3 Sec. 5N	ALL
cgatime	5766	20.33	Div. 3 Sec. 5CB	ALL
cgidx	5302-1	10.11	Div. 3 Sec. 3I	ALL
chbcpt	6406	27.61	Div. 3 Sec. 4DE	5E10 and later
cicdef	5218	5.72	Div. 3 Sec. 2U	5E15 and later
cicdist	5217	5.70	Div. 3 Sec. 2T	5E15 and later
cicphr	5498	27.66	Div. 3 Sec. 4CX	5E3 and later
ckrcode	5311	10.23	Div. 3 Sec. 3X	5E6 and later
clkset	6005	16.7	Div. 9 Sec. 10E	5E11 and later
clli	5521	na	Div. 3 Sec. 5U	5E4(2) and later
clsidx	5899	22.37	Div. 5 Sec. 3AW	ALL
clu	6020	16.9	Div. 9 Sec. 10T	5E14 and later
clustr	5600	12.2	Div. 4 Sec. 1A	ALL
cmpcrd	5480	27.45	Div. 3 Sec. 4CF	5E8 and later
cmtmh	6021	16.16	Div. 9 Sec. 10U	5E15 and later
cnam	5986	4.65	Div. 6 Sec. 28A	5E13 and later
cnchg	5302-4	10.13	Div. 3 Sec. 3L	ALL
conv	5300-4	9.4	Div. 3 Sec. 3D	ALL
coth	5513	11.2	Div. 3 Sec. 5M	ALL
cpnbnfd	5982	12.52	Div. 6 Sec. 25A	5E6 and later
cqparm	5640	6.4	Div. 4 Sec. 32E	5E11 and later
crtbl	5328	9.36	Div. 3 Sec. 3AN	5E16(2) and later
csrattr	5475	27.58	Div. 3 Sec. 4CA	5E7 and later
cttu	5518	14.4	Div. 3 Sec. 5R	ALL
cvdsttn	5459	21.42	Div. 3 Sec. 4BG	5E6 and later
cvect	5460	21.41	Div. 3 Sec. 4BH	5E6 and later
cwtfd	5603-1A/1B	12.15	Div. 4 Sec. 4A	ALL
cwtlpa	5603-2	1.24	Div. 4 Sec. 4B	ALL
cwtmpa	5603-3	3.24	Div. 4 Sec. 4C	ALL
cwttpa	5603-4	5.24	Div. 4 Sec. 4D	5E5 and later
dacctr	6412	27.88	Div. 3 Sec. 4DK	5E10 and later
das	5300-1	9.1	Div. 3 Sec. 3A	ALL
dcpsp	5477-2	27.82	Div. 3 Sec. 4CK	5E8 and later
dcpsss	5433	27.86	Div. 3 Sec. 4AH	5E9(1) and later
dcsdt	5054	14.11	Div. 7 Sec. 1E	5E9(1) and later
dcstt	5055	14.12	Div. 7 Sec. 1F	5E9(1) and later
dehnp	5431	27.85	Div. 3 Sec. 4AF	5E9(1) and later
dehocsm	5496	27.84	Div. 3 Sec. 4CW	5E9(1) and later
dfltsrv	5974	23.15	Div. 6 Sec. 17A	5E7 and later
diopr	5418	26.25	Div. 3 Sec. 4S	5E4(2) and later
dior sd	5484	27.9	Div. 3 Sec. 4CL	5E8 and later
diserv	5321	9.30	Div. 3 Sec. 3AH	5E6 and later
dispfd	5965	12.43	Div. 6 Sec. 8A	5E4(2) and later
dispm sg	5980	8.65	Div. 6 Sec. 23A	5E6 and later
dnntwk	5419	26.20	Div. 3 Sec. 4T	5E4(2) and later
dnra	6400	27.87	Div. 3 Sec. 4CZ	5E9(2) and Later
dnu2eec	5861	19.22	Div. 8 Sec. 68	5E13 and later
dnupm	5951-1/2	20.25	Div. 5 Sec. 5L	5E9(2) and later
drfd	5606-1	12.16	Div. 4 Sec. 7A	ALL
dr lpa	5606-2	1.25	Div. 4 Sec. 7B	ALL
drmpa	5606-3	3.25	Div. 4 Sec. 7C	ALL
dsapp	5537	8.17	Div. 3 Sec. 5AK	ALL
dslap	5963	24.7	Div. 6 Sec. 6A	ALL
dsl	5907	23.2, 23.8	Div. 5 Sec. 1H	5E5 and later
dslqmon	5904	23.17	Div. 5 Sec. 1E	5E6 and later
dslusr	5908	23.2, 23.8	Div. 5 Sec. 1I	5E5 and later
dsnco	5618-8	10.36	Div. 4 Sec. 19H	ALL
dtrtx	5314	10.2	Div. 3 Sec. 3AA	ALL
easid	5317	9.17	Div. 3 Sec. 3AD	ALL
ecdopt	5706	na	Div. 8 Sec. 8	ALL
edscnt	5961-5	24.9	Div. 6 Sec. 4E	ALL
edsfd	5961-1	12.38	Div. 6 Sec. 4A	5E4(2) and later
edsgp	5961-2	4.38	Div. 6 Sec. 4B	5E4(2) and later
edslpa	5961-3	1.38	Div. 6 Sec. 4C	5E4(2) and later
edsm pa	5961-4	3.38 (5E4(2) to 5E6) 1.38 (5E7 and later)	Div. 6 Sec. 4D	5E4(2) and later
eisdata	5462-1	21.51	Div. 3 Sec. 4BM	ALL
eissm	5462-3	21.52	Div. 3 Sec. 4BO	ALL
emrnm	5108	4.9	Div. 3 Sec. 1H	ALL

emrofc	5116	4.9	Div. 3 Sec. 1P	ALL
enetlink	5827-1/2	19.21	Div. 8 Sec. 67	5E12 and later
enetpipe	5826-1/2	19.20	Div. 8 Sec. 66	5E12 and later
enhblv	6435	27.12	Div. 3 Sec. 4EH	5E11 and later
eqaip	5765	19.27	Div. 8 Sec. 90	ALL
eqailu	5745	19.16	Div. 8 Sec. 64	5E11 and later
eqaiup	5746	20.8	Div. 8 Sec. 65	5E11 and later
eqapcx	5831	8.18	Div. 8 Sec. 83	ALL
eqci	5848		Div. 8 Sec. 50	5E9(2) and later
eqcm3	5867	n/a	Div. 8 Sec. 71	5E15 and later
eqcmtrcu	5812	17.5, 17.18	Div. 8 Sec. 32	ALL
eqcore	5701	17.16	Div. 8 Sec. 3	ALL
eqdclu eqdclp	5810	19.6	Div. 8 Sec. 30	ALL
eqdctu	5751	19.9	Div. 8 Sec. 26	ALL
eqdi	5849	18.3	Div. 8 Sec. 51	5E9(2) and later
eqdnus	5855-1/2/3	19.14	Div. 8 Sec. 57	5E9(2) and later
eqdpn	5820	8.7	Div. 8 Sec. 34	ALL
eqds eqdsp eqds2p	5740	19.5	Div. 8 Sec. 21	ALL
eqdsc3	5852	19.18	Div. 8 Sec. 54	5E9(2) and later
eqdsx	5721	na	Div. 8 Sec. 14	5E4(2) and later
eqdu,eqdup	5730	19.4	Div. 8 Sec. 17	ALL
eqecsu	5743	19.15	Div. 8 Sec. 62	5E10 and later
eqfiu	5753	20.4	Div. 8 Sec. 28	ALL
eqgdsc3	5860	19.19	Div. 8 Sec. 63	5E10 and later
eqhvc	5763	20.30	Div. 8 Sec. 88	ALL
eqidcu	5846-1/2	19.12	Div. 8 Sec. 48	5E8 and later
eqifac	5847	20.23	Div. 8 Sec. 49	5E8 and later
eqim	5700-1/2	18.1	Div. 8 Sec. 2	ALL
eqisap	5824	22.8	Div. 8 Sec. 24	ALL
eqislu	5731	22.5	Div. 8 Sec. 18	ALL
eqistf	5823	19.11	Div. 8 Sec. 37	ALL
EQIWG	5874	19.26	Div. 8 Sec. 82	5E15 and later
eqlgc	5733	22.6	Div. 8 Sec. 20	ALL
eqlu	5710	19.1	Div. 8 Sec. 9	ALL
eqlup	5711	20.1	Div. 8 Sec. 10	ALL
eqlvc	5764	20.31	Div. 8 Sec. 89	ALL
eqmh	5856	19.13	Div. 8 Sec. 58	5E9(2) and later
eqmsu eqmsp eqmmsp	5750	19.7	Div. 8 Sec. 25	ALL
eqmtib				
eqncref	5702	17.4	Div. 8 Sec. 4	ALL
eqnli	5853	18.16	Div. 8 Sec. 55	5E9(2) and later
eqoiu	5760	19.28	Div. 8 Sec. 85	ALL
eqoiup	5761	20.28	Div. 8 Sec. 86	ALL
eqormlink	5813	18.1	Div. 8 Sec. 33	ALL
eqoste	5762	20.29	Div. 8 Sec. 87	ALL
eqpc	5703	17.2	Div. 8 Sec. 5	ALL
eqpctp	5870	20.17	Div. 8 Sec. 74	5E15 and later
eqpctt	5871	20.27	Div. 8 Sec. 75	5E15 and later
eqpdxu	5868	19.23	Div. 8 Sec. 72	5E14 and later
eqpipe	5544	17.20	Div. 3 Sec. 5AT	5E9(2) and later
eqpipe	5544	17.20	Div. 8 Sec. 78	5E9(2) and later
eqpltu	5869	19.24	Div. 8 Sec. 73	5E15 and later
eqpmu	5752-1/2	20.9	Div. 8 Sec. 27	ALL
eqpsu	5741/5875	22.2/22.40	Div. 8 Sec. 22	ALL
eqpsuph	5742/5876	22.3/22.41	Div. 8 Sec. 23	ALL
eqqlps	5854	17.19	Div. 8 Sec. 56	5E9(2) and later
eqra	5821	19.10	Div. 8 Sec. 35	ALL
eqrap	5822	20.10, 20.22	Div. 8 Sec. 36	ALL
eqrau	5705	18.1, 18.14	Div. 8 Sec. 7	ALL
eqrclk	5723-1/2	8.11, 20.11	Div. 8 Sec. 16	ALL
eqrislu	5732	22.9	Div. 8 Sec. 19	ALL
eqsasp	5859	20.26	Div. 8 Sec. 61	5E9(2) and later
eqsite	5722	18.8	Div. 8 Sec. 15	ALL
eqste	5857	20.12	Div. 8 Sec. 59	5E9(2) and later
eqtbcu	5811	18.12	Div. 8 Sec. 31	ALL
eqtms	5866	17.11	Div. 8 Sec. 69	5E15 and later
eqtmslink	5851	17.12	Div. 8 Sec. 53	eqtrcuph, 5814-1/2/3, 17.23, 8, 38, 5E12 and

				later
eqtrcupth	5814-1/2/3	17.23	Div. 8 Sec. 38	ALL
eqtsi	5850	18.17	Div. 8 Sec. 52	5E9(2) and later
eqtu eqtup	5720	19.2	Div. 8 Sec. 13	ALL
eqvt	5858	20.24	Div. 8 Sec. 60	5E9(2) and later
eqxcdu	5832	18.19	Div. 8 Sec. 84	ALL
esco	5541	9.41	Div. 3 Sec. 5AO	5E7 and later
esn	5540	9.40	Div. 3 Sec. 5AN	5E7 and later
espinfo	5472	27.65	Div. 3 Sec. 4BX	5E7 and later
ethip	5995	33.4	Div. 5 Sec. 3S	5E16(1) and later
excpt	5461-1	26.32	Div. 3 Sec. 4BI	5E6 and later
exmap	5440	26.4	Div. 3 Sec. 4AO	5E4(2) and later
fac2eec	5873	19.27	Div. 8 Sec. 81	5E14 and later
fixrt	5301-1	10.1	Div. 3 Sec. 3G	ALL
fixrtraf	5058	8.68	Div. 7 Sec. 1H	5E13 and later
flexacd	6434	26.8	Div. 3 Sec. 4EG	5E13 and later
flexani	5323	8.23	Div. 3 Sec. 3AJ	5E6 and later
fosys	5713-2	8.31	Div. 3 Sec. 5AS	5E5 and later
ftparm	6424	8.41	Div. 3 Sec. 4DY	5E10 and later
ftkey	5613	4.3	Div. 4 Sec. 14A	ALL
ftsc	5485	27.78	Div. 3 Sec. 4CM	5E8 and later
ftsnanp	5486	27.77	Div. 3 Sec. 4CN	5E8 and later
ftsnxx	5487	27.75	Div. 3 Sec. 4CO	5E8 and later
ftsrn	5488	27.76	Div. 3 Sec. 4CP	5E8 and later
hgrpas	5115	4.14	Div. 3 Sec. 1O	ALL
hifd	5628	12.53	Div. 4 Sec. 28A	5E6 and later
ibmrngs	5471	21.58	Div. 3 Sec. 4BW	5E6(2) and later
iccvdb	5478	27.60	Div. 3 Sec. 4CD	5E9(1) and later
icf	5305	10.3	Div. 3 Sec. 3R	ALL
icipf	5903	3.43	Div. 5 Sec. 1D	5E4(2) and later
icmfd	5960-1	12.45	Div. 6 Sec. 3A	5E4(2) and later
icmfp	5960-2	4.24	Div. 6 Sec. 3B	5E4(2) and later
icmlpa	5960-3	1.45	Div. 6 Sec. 3C	5E4(2) and later
iddd	5307	9.6	Div. 3 Sec. 3T	ALL
idfd	5601	12.17	Div. 4 Sec. 2A	ALL
idpdca	5601-1/2	9.13	Div. 4 Sec. 2B	ALL
idpgp	5601-4	9.10	Div. 4 Sec. 2D	ALL
idpicm	5601-5	9.12	Div. 4 Sec. 2E	ALL
idplpa	5601-6	1.26	Div. 4 Sec. 2F	ALL
idpmpa	5601-7	3.26	Div. 4 Sec. 2G	ALL
idprdca	5601-11	9.27	Div. 4 Sec. 2K	5E5 and later
idpricm	5601-12	9.26	Div. 4 Sec. 2L	5E5 and later
idptpa	5601-8	5.26	Div. 4 Sec. 2H	ALL
iminfo	5510	18.1, 11.1	Div. 3 Sec. 5J	ALL
imtrk	5210	5.46	Div. 3 Sec. 2L	5E5 and later
indit	5309	9.5	Div. 3 Sec. 3V	ALL
inldest	5448	21.27	Div. 3 Sec. 4AW	5E5 and later
infltadp	5452	27.52	Div. 3 Sec. 4BA	5E5 and later
infltap	5451	27.51	Div. 3 Sec. 4AZ	5E5 and later
infltird	5453	27.50	Div. 3 Sec. 4BB	5E5 and later
interpsu	5993	22.30	Div. 5 Sec. 3Y	5E17(1) FR 1 and later
intgi	5894	5.84	Div. 5 Sec. 3AR	ALL
inwatsnpa	5586	8.22	Div. 3 Sec. 5CA	5E15 and later
inwnpa	6404	27.72	Div. 3 Sec. 4DD	5E10 and later
ipadrmg	5895	22.33	Div. 5 Sec. 3AS	ALL
ipatmrtg	5896	22.34	Div. 5 Sec. 3AT	ALL
ipfdca	5969	12.7	Div. 6 Sec. 12A	5E4(2) and later
ipintf	5988	33.2	Div. 5 Sec. 3O	5E14 and later
ipping	5884	33.17	Div. 5 Sec. 3AF	ALL
ipproc	5987	33.1	Div. 5 Sec. 3N	5E14 and later
iprout	5989	33.8	Div. 5 Sec. 3P	5E14 and later
ipshopt	5898	22.36	Div. 5 Sec. 3AV	ALL
iscn	5844	na	Div. 8 Sec. 46	5E4(2) and later
isdnopt	5941	8.1	Div. 5 Sec. 5B	ALL
islulb	5952	22.21	Div. 5 Sec. 5M	5E10 and later
islulc	5942	22.7	Div. 5 Sec. 5C	ALL
			Div. 3 Sec. 1D	
langtbl	5483-1	8.66	Div. 3 Sec. 4CI	5E9(1) and later
lassck	5946	8.19	Div. 5 Sec. 5G	5E5 and later

lassfa	5973	8.18	Div. 6 Sec. 16A	5E5 and later
lassop	5945	8.21	Div. 5 Sec. 5F	5E5 and later
lasspfx	5947	8.20	Div. 5 Sec. 5H	5E5 and later
lcc	5306	4.1	Div. 3 Sec. 3S	ALL
ldit	5300-3 AB/5	9.3	Div. 3 Sec. 3C	ALL
ldpctbl	5562	8.52	Div. 3 Sec. 5BF	5E12 and later
ldpindex	5576	8.59	Div. 3 Sec. 5BQ	5E13 and later
ldptnsc	5568	8.53	Div. 3 Sec. 5BI	5E12 and later
lectext	5444	27.20	Div. 3 Sec. 4AS	5E4(2) and later
lidblng	5449	27.32, 27.33	Div. 3 Sec. 4AX	5E5 and later
lidfd	5966	12.44	Div. 6 Sec. 9A	5E4(2) and later
linefa	5112	1.8, 1.11, 1.12	Div. 3 Sec. 1L	ALL
line	5109-1/2/3	1.6	Div. 3 Sec. 1I	ALL
linescrn	5416	26.2	Div. 3 Sec. 4Q	5E4(2) and later
lnarsgd	5214	10.27	Div. 3 Sec. 2P	5E6 and later
lnblkcod	5649	4.40	Div. 4 Sec. 31H	5E15 and later
lnkset	6003	16.5	Div. 9 Sec. 10C	5E11 and later
lnnodem	5542	10.28	Div. 3 Sec. 5AP	5E7 and later
lnrout	5322	10.22	Div. 3 Sec. 3AI	5E6 and later
locscrn	5545	8.26	Div. 3 Sec. 5AU	5E8 and later
lrindex	5328	9.36	Div. 3 Sec. 3AM	5E11 and later
lsacfd	5970-1	12.47	Div. 6 Sec. 13A	5E5 and later
lsacipa	5970-2	1.47	Div. 6 Sec. 13B	5E5 and later
lsacmpa	5970-3	3.47 (5E5 and 5E6) 1.47 (5E7 and later)	Div. 6 Sec. 13C	5E5 and later
lsarfd	5971-1	12.48	Div. 6 Sec. 14A	5E5 and later
lsarlpa	5971-2	1.48	Div. 6 Sec. 14B	5E5 and later
lsarmpa	5971-3	3.48 (5E5 and 5E6) 1.48 (5E7 and later)	Div. 6 Sec. 14C	5E5 and later
lscafd	5975	12.55	Div. 6 Sec. 18A	5E6 and later
lscarfd	5979	12.54	Div. 6 Sec. 22A	5E6 and later
lscffd	5976	12.56	Div. 6 Sec. 19A	5E6 and later
lscotfd	5972	12.49	Div. 6 Sec. 15A	5E5 and later
lscrfd	5977	12.57	Div. 6 Sec. 20A	5E6 and later
lsdafd	5978	12.58	Div. 6 Sec. 21A	5E6 and later
lssle	5981	4.48	Div. 6 Sec. 24A	5E6 and later
ltgcadn	5222	5.76	Div. 3 Sec. 2Z	5E15 and later
ltgpci	5221	5.75	Div. 3 Sec. 2Y	5E15 and later
mbg	5633	4.12	Div. 4 Sec. 22A	5E9(2) and later
mcrtdix	5304	10.4	Div. 3 Sec. 3Q	ALL
mdfta	5502	14.6	Div. 3 Sec. 5B	ALL
mdlInk	6009	16.17	Div. 9 Sec. 10J	5E11 and later
mdrcnt	5624-3	24.2	Div. 4 Sec. 25C	ALL
mdrfd	5624-1	12.33	Div. 4 Sec. 25A	ALL
mdrgp	5624-2	24.33	Div. 4 Sec. 25B	ALL
mdrlpa	5624-4	1.33	Div. 4 Sec. 25D	ALL
mdrmpa	5624-5	1.33	Div. 4 Sec. 25E	ALL
mdrtpa	5624-6	5.33	Div. 4 Sec. 25F	ALL
measdsig	5499	27.71	Div. 3 Sec. 4CY	5E9(2) and later
measlu	5539	13.6	Div. 3 Sec. 5AM	5E7 and later
measpdf	5615	13.3	Div. 4 Sec. 16A	ALL
meassum	5563	13.9	Div. 3 Sec. 5BG	5E11 and later
mgpcomp	6921	50.2	Div. 5 Sec. 4B	5E16 and later
mgpgrowth	6920	50.1	Div. 5 Sec. 4A	5E16 and later
mgpline	6922	50.3	Div. 5 Sec. 4C	5E16 and later
mgptrunk	6923	50.4	Div. 5 Sec. 4D	5E16 and later
mislink	5637	23.19	Div. 4 Sec. 32B	5E9(1) - 5E10
mkbctt	5119	3.9	Div. 3 Sec. 1AC	5E6 and later
mlhgfd	5604	12.18	Div. 4 Sec. 5A	ALL
mlhg	5110	3.5	Div. 3 Sec. 1J	ALL
mlhlnfa	5113	1.8, 1.11, 1.12	Div. 3 Sec. 1M	ALL
mlhln	5111	1.6	Div. 3 Sec. 1K	ALL
mreg	5302-5	10.14	Div. 3 Sec. 3M	ALL
msccnt	5962-6	24.10	Div. 6 Sec. 5F	5E4(2) and later
mscnt	5962-5	24.11	Div. 6 Sec. 5E	5E4(2) and later
msfd	5962-1	12.37	Div. 6 Sec. 5A	5E4(2) and later
msgp	5962-2	4.37	Div. 6 Sec. 5B	5E4(2) and later
mslpa	5962-3	1.37	Div. 6 Sec. 5C	5E4(2) and later

mmpa	5962-4	3.37 (5E4(2) to 5E6) 1.37 (5E7 and later)	Div. 6 Sec. 5D	5E4(2) and later
msusp	5530	8.13	Div. 3 Sec. 5AD	ALL
mtbcomp	5557	na	Div. 3 Sec. 5BC	5E10 and later
mtndr	5550	1.9	Div. 3 Sec. 6A	5E4(2) and later
multitn	5114	3.3	Div. 3 Sec. 1N	ALL
muphkey	5612	3.6	Div. 4 Sec. 13A	ALL
mwfd	5602-1/2	12.19	Div. 4 Sec. 3A	ALL
mwlp	5602-3	1.27	Div. 4 Sec. 3B	ALL
mwmpa	5602-4	3.27	Div. 4 Sec. 3C	ALL
mwtpa	5602-5	5.27	Div. 4 Sec. 3D	ALL
nailup	5207	7.11	Div. 3 Sec. 2F	ALL
NA	5011	15.1 RC CNIOFF	Div. 9 Sec. 2A	NA
NA	5012-1/2	15.2 RC LCDT	Div. 9 Sec. 2B	NA
NA	5013	15.3 RC PHYS	Div. 9 Sec. 2C	NA
NA	5014	15.4 RC CET	Div. 9 Sec. 2D	NA
NA	5015	15.5 RC UVDT	Div. 9 Sec. 2E	NA
NA	5016	15.6 RC EXCP	Div. 9 Sec. 2F	NA
NA	5017	15.7 RC HFDT	Div. 9 Sec. 2G	NA
NA	5018	15.8 RC SCHD	Div. 9 Sec. 2H	NA
NA	5019	15.9 RC CLUST	Div. 9 Sec. 2I	NA
NA	5020	15.10 RC SST	Div. 9 Sec. 2J	NA
NA	5021	15.11 RC CNIGTT	Div. 9 Sec. 2K	NA
NA	5022	15.12 RC NLNIDS	Div. 9 Sec. 2L	NA
NA	5023	15.13 RC SMNID	Div. 9 Sec. 2M	NA
NA	5024	15.14 RCNIOFTIM	Div. 9 Sec. 2N	NA
NA	5025	15.15 RCNILSTIM	Div. 9 Sec. 2O	NA
NA	5026	15.16 RCNILSTHR	Div. 9 Sec. 2P	NA
NA	5027	15.17 RCNILKPRM	Div. 9 Sec. 2Q	NA
NA	5028	15.18 RCNIMEM	Div. 9 Sec. 2R	NA
N/A	5840	NA	Div. 8 Sec. 42	ALL
N/A	5841	N/A	Div. 8 Sec. 43	ALL
N/A	5842	NA	Div. 8 Sec. 44	ALL
NA	5843	NA	Div. 8 Sec. 45	ALL
NA	NA	8.15 RC CPARM	Div. 9 Sec. 3A	NA
N/A	N/A	N/A	Div. 8 Sec. 1	N/A
NA	NA	NA	Div. 9 Sec. 1A	5E9(1) and later
ncikref	5725	17.16	Div. 8 Sec. 94	ALL
nid	6019	16.8	Div. 9 Sec. 10S	5E14 and later
noc	5501	8.2	Div. 3 Sec. 5A	ALL
nonusa	5477-1	26.6	Div. 3 Sec. 4CC	5E8 and later
npamap	5414	26.1	Div. 3 Sec. 4O	5E4(2) and later
npasplit	5546	8.25	Div. 3 Sec. 5AV	5E8 and later
npool	5177	1.7	Div. 3 Sec. 1AF	5E14 and later
nstrig	5324	9.35	Div. 3 Sec. 3AK	5E8 and later
nttu	5590	14.24	Div. 3 Sec. 5BW	5E16(2) and later
nxxzn	5427	26.12	Div. 3 Sec. 4AB	5E4(2) and later
obts	5408	21.26	Div. 3 Sec. 4I	ALL
ocntwk	5420	26.21	Div. 3 Sec. 4U	5E4(2) and later
octa	5406	21.25	Div. 3 Sec. 4G	ALL
odaop	5524	na	Div. 3 Sec. 5W	ALL
odbctur	5915	23.19	Div. 5 Sec. 1N	5E12 and later
odbres	5906	23.14	Div. 5 Sec. 1G	5E5 and later
odbts	5905	23.13	Div. 5 Sec. 1F	5E5 and later
ofcopt	5509	8.1, 8.15	Div. 3 Sec. 5I	ALL
oiupm	5767	20.32	Div. 3 Sec. 5CC	ALL
olnpu	6411	27.34, 27.35	Div. 3 Sec. 4DJ	5E11 and later
onpa	5312	8.8	Div. 3 Sec. 3Y	ALL
oparm	5400-1/2	21.1	Div. 3 Sec. 4A	ALL
opcto	5407	21.23	Div. 3 Sec. 4H	ALL
opdbparm	5434	27.30	Div. 3 Sec. 4AI	5E4(2) and later
opeisdb	5462-2	21.55	Div. 3 Sec. 4BN	5E6 and later opextdb
opemer	5031	10.42	Div. 3 Sec. 3AO	5E16(2) and later
oprkt	5417	26.26	Div. 3 Sec. 4R	5E4(2) and later
orar	5405	21.24	Div. 3 Sec. 4F	ALL
osdc	5439	27.4	Div. 3 Sec. 4AN	5E4(2) and later
ospsct	5404	21.22	Div. 3 Sec. 4E	ALL
ospsdsl	5411	21.30	Div. 3 Sec. 4L	ALL
ospsoa	5403	21.4	Div. 3 Sec. 4D	ALL

ospsop	5401	21.32	Div. 3 Sec. 4B	ALL
ospsopt	5424	8.9	Div. 3 Sec. 4Y	5E4(2) and later
ospsminf	5476	na	Div. 3 Sec. 4CB	5E9(2) and later
otrvid	5410	21.6	Div. 3 Sec. 4K	ALL
pbgrp	5931	23.16	Div. 5 Sec. 3L	5E8 and later
pbxid	5213	5.1	Div. 3 Sec. 2O	ALL
pcc	5318	9.18	Div. 3 Sec. 3AE	5E5 and later
pcfopt	5996	34.1	Div. 5 Sec. 3T	5E16(1) and later
pcfpdsn	5996-2	34.2	Div. 5 Sec. 3U	5E16(1) and later
pcfsq	6924	34.4	Div. 5 Sec. 3AP	ALL
pc	6006	16.10	Div. 9 Sec. 10F	5E11 and later
pcrgp	5883	33.16	Div. 5 Sec. 3AE	ALL
pdit	5300-2	9.2	Div. 3 Sec. 3B	ALL
pdsncnfg	5997	34.3	Div. 5 Sec. 3V	5E16(1) and later
pfafd	5609-1	12.20	Div. 4 Sec. 10A	ALL
pfagpa	5609-5	7.1	Div. 4 Sec. 10E	ALL
pfainwt	5609-4	7.4	Div. 4 Sec. 10D	ALL
pfalpa	5609-6	1.28	Div. 4 Sec. 10F	ALL
pfampa	5609-7	3.28	Div. 4 Sec. 10G	ALL
pfasfg	5609-3	7.3	Div. 4 Sec. 10C	ALL
pfatg	5609-2	7.2	Div. 4 Sec. 10B	ALL
pfatpa	5609-8	5.28	Div. 4 Sec. 10H	ALL
pgtc	5503	14.7	Div. 3 Sec. 5C	ALL
phgrp	5892	22.32	Div. 5 Sec. 3AO	ALL
phrase	5534	8.63	Div. 3 Sec. 5AH	ALL
phrlang	5483-2	8.67	Div. 3 Sec. 4CJ	5E9(1) and later
pidef	5117	4.39	Div. 3 Sec. 1Q	5E5 and later
pktgrp	5219	5.71	Div. 5 Sec. 3Z	5E16(2) and later
pmthresh	5948	22.15	Div. 5 Sec. 5I	5E6 and later
pndp	5608-10/11	9.21	Div. 4 Sec. 9J	ALL
pinfo	5608-12	9.20	Div. 4 Sec. 9K	ALL
pnoffon	5608-13	9.22	Div. 4 Sec. 9L	ALL
pnonoff	5608-14	9.23	Div. 4 Sec. 9M	ALL
ppcoi	5618-6	10.33	Div. 4 Sec. 19F	ALL
ppfd	5618-1	12.31	Div. 4 Sec. 19A	ALL
pplpa	5618-3	1.31	Div. 4 Sec. 19C	ALL
ppmpa	5618-4	1.31	Div. 4 Sec. 19D	ALL
pppoly	5618-7	10.34	Div. 4 Sec. 19G	ALL
ppscrn	5618-2	10.31	Div. 4 Sec. 19B	ALL
pptpa	5618-5	5.31	Div. 4 Sec. 19E	ALL
prigrp	5211	5.2	Div. 3 Sec. 2M	5E9(1) and later
pronxx	5413	26.13	Div. 3 Sec. 4N	5E4(2) and later
propbid	5325	10.37	Div. 3 Sec. 3AL	5E8 and later
pscomp		na	Div. 5 Sec. 3R	5E16 and later
pscug	5924/5924A	23.10	Div. 5 Sec. 3E	ALL
psdncri	5921	10.35	Div. 5 Sec. 3B	ALL
psism	5920	22.13	Div. 5 Sec. 3A	ALL
psmtn	5925/5925A	23.12	Div. 5 Sec. 3F	ALL
pspvc	5923	23.11	Div. 5 Sec. 3D	ALL
psrate	5922	8.16	Div. 5 Sec. 3C	ALL
psugp	5949	22.16	Div. 5 Sec. 3J	ALL
psugw	5991	22.26	Div. 5 Sec. 3Q	ALL
psulnk	5057	22.22	Div. 7 Sec. 2A	5E10 and later
psunwk	5992	22.29	Div. 5 Sec. 3X	5E17(1) FR 1 and later
psupipe	5990	22.25	Div. 5 Sec. 5O	5E16(2) FR 1 and later
psupm	5998	22.31	Div. 5 Sec. 3AA	ALL
pugd	5605-4		Div. 4 Sec. 6E	ALL
pulpa	5605-3	1.23	Div. 4 Sec. 6C	ALL
pumpa	5605-4	1.23	Div. 4 Sec. 6D	ALL
puofd	5605-1	12.13	Div. 4 Sec. 6A	ALL
putfd	5605-2	12.14	Div. 4 Sec. 6B	ALL
qgcon	5829	17.27	Div. 8 Sec. 91	ALL
qphpipe	5828	17.24	Div. 8 Sec. 70	5E14 and later
qtuv	na	na	Div. 8 Sec. 92	ALL
qufd	5617-1/2	12.40	Div. 4 Sec. 18A	ALL
qugpa	5617-3/4	3.40, 7.12	Div. 4 Sec. 18B	ALL
raf	5271-4		Div. 3 Sec. 2Q	5E64(2) and later
ralm	5516	8.11, 8.12	Div. 3 Sec. 5P	ALL
rar	5301	10.10	Div. 3 Sec. 3F	ALL

rasrti	5538	10.19	Div. 3 Sec. 5AL	5E5 and later
rate	5302-3	10.15	Div. 3 Sec. 3K	ALL
rbvrti	5950	4.63	Div. 5 Sec. 5K	5E8 and later
rcikref	5519	20.11	Div. 3 Sec. 5S	ALL
rdit	5300-7/8	9.9	Div. 3 Sec. 3H	5E8 and later
rdtaport	5911A/B	22.17	Div. 5 Sec. 1L	5E7 and later
rdtatn	5910A/B	22.18	Div. 5 Sec. 1M	5E7 and later
resxdl	5409	21.5	Div. 3 Sec. 4J	ALL
retinfo	5845	na	Div. 8 Sec. 47	5E3 and later
ribmsc	5944	26.15	Div. 5 Sec. 5E	5E4(2) and later
risite	5940	22.11	Div. 5 Sec. 5A	ALL
rndfd	5983	12.59	Div. 6 Sec. 26A	5E8 and later
rorlst	5570	8.55	Div. 3 Sec. 5BK	5E12 and later
roll	5512	14.2	Div. 3 Sec. 5L	ALL
rpma	5957	22.24	Div. 5 Sec. 5N	5E12
rsmcar	5421	26.22	Div. 3 Sec. 4V	5E4(2) and later
rsmink	5517	18.5, 18.9	Div. 3 Sec. 5Q	ALL
rterm	5174-1/2/3/4	18.15	Div. 3 Sec. 1S	5E8 and later
rtidx	5303	10.2	Div. 3 Sec. 3P	ALL
rtlist	5574	10.40	Div. 3 Sec. 5BO	5E13 and later
rxschd	5515	8.3	Div. 3 Sec. 5O	ALL
saalhs1	6016	16.26	Div. 9 Sec. 10V	5E16 and later
saalprm	6017	16.27	Div. 9 Sec. 10W	5E16(2) FR1 and later
sacscr	5552	9.8	Div. 3 Sec. 6C	ALL
scfam	5536	10.18	Div. 3 Sec. 5AJ	5E4(2) and later
scfd	5627-1	12.51	Div. 4 Sec. 27A	5E6 and later
sclist	5627-5	4.2	Div. 4 Sec. 27E	5E6 and later
sclpa	5627-2	1.51	Div. 4 Sec. 27B	5E6 and later
scmpa	5627-3	3.51 (5E6 Only) 1.51 (5E7 and later)	Div. 4 Sec. 27C	5E6 and later
scridxpa	5543	8.24	Div. 3 Sec. 5AQ	5E6 and later
scrncode	5415	26.3	Div. 3 Sec. 4P	5E4(2) and later
scrnrng	5212	7.5	Div. 3 Sec. 2N	5E6 and later
scroar	5481	26.5	Div. 3 Sec. 4CG	5E7 and later
sctpa	5627-4	5.51	Div. 4 Sec. 27D	5E6 and later
sctpassc	5889	33.22	Div. 5 Sec. 3AK	ALL
sctpfepd	5888	33.21	Div. 5 Sec. 3AJ	ALL
sctpnepd	5886	33.19	Div. 5 Sec. 3AH	ALL
sctpparm	5885	33.18	Div. 5 Sec. 3AG	ALL
sequest	5429	26.41	Div. 3 Sec. 4AD	5E4(2) and later
servdata	5466	21.54	Div. 3 Sec. 4BS	5E6 and later
servdest	5467	21.53	Div. 3 Sec. 4BT	5E6 and later
setid	5461-2	26.30	Div. 3 Sec. 4BJ	5E6 and later
sfsys	5713-1	8.22	Div. 3 Sec. 5AR	5E5 and later
shtn	5902	23.20	Div. 5 Sec. 1C	5E4(2) and later
sipgsm	5880	5.80	Div. 5 Sec. 3AB	ALL
sippstn	5893	5.83	Div. 5 Sec. 3AQ	ALL
siptparm	5882	5.82	Div. 5 Sec. 3AD	ALL
siptsms	5881	5.81	Div. 5 Sec. 3AC	ALL
slcalm	5105	18.14	Div. 3 Sec. 1E	5E5 and later
slccu	5107	18.11	Div. 3 Sec. 1G	ALL
slcrt	5106	18.10	Div. 3 Sec. 1F	ALL
sljob	5555	14.16	Div. 3 Sec. 5BA	5E10 and later
sljen	5548	14.13	Div. 3 Sec. 5AX	5E10 and later
slsess	5556	14.17	Div. 3 Sec. 5BB	5E10 and later
slthrs	5554-1/2	14.15	Div. 3 Sec. 5AZ	5E10 and later
sltset	5549	14.14	Div. 3 Sec. 5AY	5E10 and later
smlidt	5315	9.25	Div. 3 Sec. 3AB	5E5 and later
spabs	5319	10.20	Div. 3 Sec. 3AF	5E5 and later
spaenxx	5320	10.21	Div. 3 Sec. 3AG	5E5 and later
specl	5461-3	26.31	Div. 3 Sec. 4BK	5E6 and later
srdr	5651	1.65	Div. 4 Sec. 31J	5E16 and later
sreincr	5547	8.40	Div. 3 Sec. 5AW	5E9(2) and later
srfd	5650	12.65	Div. 4 Sec. 31I	5E16 and later
srvcdesc	5985	8.32	Div. 6 Sec. 27A	5E9(1) and later
srvcdesig	5474	27.70	Div. 3 Sec. 4BZ	5E7 and later
sspann	5535	10.17	Div. 3 Sec. 5AI	5E4(2) and later
stinfo	5402	21.2	Div. 3 Sec. 4C	ALL
stparm	5638	6.1	Div. 4 Sec. 32C	5E11 and Later

sxdisp	5641	6.5	Div. 4 Sec. 32F	5E11 and later
tccattr	5473	27.56	Div. 3 Sec. 4BY	5E7 and later
tcid	5454	27.55	Div. 3 Sec. 4BC	5E5 and later
tcitg	5422	26.23	Div. 3 Sec. 4W	5E4(2) and later
tcsc	5438	27.3	Div. 3 Sec. 4AM	5E4(2) and later
tcsnpa	5437	27.2	Div. 3 Sec. 4AL	5E4(2) and later
tcstext	5436	27.1	Div. 3 Sec. 4AK	5E4(2) and later
tdmaopt	5572	8.56	Div. 3 Sec. 5BM	5E12
tdr	5571	10.39	Div. 3 Sec. 5BL	5E12 and later
telmon	5932-1/2/3/4	23.24	Div. 5 Sec. 3M	5E12 and later
tgattd	5611	4.4	Div. 4 Sec. 12A	ALL
tgalec	5443	27.21	Div. 3 Sec. 4AR	5E4(2) and later
tgntnsc	5569	8.54	Div. 3 Sec. 5BJ	5E12 and later
tgtrfd	5607-1/2	12.21	Div. 4 Sec. 8A	ALL
tgtrpa	5607-3	1.29	Div. 4 Sec. 8B	ALL
tgtrmpa	5607-4	1.29	Div. 4 Sec. 8C	ALL
tgtrtpa	5607-5	5.29	Div. 4 Sec. 8D	ALL
timing	5520	8.5	Div. 3 Sec. 5T	ALL
tkblkcd	5275	5.65	Div. 3 Sec. 2X	5E15 and later
tkedslid	5209	5.34	Div. 3 Sec. 2K	5E4(2) and later
tkgrp	5202	5.1	Div. 3 Sec. 2A	ALL
tkgrpfa	5206	5.4	Div. 3 Sec. 2E	ALL
tlws	5511	14.3	Div. 3 Sec. 5K	ALL
tmzn	5426	26.14	Div. 3 Sec. 4AA	5E4(2) and later
tniclist	5928	5.15	Div. 5 Sec. 3I	5E8 and later
tnityp	5504	8.6	Div. 3 Sec. 5D	ALL
todcl	5610-2	4.5	Div. 4 Sec. 11B	ALL
todfd	5610-1	12.22	Div. 4 Sec. 11A	ALL
todlpa	5610-3	1.30	Div. 4 Sec. 11C	ALL
todmpa	5610-4	1.30	Div. 4 Sec. 11D	ALL
todtpa	5610-5	5.30	Div. 4 Sec. 11E	ALL
tpcc	5464	27.6	Div. 3 Sec. 4BQ	5E6 - 5E9(1)
tpnmpa	5465	27.5	Div. 3 Sec. 4BR	5E6 and later
treat	5461-4	26.33	Div. 3 Sec. 4BL	5E6 and later
trfoparm	5593	8.76	Div. 3 Sec. 5CI	ALL
trfsep	5308	8.4	Div. 3 Sec. 3U	ALL
trkl	5203	5.3	Div. 3 Sec. 2B	ALL
trunkfa	5205	5.11	Div. 3 Sec. 2D	ALL
trunk	5204	5.5	Div. 3 Sec. 2C	ALL
tsdhd	5747	20.18	Div. 8 Sec. 93	ALL
udppath	5891	33.24	Div. 5 Sec. 3AN	ALL
udpptset	5879	33.25	Div. 5 Sec. 3BA	ALL
uttkgrp	5215	5.16	Div. 3 Sec. 2R	5E9(2) and later
valoffc	5423	26.24	Div. 3 Sec. 4X	5E4(2) and later
vdchn	5918	22.32	Div. 5 Sec. 3W	5E16(2) and later
x75cug	5930	5.14	Div. 5 Sec. 3K	5E8 and later
x75pvc	5926	5.13	Div. 5 Sec. 3G	5E5 and later
xat	5909-1/2/3	23.40	Div. 5 Sec. 1J	5E6 and later

SEC. 3: Recent Change View Number Versus ODA Form Name

1. GENERAL

This section contains the listing of Recent Change Views and corresponding ODA form names. Division 0, Section 2 has a similar table, however, it is sorted alphabetically by ODA form name. This section is sorted numerically by Recent Change View number. This cross reference provides the RC Views and their corresponding ODA/TG-5 information (i.e., ODA Form Name, Record Number, and TG-5 Division and Section). Also, the Software Release column indicates when the RC View was released.

1.1 Software Release

The Software Release date after the form name indicates that the recent change view only corresponds to that form for those Software Releases.

2. RECENT CHANGE VIEW CROSS-REFERENCE TABLE

RC View Number	ODA Form Name	Record Number	Division / Section
na	retinfo	5845	Div. 8 Sec. 47
na	qtuv	na	Div. 8 Sec. 92
na	pscomp		Div. 5 Sec. 3R
na	ospssminf	5476	Div. 3 Sec. 4CB
na	odaop	5524	Div. 3 Sec. 5W
NA	NA	5843	Div. 8 Sec. 45
NA	NA	NA	Div. 9 Sec. 1A
NA	N/A	5842	Div. 8 Sec. 44
na	mtbcomp	5557	Div. 3 Sec. 5BC
na	iscn	5844	Div. 8 Sec. 46
na	eqdsx	5721	Div. 8 Sec. 14
na	ecdopt	5706	Div. 8 Sec. 8
na	clli	5521	Div. 3 Sec. 5U
NA	N/A	5840	Div. 8 Sec. 42
N/A	N/A	N/A	Div. 8 Sec. 1
N/A	N/A	5841	Div. 8 Sec. 43
n/a	eqcm3	5867	Div. 8 Sec. 71
	raf	5271-4	Div. 3 Sec. 2Q
	pugd	5605-4	Div. 4 Sec. 6E
	eqci	5848	Div. 8 Sec. 50
			Div. 3 Sec. 1D
1.6	mlhln	5111	Div. 3 Sec. 1K
1.6	line	5109-1/2/3	Div. 3 Sec. 1I
1.7	npool	5177	Div. 3 Sec. 1AF
1.8, 1.11, 1.12	mlhlnfa	5113	Div. 3 Sec. 1M
1.8, 1.11, 1.12	linefa	5112	Div. 3 Sec. 1L
1.9	mtndr	5550	Div. 3 Sec. 6A
1.20	acbmpa	5616-3	Div. 4 Sec. 17C
1.20	acblpa	5616-2	Div. 4 Sec. 17B
1.21	arsmpa	5608-4	Div. 4 Sec. 9D
1.21	arslpa	5608-3	Div. 4 Sec. 9C
1.22	cfwmpa	5614-4	Div. 4 Sec. 15C
1.22	cfwlpa	5614-3	Div. 4 Sec. 15B
1.23	pumpa	5605-4	Div. 4 Sec. 6D
1.23	pulpa	5605-3	Div. 4 Sec. 6C
1.24	cwtlpa	5603-2	Div. 4 Sec. 4B
1.25	drlpa	5606-2	Div. 4 Sec. 7B
1.26	idplpa	5601-6	Div. 4 Sec. 2F
1.27	mwlp	5602-3	Div. 4 Sec. 3B
1.28	pfalpa	5609-6	Div. 4 Sec. 10F
1.29	tgsrcmpa	5607-4	Div. 4 Sec. 8C
1.29	tgsrcplpa	5607-3	Div. 4 Sec. 8B
1.30	todmpa	5610-4	Div. 4 Sec. 11D
1.30	todlpa	5610-3	Div. 4 Sec. 11C

1.31	ppmpa	5618-4	Div. 4 Sec. 19D
1.31	pplpa	5618-3	Div. 4 Sec. 19C
1.33	mdrmpa	5624-5	Div. 4 Sec. 25E
1.33	mdrlpa	5624-4	Div. 4 Sec. 25D
1.37	mslpa	5962-3	Div. 6 Sec. 5C
1.38	edslpa	5961-3	Div. 6 Sec. 4C
1.41	athmpa	5619-6	Div. 4 Sec. 20F
1.41	athlpa	5619-5	Div. 4 Sec. 20E
1.42	acctmpa	5623-5	Div. 4 Sec. 24E
1.42	acctlpa	5623-4	Div. 4 Sec. 24D
1.45	icmlpa	5960-3	Div. 6 Sec. 3C
1.46	acvtlpa	5967-3	Div. 6 Sec. 10C
1.47	lsaclpa	5970-2	Div. 6 Sec. 13B
1.48	lsarlpa	5971-2	Div. 6 Sec. 14B
1.49	acsrlpa	5959-3	Div. 6 Sec. 2C
1.51	sclpa	5627-2	Div. 4 Sec. 27B
1.60	carscr	5551	Div. 3 Sec. 6B
1.61	asimpa	5630-3	Div. 4 Sec. 30C
1.61	asilpa	5630-2	Div. 4 Sec. 30B
1.62	bclidmpa	5629-4	Div. 4 Sec. 29D
1.62	bclidlpa	5629-3	Div. 4 Sec. 29C
1.64	asmpa	5632-3	Div. 4 Sec. 31C
1.64	asplpa	5632-2	Div. 4 Sec. 31B
1.65	srdn	5651	Div. 4 Sec. 31J
3.3	multitn	5114	Div. 3 Sec. 1N
3.5	mlhg	5110	Div. 3 Sec. 1J
3.6	muphkey	5612	Div. 4 Sec. 13A
3.9	mkbctt	5119	Div. 3 Sec. 1AC
3.24	cwtmpa	5603-3	Div. 4 Sec. 4C
3.25	drmpa	5606-3	Div. 4 Sec. 7C
3.26	idpmpa	5601-7	Div. 4 Sec. 2G
3.27	mwwmpa	5602-4	Div. 4 Sec. 3C
3.28	pfampa	5609-7	Div. 4 Sec. 10G
3.37 (5E4(2) to 5E6) 1.37 (5E7 and later)	msmpa	5962-4	Div. 6 Sec. 5D
3.38 (5E4(2) to 5E6) 1.38 (5E7 and later)	edsmpa	5961-4	Div. 6 Sec. 4D
3.40, 7.12	qugpa	5617-3/4	Div. 4 Sec. 18B
3.43	icipf	5903	Div. 5 Sec. 1D
3.46 (5E4(2) to 5E6) 1.46 (5E7 and later)	acvtmpa	5967-4	Div. 6 Sec. 10D
3.47 (5E5 and 5E6) 1.47 (5E7 and later)	lsacmpa	5970-3	Div. 6 Sec. 13C
3.48 (5E5 and 5E6) 1.48 (5E7 and later)	lsarmpa	5971-3	Div. 6 Sec. 14C
3.51 (5E6 Only) 1.51 (5E7 and later)	scmpa	5627-3	Div. 4 Sec. 27C
4.1	lcc	5306	Div. 3 Sec. 3S
4.2	sclist	5627-5	Div. 4 Sec. 27E
4.3	frkey	5613	Div. 4 Sec. 14A
4.4	tgattd	5611	Div. 4 Sec. 12A
4.5	todcl	5610-2	Div. 4 Sec. 11B
4.9	emrofc	5116	Div. 3 Sec. 1P
4.9	emrnm	5108	Div. 3 Sec. 1H
4.12	mbg	5633	Div. 4 Sec. 22A
4.14	hgrpas	5115	Div. 3 Sec. 1O
4.15	acdtn	5631-1	Div. 4 Sec. 32A
4.17	athgp	5619-2	Div. 4 Sec. 20B
4.18	athac	5619-3	Div. 4 Sec. 20C
4.19	athfcos	5619-4	Div. 4 Sec. 20D
4.21	acctgp	5623-2	Div. 4 Sec. 24B
4.22	acctrtp	5623-3	Div. 4 Sec. 24C
4.24	icmmpa	5960-2	Div. 6 Sec. 3B
4.37	msgp	5962-2	Div. 6 Sec. 5B
4.38	edsgp	5961-2	Div. 6 Sec. 4B
4.39	pidef	5117	Div. 3 Sec. 1Q
4.40	lnblkcod	5649	Div. 4 Sec. 31H

4.46	acvtgp	5967-2	Div. 6 Sec. 10B
4.47	acsrgp	5959-2	Div. 6 Sec. 2B
4.48	lssle	5981	Div. 6 Sec. 24A
4.61	asigp	5630-4	Div. 4 Sec. 30D
4.62	bclidgp	5629-2	Div. 4 Sec. 29B
4.63	rbvrti	5950	Div. 5 Sec. 5K
4.64	asprp	5634	Div. 4 Sec. 31F
4.65	cnam	5986	Div. 6 Sec. 28A
5.1	tkgrp	5202	Div. 3 Sec. 2A
5.1	pbxid	5213	Div. 3 Sec. 2O
5.2	prigrp	5211	Div. 3 Sec. 2M
5.3	trkcl	5203	Div. 3 Sec. 2B
5.4	tkgrpfa	5206	Div. 3 Sec. 2E
5.5	trunk	5204	Div. 3 Sec. 2C
5.11	trunkfa	5205	Div. 3 Sec. 2D
5.13	x75pvc	5926	Div. 5 Sec. 3G
5.14	x75cug	5930	Div. 5 Sec. 3K
5.15	tniclist	5928	Div. 5 Sec. 3I
5.16	uttkgrp	5215	Div. 3 Sec. 2R
5.21	arstpa	5608-5	Div. 4 Sec. 9E
5.24	cwttpa	5603-4	Div. 4 Sec. 4D
5.26	idtpa	5601-8	Div. 4 Sec. 2H
5.27	mwtppa	5602-5	Div. 4 Sec. 3D
5.28	pfatpa	5609-8	Div. 4 Sec. 10H
5.29	tgsrtpa	5607-5	Div. 4 Sec. 8D
5.30	todtpa	5610-5	Div. 4 Sec. 11E
5.31	pptpa	5618-5	Div. 4 Sec. 19E
5.33	mdrtpa	5624-6	Div. 4 Sec. 25F
5.34	tkedsld	5209	Div. 3 Sec. 2K
5.41	athtpa	5619-7	Div. 4 Sec. 20G
5.42	accttpa	5623-6	Div. 4 Sec. 24F
5.46	imtrk	5210	Div. 3 Sec. 2L
5.51	sctpa	5627-4	Div. 4 Sec. 27D
5.64	asptpa	5632-4	Div. 4 Sec. 31D
5.65	tkblkcd	5275	Div. 3 Sec. 2X
5.70	cicdist	5217	Div. 3 Sec. 2T
5.71	pktgrp	5219	Div. 5 Sec. 3Z
5.72	cicdef	5218	Div. 3 Sec. 2U
5.75	ltgpci	5221	Div. 3 Sec. 2Y
5.76	ltgcadn	5222	Div. 3 Sec. 2Z
5.80	sipgsm	5880	Div. 5 Sec. 3AB
5.81	sipstms	5881	Div. 5 Sec. 3AC
5.82	siptparm	5882	Div. 5 Sec. 3AD
5.83	sippstn	5893	Div. 5 Sec. 3AQ
5.84	intgi	5894	Div. 5 Sec. 3AR
6.1	stparm	5638	Div. 4 Sec. 32C
6.3	agntid	5639	Div. 4 Sec. 32D
6.4	cqparm	5640	Div. 4 Sec. 32E
6.5	sxdisp	5641	Div. 4 Sec. 32F
6.7	acdvt	5643	Div. 4 Sec. 32H
6.8	acdvttn	5644	Div. 4 Sec. 32I
6.9	acdbparm	5645	Div. 4 Sec. 32K
7.1	pfagpa	5609-5	Div. 4 Sec. 10E
7.2	pfatg	5609-2	Div. 4 Sec. 10B
7.3	pfasfg	5609-3	Div. 4 Sec. 10C
7.4	pfainwt	5609-4	Div. 4 Sec. 10D
7.5	scrnrng	5212	Div. 3 Sec. 2N
7.11	nailup	5207	Div. 3 Sec. 2F
8.1	isdnopt	5941	Div. 5 Sec. 5B
8.1, 8.15	ofcopt	5509	Div. 3 Sec. 5I
8.2	noc	5501	Div. 3 Sec. 5A
8.3	rxschd	5515	Div. 3 Sec. 5O
8.4	trfsep	5308	Div. 3 Sec. 3U
8.5	timing	5520	Div. 3 Sec. 5T
8.6	tntyp	5504	Div. 3 Sec. 5D
8.7	eqdptn	5820	Div. 8 Sec. 34
8.8	onpa	5312	Div. 3 Sec. 3Y
8.9	ospsopt	5424	Div. 3 Sec. 4Y
8.10	cgasps	5514	Div. 3 Sec. 5N

8.11, 20.11	egrcrk	5723-1/2	Div. 8 Sec. 16
8.11, 8.12	ralm	5516	Div. 3 Sec. 5P
8.13	msusp	5530	Div. 3 Sec. 5AD
8.15 RC CPARAM	NA	NA	Div. 9 Sec. 3A
8.16	psrate	5922	Div. 5 Sec. 3C
8.17	dsapp	5537	Div. 3 Sec. 5AK
8.18	lassfa	5973	Div. 6 Sec. 16A
8.18	eqapcx	5831	Div. 8 Sec. 83
8.19	lassck	5946	Div. 5 Sec. 5G
8.20	lasspfx	5947	Div. 5 Sec. 5H
8.21	lassop	5945	Div. 5 Sec. 5F
8.22	sfsys	5713-1	Div. 3 Sec. 5AR
8.22	inwatsnpa	5586	Div. 3 Sec. 5CA
8.23	flexani	5323	Div. 3 Sec. 3AJ
8.24	scridxpa	5543	Div. 3 Sec. 5AQ
8.25	npasplit	5546	Div. 3 Sec. 5AV
8.26	locscrn	5545	Div. 3 Sec. 5AU
8.28	apxparm	5050	Div. 7 Sec. 1A
8.29	alrmlvls	5769	Div. 3 Sec. 5CD
8.30	cacdparm	5458	Div. 3 Sec. 4BF
8.31	fosys	5713-2	Div. 3 Sec. 5AS
8.32	srvcdesc	5985	Div. 6 Sec. 27A
8.40	sreincr	5547	Div. 3 Sec. 5AW
8.41	ftparm	6424	Div. 3 Sec. 4DY
8.42	ccstcap	5567	Div. 3 Sec. 5BH
8.49	aspop	5670	Div. 4 Sec. 31G
8.50	animod	5560	Div. 3 Sec. 5BD
8.51	anitbl	5561	Div. 3 Sec. 5BE
8.51	anitable	5561	Div. 3 Sec. 5BP
8.52	ldpctbl	5562	Div. 3 Sec. 5BF
8.53	ldptnsc	5568	Div. 3 Sec. 5BI
8.54	tgntnsc	5569	Div. 3 Sec. 5BJ
8.55	rorlst	5570	Div. 3 Sec. 5BK
8.56	tdmaopt	5572	Div. 3 Sec. 5BM
8.59	ldpindex	5576	Div. 3 Sec. 5BQ
8.60	anndg	5532	Div. 3 Sec. 5AF
8.61	annhd	5531	Div. 3 Sec. 5AE
8.62	anntr	5533	Div. 3 Sec. 5AG
8.63	phrase	5534	Div. 3 Sec. 5AH
8.64	annapl	5529	Div. 3 Sec. 5AC
8.65	dispmg	5980	Div. 6 Sec. 23A
8.66	langtbl	5483-1	Div. 3 Sec. 4CI
8.67	phrlang	5483-2	Div. 3 Sec. 4CJ
8.68	fixtraf	5058	Div. 7 Sec. 1H
8.75	cdmaopt	5599	Div. 8 Sec. 80
8.76	trfoparm	5593	Div. 3 Sec. 5CI
9.1	das	5300-1	Div. 3 Sec. 3A
9.2	pdit	5300-2	Div. 3 Sec. 3B
9.3	ldit	5300-3 AB/5	Div. 3 Sec. 3C
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33.18	sctpparm	5885	Div. 5 Sec. 3AG
33.19	sctpnepd	5886	Div. 5 Sec. 3AH
33.20	asscparm	5887	Div. 5 Sec. 3AI
33.21	sctpfepd	5888	Div. 5 Sec. 3AJ
33.22	sctpassc	5889	Div. 5 Sec. 3AK
33.23	assocset	5890	Div. 5 Sec. 3AL
33.24	udppath	5891	Div. 5 Sec. 3AN
33.25	udpptset	5879	Div. 5 Sec. 3BA
34.1	pcfot	5996	Div. 5 Sec. 3T
34.2	pcfpsn	5996-2	Div. 5 Sec. 3U
34.3	pdsncnfg	5997	Div. 5 Sec. 3V
34.4	pcfsg	6924	Div. 5 Sec. 3AP
50.1	mgpgrowth	6920	Div. 5 Sec. 4A
50.2	mgpcomp	6921	Div. 5 Sec. 4B
50.3	mgpline	6922	Div. 5 Sec. 4C
50.4	mgptrunk	6923	Div. 5 Sec. 4D

SEC. 4: Office Record Number Versus ODA Form Name and Recent Change View

1. GENERAL

This section contains the listing of ODA office records and corresponding RC view numbers. Division 0, Section 2 has a similar table, however, it is sorted alphabetically by ODA form name. This section is sorted numerically by ODA office record number. This cross reference provides the office records and their corresponding ODA/TG-5 information (i.e., RC View Number, ODA Form Name, and TG-5 Division and Section).

This section contains the latest listing of 5ESS Switch ODA office records with corresponding ODA form names and Recent Change view numbers. The list is presented in numerical order by the ODA record number.

2. RECORD NUMBER INDEX TABLE

Record Number	RC View Number	ODA Form Name	Division / Section
5011	15.1 RC CNIOFF	NA	Div. 9 Sec. 2A
5012-1/2	15.2 RC LCDT	NA	Div. 9 Sec. 2B
5013	15.3 RC PHYS	NA	Div. 9 Sec. 2C
5014	15.4 RC CET	NA	Div. 9 Sec. 2D
5015	15.5 RC UVDT	NA	Div. 9 Sec. 2E
5016	15.6 RC EXCP	NA	Div. 9 Sec. 2F
5017	15.7 RC HFDT	NA	Div. 9 Sec. 2G
5018	15.8 RC SCHD	NA	Div. 9 Sec. 2H
5019	15.9 RC CLUST	NA	Div. 9 Sec. 2I
5020	15.10 RC SST	NA	Div. 9 Sec. 2J
5021	15.11 RC CNIGTT	NA	Div. 9 Sec. 2K
5022	15.12 RC NLNIDS	NA	Div. 9 Sec. 2L
5023	15.13 RC SMNID	NA	Div. 9 Sec. 2M
5024	15.14 RCNIOFTIM	NA	Div. 9 Sec. 2N
5025	15.15 RCNILSTIM	NA	Div. 9 Sec. 2O
5026	15.16 RCNILSTHR	NA	Div. 9 Sec. 2P
5027	15.17 RCNILKPRM	NA	Div. 9 Sec. 2Q
5028	15.18 RCNIMEM	NA	Div. 9 Sec. 2R
5031	10.42	opemer	Div. 3 Sec. 3AO
5050	8.28	apxparm	Div. 7 Sec. 1A
5051	10.38	apxannnc	Div. 7 Sec. 1B
5052	14.9	atsdata	Div. 7 Sec. 1C
5053	14.10	atsparm	Div. 7 Sec. 1D
5054	14.11	dcstdt	Div. 7 Sec. 1E
5055	14.12	dcstt	Div. 7 Sec. 1F
5057	22.22	psulnk	Div. 7 Sec. 2A
5058	8.68	fixrtraf	Div. 7 Sec. 1H
5105	18.14	slcalm	Div. 3 Sec. 1E
5106	18.10	slcrt	Div. 3 Sec. 1F
5107	18.11	slccu	Div. 3 Sec. 1G
5108	4.9	emrnm	Div. 3 Sec. 1H
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5110	3.5	mlhg	Div. 3 Sec. 1J
5111	1.6	mlhln	Div. 3 Sec. 1K
5112	1.8, 1.11, 1.12	linefa	Div. 3 Sec. 1L
5113	1.8, 1.11, 1.12	mlhlnfa	Div. 3 Sec. 1M
5114	3.3	multitn	Div. 3 Sec. 1N
5115	4.14	hgrpas	Div. 3 Sec. 1O
5116	4.9	emrofc	Div. 3 Sec. 1P
5117	4.39	pidef	Div. 3 Sec. 1Q
5119	3.9	mkbctt	Div. 3 Sec. 1AC
5174-1/2/3/4	18.15	rterm	Div. 3 Sec. 1S
5177	1.7	npool	Div. 3 Sec. 1AF
5202	5.1	tkgrp	Div. 3 Sec. 2A
5203	5.3	trkcl	Div. 3 Sec. 2B
5204	5.5	trunk	Div. 3 Sec. 2C
5205	5.11	trunkfa	Div. 3 Sec. 2D

5206	5.4	tkgrpfa	Div. 3 Sec. 2E
5207	7.11	nailup	Div. 3 Sec. 2F
5209	5.34	tkedsld	Div. 3 Sec. 2K
5210	5.46	imtrk	Div. 3 Sec. 2L
5211	5.2	prigrp	Div. 3 Sec. 2M
5212	7.5	scmrng	Div. 3 Sec. 2N
5213	5.1	pbxid	Div. 3 Sec. 2O
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5215	5.16	uttkgrp	Div. 3 Sec. 2R
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5222	5.76	ltgcadn	Div. 3 Sec. 2Z
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5275	5.65	tkblkcd	Div. 3 Sec. 2X
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5300-2	9.2	pdit	Div. 3 Sec. 3B
5300-3 AB/5	9.3	ldit	Div. 3 Sec. 3C
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5423	26.24	valoffc	Div. 3 Sec. 4X
5424	8.9	ospsopt	Div. 3 Sec. 4Y
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5427	26.12	nxxzn	Div. 3 Sec. 4AB
5428	26.40	accst	Div. 3 Sec. 4AC
5429	26.41	segrest	Div. 3 Sec. 4AD
5431	27.85	dehnp	Div. 3 Sec. 4AF
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5434	27.30	opdbparm	Div. 3 Sec. 4AI
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5632-2	1.64	asplpa	Div. 4 Sec. 31B
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5746	20.8	eqaiup	Div. 8 Sec. 65
5747	20.18	tsdhd	Div. 8 Sec. 93
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5765	19.27	eqaip	Div. 8 Sec. 90
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5767	20.32	olupm	Div. 3 Sec. 5CC
5769	8.29	alrmlvls	Div. 3 Sec. 5CD
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5811	18.12	eqtbcu	Div. 8 Sec. 31
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5813	18.1	eqormlink	Div. 8 Sec. 33
5814-1/2/3	17.23	eqtrcupth	Div. 8 Sec. 38
5820	8.7	eqdpn	Div. 8 Sec. 34
5821	19.10	eqra	Div. 8 Sec. 35
5822	20.10, 20.22	eqrap	Div. 8 Sec. 36
5823	19.11	eqistf	Div. 8 Sec. 37
5824	22.8	eqisap	Div. 8 Sec. 24
5826-1/2	19.20	enetpipe	Div. 8 Sec. 66
5827-1/2	19.21	enetlink	Div. 8 Sec. 67
5828	17.24	qphpipe	Div. 8 Sec. 70
5829	17.27	ggcon	Div. 8 Sec. 91
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5832	18.19	eqxcdu	Div. 8 Sec. 84
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5842	NA	N/A	Div. 8 Sec. 44
5843	NA	NA	Div. 8 Sec. 45
5844	na	iscn	Div. 8 Sec. 46
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5848		eqci	Div. 8 Sec. 50
5849	18.3	eqdi	Div. 8 Sec. 51
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5853	18.16	eqnli	Div. 8 Sec. 55
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5856	19.13	eqmh	Div. 8 Sec. 58
5857	20.12	eqste	Div. 8 Sec. 59
5858	20.24	eqvt	Div. 8 Sec. 60
5859	20.26	eqsasp	Div. 8 Sec. 61
5860	19.19	eggdsc3	Div. 8 Sec. 63
5861	19.22	dnu2eec	Div. 8 Sec. 68
5866	17.11	eqtms	Div. 8 Sec. 69
5867	n/a	eqcm3	Div. 8 Sec. 71
5868	19.23	eqpdxu	Div. 8 Sec. 72
5869	19.24	eqpltu	Div. 8 Sec. 73
5870	20.17	eqpctp	Div. 8 Sec. 74
5871	20.27	eqpctt	Div. 8 Sec. 75
5873	19.27	fac2eec	Div. 8 Sec. 81
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5879	33.25	udpptset	Div. 5 Sec. 3BA
5880	5.80	sipgsm	Div. 5 Sec. 3AB
5881	5.81	siptsms	Div. 5 Sec. 3AC
5882	5.82	siptparm	Div. 5 Sec. 3AD
5883	33.16	pcrgpr	Div. 5 Sec. 3AE
5884	33.17	ipping	Div. 5 Sec. 3AF
5885	33.18	sctpparm	Div. 5 Sec. 3AG
5886	33.19	sctpnepd	Div. 5 Sec. 3AH
5887	33.20	asscparm	Div. 5 Sec. 3AI
5888	33.21	sctpfepd	Div. 5 Sec. 3AJ
5889	33.22	sctpassc	Div. 5 Sec. 3AK
5890	33.23	assocset	Div. 5 Sec. 3AL
5891	33.24	udppath	Div. 5 Sec. 3AN
5892	22.32	phgrp	Div. 5 Sec. 3AO
5893	5.83	sippstn	Div. 5 Sec. 3AQ
5894	5.84	intgi	Div. 5 Sec. 3AR
5895	22.33	ipadrmg	Div. 5 Sec. 3AS
5896	22.34	ipatmrtg	Div. 5 Sec. 3AT
5897	22.35	ca2ipmap	Div. 5 Sec. 3AU
5898	22.36	ipshopt	Div. 5 Sec. 3AV
5899	22.37	clsidx	Div. 5 Sec. 3AW
5902	23.20	shtn	Div. 5 Sec. 1C
5903	3.43	icipf	Div. 5 Sec. 1D
5904	23.17	dslqmon	Div. 5 Sec. 1E
5905	23.13	odbts	Div. 5 Sec. 1F
5906	23.14	odbres	Div. 5 Sec. 1G
5907	23.2, 23.8	dsl	Div. 5 Sec. 1H
5908	23.2, 23.8	dslusr	Div. 5 Sec. 1I
5909-1/2/3	23.40	xat	Div. 5 Sec. 1J
5910A/B	22.18	rdtatn	Div. 5 Sec. 1M
5911A/B	22.17	rdtaport	Div. 5 Sec. 1L
5915	23.19	odbctur	Div. 5 Sec. 1N
5918	22.32	vdchn	Div. 5 Sec. 3W
5920	22.13	psism	Div. 5 Sec. 3A
5921	10.35	psdnicri	Div. 5 Sec. 3B
5922	8.16	psrate	Div. 5 Sec. 3C
5923	23.11	pspvc	Div. 5 Sec. 3D
5924/5924A	23.10	pscug	Div. 5 Sec. 3E
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5935	33.15	bearernet	Div. 5 Sec. 3AM
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5942	22.7	islulc	Div. 5 Sec. 5C
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5945	8.21	lassop	Div. 5 Sec. 5F

5946	8.19	lassck	Div. 5 Sec. 5G
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5948	22.15	pmthresh	Div. 5 Sec. 5I
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5959-1	12.50	acsrfd	Div. 6 Sec. 2A
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5959-3	1.49	acsrlpa	Div. 6 Sec. 2C
5960-1	12.45	icmfd	Div. 6 Sec. 3A
5960-2	4.24	icmgp	Div. 6 Sec. 3B
5960-3	1.45	icmlpa	Div. 6 Sec. 3C
5961-1	12.38	edsfd	Div. 6 Sec. 4A
5961-2	4.38	edsqp	Div. 6 Sec. 4B
5961-3	1.38	edsipa	Div. 6 Sec. 4C
5961-4	3.38 (5E4(2) to 5E6) 1.38 (5E7 and later)	edsmpa	Div. 6 Sec. 4D
5961-5	24.9	edsent	Div. 6 Sec. 4E
5962-1	12.37	msfd	Div. 6 Sec. 5A
5962-2	4.37	msgp	Div. 6 Sec. 5B
5962-3	1.37	msipa	Div. 6 Sec. 5C
5962-4	3.37 (5E4(2) to 5E6) 1.37 (5E7 and later)	msmpa	Div. 6 Sec. 5D
5962-5	24.11	msent	Div. 6 Sec. 5E
5962-6	24.10	mscent	Div. 6 Sec. 5F
5963	24.7	dslap	Div. 6 Sec. 6A
5964	12.5	cfggrp	Div. 6 Sec. 7A
5965	12.43	dispf	Div. 6 Sec. 8A
5966	12.44	lidfd	Div. 6 Sec. 9A
5967-1	12.46	acvtd	Div. 6 Sec. 10A
5967-2	4.46	acvtgp	Div. 6 Sec. 10B
5967-3	1.46	acvtipa	Div. 6 Sec. 10C
5967-4	3.46 (5E4(2) to 5E6) 1.46 (5E7 and later)	acvtmpa	Div. 6 Sec. 10D
5968	12.6	acofr	Div. 6 Sec. 11A
5969	12.7	ipfdca	Div. 6 Sec. 12A
5970-1	12.47	lsacfd	Div. 6 Sec. 13A
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5970-3	3.47 (5E5 and 5E6) 1.47 (5E7 and later)	lsacmpa	Div. 6 Sec. 13C
5971-1	12.48	lsarfd	Div. 6 Sec. 14A
5971-2	1.48	lsaripa	Div. 6 Sec. 14B
5971-3	3.48 (5E5 and 5E6) 1.48 (5E7 and later)	lsarmpa	Div. 6 Sec. 14C
5972	12.49	lscotfd	Div. 6 Sec. 15A
5973	8.18	lassfa	Div. 6 Sec. 16A
5974	23.15	dfitsrv	Div. 6 Sec. 17A
5975	12.55	lscafd	Div. 6 Sec. 18A
5976	12.56	lscffd	Div. 6 Sec. 19A
5977	12.57	lscrfd	Div. 6 Sec. 20A
5978	12.58	lsdafd	Div. 6 Sec. 21A
5979	12.54	lscarfd	Div. 6 Sec. 22A
5980	8.65	dispmg	Div. 6 Sec. 23A
5981	4.48	lssle	Div. 6 Sec. 24A
5982	12.52	cpnbnfd	Div. 6 Sec. 25A
5983	12.59	rndfd	Div. 6 Sec. 26A
5984	23.23	caicom	Div. 6 Sec. 3D
5985	8.32	svcdesc	Div. 6 Sec. 27A
5986	4.65	cnam	Div. 6 Sec. 28A
5987	33.1	ipproc	Div. 5 Sec. 3N
5988	33.2	ipintf	Div. 5 Sec. 3O
5989	33.8	iprout	Div. 5 Sec. 3P
5990	22.25	psupipe	Div. 5 Sec. 5O
5991	22.26	psugw	Div. 5 Sec. 3Q
5992	22.29	psunwk	Div. 5 Sec. 3X
5993	22.30	interpsu	Div. 5 Sec. 3Y
5995	33.4	ethip	Div. 5 Sec. 3S
5996-2	34.2	pcfpdsn	Div. 5 Sec. 3U
5996	34.1	pcfopt	Div. 5 Sec. 3T
5997	34.3	pdsncnfg	Div. 5 Sec. 3V
5998	22.31	psupm	Div. 5 Sec. 3AA
6001-1/2	16.2	cc7pr	Div. 9 Sec. 10A

6002	16.3	ccpdl	Div. 9 Sec. 10B
6003	16.5	lnkset	Div. 9 Sec. 10C
6004-1/2	16.6	cclnk	Div. 9 Sec. 10D
6005	16.7	clkset	Div. 9 Sec. 10E
6006	16.10	pc	Div. 9 Sec. 10F
6008	16.1	ccgsm	Div. 9 Sec. 10H
6009	16.17	mdlInk	Div. 9 Sec. 10J
6010	16.20	ccnet	Div. 9 Sec. 10K
6011	16.21	ccspr	Div. 9 Sec. 10L
6012	16.22	ccpbd	Div. 9 Sec. 10M
6013	16.23	cctgm	Div. 9 Sec. 10P
6014	16.24	cctt	Div. 9 Sec. 10O
6015	16.25	ccsgt	Div. 9 Sec. 10N
6016	16.26	saalhsi	Div. 9 Sec. 10V
6017	16.27	saalprm	Div. 9 Sec. 10W
6019	16.8	nid	Div. 9 Sec. 10S
6020	16.9	clu	Div. 9 Sec. 10T
6021	16.16	cmtmh	Div. 9 Sec. 10U
6400	27.87	dnra	Div. 3 Sec. 4CZ
6404	27.72	inwnpa	Div. 3 Sec. 4DD
6406	27.61	chbcpt	Div. 3 Sec. 4DE
6411	27.34, 27.35	olnpu	Div. 3 Sec. 4DJ
6412	27.88	dacctr	Div. 3 Sec. 4DK
6424	8.41	ftparm	Div. 3 Sec. 4DY
6434	26.8	flexacd	Div. 3 Sec. 4EG
6435	27.12	enhblv	Div. 3 Sec. 4EH
6446	21.28	aowner	Div. 3 Sec. 4ES
6920	50.1	mgpgrowth	Div. 5 Sec. 4A
6921	50.2	mgpcomp	Div. 5 Sec. 4B
6922	50.3	mgpline	Div. 5 Sec. 4C
6923	50.4	mgptrunk	Div. 5 Sec. 4D
6924	34.4	pcfsg	Div. 5 Sec. 3AP
			Div. 3 Sec. 1D
	na	pscomp	Div. 5 Sec. 3R
NA	8.15 RC CPARM	NA	Div. 9 Sec. 3A
NA	NA	NA	Div. 9 Sec. 1A
N/A	N/A	N/A	Div. 8 Sec. 1
na	na	qtuv	Div. 8 Sec. 92

SEC. 5: 5ESS SWITCH DEFINED LIMITS

1. GENERAL

This section contains the 5ESS Switch defined limits for the 5E14 and 5E15 Software Releases.

The list is presented in alphabetical order by the field mnemonics.

NAME	5E14	5E15	RC VIEW NUMBER	ODA FORM NAME	DESCRIPTION
ARS GROU PS	200	200	12.11	ARSFD	1023 Physical Groups allowed. 200 per GROUP TYPE allowed. If SFID 218 is "Y": 400 ARS GROUP NAMES per office allowed with: 200 CSD (Data) Groups 200 VOICE Groups.
BFG	4095	4095	12.9	BFG	BRCS Feature Grouping. Business or Residential BFG = 4095. Unique name + Suffix of 1 - 9
CC	999	999	9.6	IDDD	Country Code
CDI	4095	4095	10.10	RAR	Destination/Code Index.
CHG IDX	2047	2047	10.11	CGIDX	Destination/Code Index.
CIC (local)	9999	9999	10.3	CIC	Local CIC (Carrier Identification Code). Only 500 can have measurements assigned on RC View 10.3 at any time.
CIC (LDP)	128/64	128/64	8.52	LDPCTBL	LDP (Long Distance Platform) CIC (Carrier Identification Code). 128 table entries in the CIC table. This is keyed by CIC and the pre-subscription indicator, therefore 64 CICs with both values.
DAS	99	254	9.1	DAS	Digit Analysis Selector to determine digit interpreter tables (i.e., office dialing plan).
FAT	800	800	9.25	SMLDIT	Foreign Area Translator.
IDP GROU P	65535	65535	1.26 5.26	IDPLPA IDPMPA	Individual Dialing Plan. Enter from 1 to 8 characters.
INDIT	999	999	9.5	INDIT	Incoming Digit Interpreter Table number. DAS is the limiting factor.
LCC	46656	46656	4.1	LCC	Line Class Code. Indicates class of service including originating and terminating treatment. Valid values are 3 alpha-numeric characters. The maximum number of LCC is 36*36*36=46656, but are limited by the CMP available memory.
LDIT	999	999	9.3	LDIT	Local Digit Interpreter Table number. DAS is the limiting factor.
MCRTI	16382	16382	7.4	PFAINWT	Modular Construction Route Index.
NOC	8190	8190	8.2	NOC	Normalized office codes. Note: The NOC cannot exceed 250 when the NPA-NXX Growth feature has not been purchased. SFID 198 has been reserved for the NPA-NXX Growth feature, it may be purchased then activated by using the Secured Feature Upgrade View (8.22).
OFFCO	999	999	8.2	ANITBL	Local NXX office code.

D					-999, for each NPA (999*799=798201)
PDIT	999	999	9.2	PDIT	Primary Digit Interpreter Table number. DAS is the limiting factor.
PFA GROU P	65535	65535	1.28 5.28	PFALPA PFAMPA	Private Facility Group (Combination of PFA Group and Dial Code). Enter from 1 to 8 characters.
RAX	99	999	4.1	LCC	Rate Center
RDIT	999	999	9.9	RDIT	Remaining Digit Interpreter Table number.
RTI	16382	16382	10.2	ARSSIG	Route Index.
SCRN IDX	4095	4095	10.10	RAR	Screening Index. Enter 0-4095. 0 indicates no data.
SFG	2000	2000	7.3	PFASFG	Simulated Facility Group.
TGID	65535	65535	1.29	TGSRLPA TGSRLMPA	Terminal Group ID.
TGN	2000 *4000	2000 *4000	5.1	TKGRP	Specifies the number of trunk groups being defined. Enter 1-4000. Maximum number of trunk groups assigned per SM is 120. Maximum number of trunk groups with TRK CLASS of PACKET is 16. Maximum number of trunk groups with TRK CLASS of "X75" or "X75P" is 255. Maximum number of trunk groups assigned per SM-2000 without QLPS is 120. Maximum number of trunk groups assigned per SM-2000 with QLPS is 2000. Maximum number of trunk groups assigned per SM-2000 with QLPS is 4000 when using the Increased Number of Trunk Groups (SFID 172) secured feature that has been purchased using the Secured Feature Upgrade View (8.22). *RESTRICTED USAGE: Not supported by EADAS. WARNING: Your OS (Operation System) may not support this feature resulting in a loss of Traffic 30 Measurements. This feature was intended for independent LECs only.
TGN MEMB	95 (small) 1951 (large)	95 (small) 1951 (large)	5.5	TRUNK	Specifies a trunk member number of a trunk group. Enter a number from 0-95 for small trunk group and 0-1951 for large trunk group. For trunk members in a packet-switched Internal Protocol trunk group with TRK CLASS of PACKET, the maximum number of trunk members allowed is 32. For trunk members in a trunk group with the TRK CLASS of X75P or X75 the maximum is 24 members.
Note: While these are the software defined limits, the switch owner is cautioned that performance, routing and other negative effects may occur should the switch be loaded to the limits defined above.					

Figure 1 5ESS SWITCH DEFINED LIMITS

DIV. 1: GENERAL INFORMATION

SEC. 1: ORDERING INFORMATION

1. HOW TO ORDER THE TG-5

The TG-5 (5ESS Switch Translation Guide; 235-080-100) can be ordered either through your technical information resource manager or technical documentation coordinator, or by calling the Lucent Technologies CIC (Customer Information Center) at 1-888-LUCENT-8 (1-888-582-3688) in Indianapolis, Indiana. One contact number is used to access all 5ESS Switch product information. You will be prompted to the appropriate option. You may also access product information using the Internet: www.cic.lucent.com.

The CIC service representative taking the order will request the following information:

- The type of order. The type of order can be a standing order or a one-time order. A one-time order means you will receive the current TG-5. A standing order means you will receive the current TG-5 and the monthly updates to the TG-5. If you choose a standing order, then you will keep your TG-5 current.
- A purchase order number or a credit card number. (Lucent Technologies employees should use their department number.) A purchase order number can be obtained from your purchasing organization. If you keep a record of your purchase order number and use it to make changes to your order or cancel your order, it will help the CIC service representative make these changes quickly and easily.
- An address where you want to receive the TG-5 and the TG-5 monthly update shipments.
- A contact person whom the CIC service representative can contact about the order.

1.1 HOW TO ORDER NEW BINDERS

If you need to replace worn TG-5 binders, you can order new binders for the TG-5 through your CIC regional service representative, or by calling the CIC service representative.

1.2 ELECTRONIC MEDIA DOCUMENTATION

The TG-5 is also available on CD-ROM and on-line documentation. If you wish to receive electronic media or electronic dial-up service, call the CIC.

2. HOW TO CANCEL OR CHANGE AN ORDER

To cancel or change your order, contact your technical information resource manager or technical documentation coordinator, or call the CIC. It will help the CIC service representative to expedite the changes if you know your original purchase order number.

3. HOW TO SCHEDULE TRAINING FOR TRANSLATIONS

Lucent Technologies offers courses in 5ESS Switch translations. To obtain information on these courses or to schedule a course, call the CIC.

SEC. 2: 5000 RECORD TRANSLATION INQUIRY

1. GENERAL

Your feedback is important to us. The TI (Translation Inquiry) form (5000 Record) is provided for your convenience to give feedback relating to the TG-5 (5ESS Switch Translation Guide). This inquiry may deal with problems in using translation forms or difficulties in interpreting translation information in the TG-5. The translation inquiry may also be used for suggestions and proposals relating to Translation Guide contents or arrangement.

NOTE: Forwarding translations for review is not an appropriate use of the feedback form. In addition, requests for feature or option development should not be submitted as an inquiry. This type of correspondence should be directed to Lucent Technologies through your normal channels.

2. THE TRANSLATION INQUIRY

A reproducible copy of the TI is located in Division 19 of this Guide. This master should be reproduced locally to provide feedback forms for TG-5 questions and proposals.

Please FAX the completed TI to:

J. Broyles
FAX number 630-224-1314

Or, mail the completed TI to:

J. Broyles - Room 7G-318
Lucent Technologies
1960 Lucent Lane
Naperville, IL 60566-7217

Or, email your comments to:

jannbroyles@lucent.com

When the TI (Translation Inquiry) form is received by the TG-5 group, an inquiry number is assigned to that TI and the TI is assigned to a TG-5 writer. The writer will contact the originator of the TI, usually within ten working days. When the research on the inquiry has been completed, the writer will answer the inquiry and notify the originator of the schedule for publication for this information in the TG-5.

The TI is divided into two basic areas (see Figure 1). Block A is for basic reference information, Block B is for problem description or proposal.

Block A: Reference Information - Enter the division, section number, and the publication date that appears in the heading of the TG-5 section. If the inquiry relates to a specific Software Release, for example 5E10, please enter the Software Release number.

Block B: Problem or Proposal Description - This block is used to fully describe the problem or proposal. Please reference the division and section, if different from Block A, and the paragraph or figure number. The

reverse side of the form may be used if additional space is required.

Please include your name, company affiliation, address, and telephone number.

5000 (1/2000) RECORD

TRANSLATION INQUIRY

5ESS SWITCH

INQUIRY NUMBER _____
(LUCENT USE ONLY) Office

A. REFERENCE INFORMATION

Division____ Section____

TG-5 Publication Date_____

Name_____

Title_____

Telephone Co._____

Telephone Number (____)_____

Address_____

City_____ State_____

ZIP Code_____

B. PROBLEM PROPOSAL DESCRIPTION

Enter the problem or proposal description and example as appropriate. Use reverse side of this sheet if necessary. Please give detailed description including date, page, paragraph, or figure referenced.

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SEC. 3: INTRODUCTION TO THE TG-5

1. GENERAL

The purpose of the TG-5 (5ESS Switch Translation Guide) is to enable the user to correctly populate ODD (Office Dependent Data). Office Dependent Data is initiated and maintained by the 5ODA (5ESS Switch Office Data Administration) system. In the 5ODA environment, the term "translations" refers to the office dependent data which supports the 5ESS Switch and its software. In addition to many other capabilities, this data provides the 5ESS Switch with the capability to analyze the dialed digits, route the call, and charge the subscriber.

The contents of the TG-5 are designed to help you use 5ODA to populate ODD and to help you ensure an error-free database. The information presented in the TG-5 is organized into chapters and subchapters called Divisions and Sections. The following is a high-level overview of the current Divisions and Sections.

- DIVISION 0 - Provides a table of contents and cross-reference information including identification of all input forms, records, Recent Change Views, and references as to where this information can be found in the TG-5.
- DIVISION 1 - Provides general information on the 5ESS Switch and related software tools, glossary of terms, and instructions for using the TG-5.
- DIVISION 2 - Provides a discussion of how to provision the 5ESS Switch features including Maintenance and Testing Feature Requirements, Operator Services Position System Features, Special Features including Secured and Transparency features, Data Services features, Equipment features, Wireless features, and SM-2000 features.
- DIVISIONS 3, 4, 5, 6, 7, 8 - Provide a detailed discussion of ODA forms including field descriptions, data requirements, and associated integrity checks. Also included are SAMPLE RECORDS for specifying translation data and SAMPLE FORMS providing instructions for data entry into 5ODA.
- DIVISION 9 - Provides a detailed discussion for provisioning CNI (Common Network Interface) Recent Change views.
- DIVISION 11 - Provides a high-level overview of the data difference between 5ESS Switch Software Releases.
- DIVISION 19 - Provides a full set of 5ODA REPRODUCIBLE RECORDS. The reproducible records are blank sample records which are provided to facilitate data entry.
- DIVISION 20 - Provides an overview of the changes in the TG-5 for each monthly update.

A more detailed discussion of the contents of each Division and Section is presented below in paragraph 4 - ORGANIZATION OF THIS GUIDE.

1.1 5ODA and Recent Change

The TG-5 is written as a support document for the 5ODA. Thus, the TG-5 is designed to provide information necessary to accomplish

1. the establishment of a new 5ESS Switch,
2. an in-service 5ESS Switch undergoing a retrofit procedure,

3. or an in-service 5ESS Switch undergoing a large terminal growth procedure.

These events are distinguished from the Recent Change function. However, because of the extensive information maintained by the TG-5, it is an excellent reference to support Recent Change activities. Nonetheless, the Recent Change Manual should be used as the dominant source for Recent Change information.

1.2 TG-5 Updates

Much of the information in the TG-5 is subject to change. Update packages that contain additional information or changes to the TG-5 are issued monthly. If you are on standing order for the TG-5 (see Division 1, Section 1 on how to order the TG-5), you will receive the paper update package or the electronic media update package.

1.3 Change Indications

The latest changes to a TG-5 section are indicated by shaded text (or by a " | " in the right margin for earlier releases of the documentation). The date a section has been changed is listed in the heading for each section.

1.4 Your Feedback

We want your feedback. In using the TG-5, you may occasionally uncover aspects of data entry that are not covered in the documentation. The Translation Inquiry (Division 1, Section 2) describes the procedure for forwarding questions, requests and other comments regarding discrepancies between translation processes and the TG-5. The Translation Inquiry is a valuable tool for obtaining a quick response to requests for clarification of translations information.

2. 5ODA FORM PREPARATION/DATA ENTRY

The 5ODA (5ESS Switch Office Data Administration) system is the set of software tools that initiates the office dependent database for a 5ESS Switch. The 5ODA system provides the following:

- Both interactive data and bulk data entry capabilities for entering and correcting 5ESS Switch translations data.
- A data verification capability for checking errors in the 5ESS Switch translations data.
- The capability to generate Office Records (output reports) from the 5ESS Switch translations data.
- The capability to map the 5ESS Switch translation data into the data structures that are subsequently loaded into the 5ESS Switch.

The 5ODA form is composed of many data items known as fields. The first field(s) on a form is always a "key" field(s). The "key" field uniquely identifies each form and its associated data. The "key" field is designated on each form and in the text with an asterisk (*) and must always be defined.

A data item may be specified as a "rollover" field. That is, whatever value was entered in the field on the previous form will be automatically repeated on all subsequent forms until the rollover is cancelled.

A required field is a field that must have a value entered on the form. Required fields are designated by a "#",

unless it has a default value.

Each 5ODA form has predefined values entered in some fields - these are known as "default" values. Default values are listed in the text after each field. If the "default" value is not the desired entry, you may change it.

All fields are numbered and appear on the form in ascending, but not always consecutive, order.

The above information is provided in Divisions 3, 4, 5, 6, 7, 8, and 9 of this guide. Each section begins with a short general description of the corresponding 5ODA input form. In addition, the general section lists any peculiarities of the form and any possible hazards in using the form. In the "FORM ENTRIES" subsection, each field on the form is discussed in a specific paragraph. The field definition and its valid entries are included.

An example of a 5ODA input form is shown as a figure at the end of each division's section. An example of an Office Record is similarly provided.

REPRODUCIBLE RECORDS are provided in Division 19.

3. HOW TO READ THIS GUIDE

If this is your first introduction to the TG-5, you will want to read Division 1 to familiarize yourself with the contents of the TG-5 and how to use 5ODA. Refer to the Index at the front of Division 1 to find the sections containing the information that you need.

If you are already familiar with the TG-5, but need to find where the information you desire is located within the guide, refer to the following:

- Division 0, Section 0, which contains the Table of Contents for each division of the TG.
- Division 0, Section 1 which contains the 5ESS Switch Form versus Text Cross Reference Table.
- Division 0, Section 2, which gives the ODA form vs Recent Change view cross reference.
- Division 0, Section 3, which gives the Recent Change view vs the ODA form.
- Division 0, Section 4, which gives the Office Record number vs ODA form and Recent Change view.
- In addition, each division has an index at the beginning of the division and sections.

4. ORGANIZATION OF THIS GUIDE

The TG-5 is organized by divisions, sections and subsections. Each division may contain multiple tables of contents within a division. The first is a table of contents of the division (always Section 0), followed by a separate table of contents for the sections within that division, numbered consecutively.

The following paragraphs provide a brief description of each of the divisions.

4.1 Division 0 - Table of Contents

Division 0 provides the Table of Contents for the TG-5 in addition to cross reference information. It is divided into the following sections:

Section 0 - Table of Contents for all Divisions of the TG-5.

Section 1 - 5ODA Form Name Cross Reference

Section 2 - ODA Forms vs Recent Change Views Cross Reference

Section 3 - Recent Change Views vs ODA Forms Cross Reference

Section 4 - Office Record Number vs ODA Forms / Recent Change Views

4.2 Division 1 - General Information

This division provides an introduction to the 5ESS Switch and the TG-5. It is divided into the following sections:

Section O - Table of Contents for Division 1.

Section 1 - Ordering Information.

This section outlines how to order the TG-5.

Section 2 - Translation Inquiries.

This section explains how to submit questions and comments relating to 5ESS Switch translations and the TG-5. A reproducible copy of the Translation Inquiry (Record 5000) is included in Division 19.

Section 3 - Introduction to the TG-5.

This section covers the function, purpose and arrangement of this guide.

Section 6 - Glossary of Terms.

This section contains an alphabetical listing of terms associated with the 5ESS Switch. Each term is defined within the context of its use in the system. The glossary includes terms associated with 5ODA and Recent Change.

Section 7 - 5ESS Switch Office Data Administration (5ODA) User's Guide.

This section provides detailed information on how to use the 5ODA system to input ODD.

Section 8 - Establishing an Office Data File (5001).

This section describes how to set up the identification, accounting and tracking information that is needed to set up the data base for each 5ESS Switch.

Section 9 - 5ODA Batch Load Interface.

This section provides information on how to merge batch data from existing mechanized systems with the appropriate 5ODA data.

Section 10 - Routing and Charging.

This section provides an overview of routing and charging.

Section 11 - 5ECONV User's Manual.

This section describes the process that converts 1ESS Switch and 1A ESS Switch office subscriber data to

5ODA data.

Sections 12 and 13 - Growth and Retrofit Plans

These sections describe the 5ODA off-line large terminal growth and retrofit plans.

4.3 Division 2 - Features

This division provides a high-level description of each translation feature. The explanation is followed by the translation requirements that are necessary to implement the feature.

Section 1 - General Features

Section 2 - Maintenance and Testing Feature Requirements

Section 3 - Operator Services Position Systems Features

Section 4 - Special Features including Secured and Transparency Features

Section 5 - Data Services Features

Section 6 - ISDN PRI (Primary Rate Interface) Features

Section 7 - Equipment Features

Section 8 - Wireless Features

Section 9 - SM-2000 Features

4.4 Division 3 - Translation Administration

This division describes office Records and 5ODA input forms used by the switch owner for general telephone service (i.e., POTS). Division 3 is divided into the following sections:

Section 0 - Index for Division 3.

Section 1 - Line Forms.

Section 2 - Trunk Forms.

Section 3 - Routing and Charging Forms.

Section 4 - Operator Services Position System (OSPS) (5E4(2) and later Software Releases).

Section 5 - Miscellaneous Forms.

Section 6 - Secured Features.

4.5 Division 4 - BRCS (Business and Residence Custom Services)

This division contains instructions for BRCS Office Records and 5ODA input forms (see Division 6 for ISDN BRCS).

4.6 Division 5 - ISDN (Integrated Services Digital Network) Line and Packet Switching

Section 1 - ISDN Lines.

Section 3 - Packet Switching

Section 5 - ISDN Miscellaneous Forms.

4.7 Division 6 - ISDN BRCS

This division contains instructions for the Office Records and 5ODA input forms to build ISDN BRCS features.

4.8 Division 7 - Digital Cellular Switching

This division contains the instructions for the Office Records and 5ODA input forms to build Digital Cellular switching on a 5ESS Switch.

4.9 Division 8 - Engineering Assignments

This division contains instructions for all 5ODA input forms used to install and maintain a 5ESS Switch.

4.10 Division 9 - CCS (Common Channel Signaling)

This division contains information needed to implement CNI (Common Network Interface) translations via Recent Change input views.

4.11 Division 11 - Software Differences

This division provides an overview of the data differences between various combinations of 5ESS Switch Software Releases. The information in this section is intended to be high-level reference to new features in a specific Software Release. The differences are described from an ODA point of view.

4.12 Division 19 - Reproducible Records

This division contains a master copy to reproduce all Office Records available for the 5ESS Switch.

Section 1 contains the alphabetical listing of all Office Records with the record number, form designation and the division and section that provide the instructions for that Office Record.

4.13 Division 20 - Monthly Update Summary of Changes

This division provides a summary of the changes for each monthly update of the TG-5.

SEC. 6: GLOSSARY OF TERMS

1. GENERAL

This section has been included to assist the user in interpreting words, acronyms, and abbreviations commonly used throughout the Translation Guide.

2. ALPHANUMERIC LISTING OF TERMS

Term	Definition
2500 SET	A non-ADSI (Analog Service Display Interface) compatible analog telephone set, capable of manually signaling a flash and signaling DTMF (Dual Tone Multifrequency) digits. It is a standard analog residential set. It may have the ability to display the name and/or number of the calling party in the on-hook mode, but does not have the ability to display the name and/or number of the calling party in the off-hook mode.
5ECONV	5ECONV is a system that provides a mechanized process to convert 1A ESS Switch and 1ESS Switch office subscriber data to the appropriate 5ODA input.
ADSI SET	An analog telephone set capable of recognizing the CAS (CPE (Customer Premise Equipment) Altering Signal) which is a special dual tone. Reception of a CAS signal activates a program in the set's firmware which provides a multi-page menu of call management options that the subscriber may use at various states of the call. The subscriber chooses the action desired via soft keys assigned to the displayed options. The action associated with the soft keys changes as the menu page changes. The ADSI set is also capable of displaying the name and/or number of the calling party.
ALTERNATE ROUTING	Available for each PSAP, Alternate Routing is used to route calls to a predesignated location for a traffic busy PSAP, a PSAP on night duty or a PSAP experiencing a power failure.
ANALOG INTERFACE UNIT (AIU)	Any of the various Interface units interfacing analog facilities. These include the Line Unit (LU), and the Trunk Unit (TU).
AUTOMATIC IDENTIFIED OUTWARD DIALING (AIOD)	A trunk group that connects a Centrex-CU to a switching machine to identify outward dialed calls by the line number of the originating station.
AUTOMATIC LINE INSULATION TEST (ALIT)	An automatic test system which checks for foreign EMF and leakage on a customer loop.
AUTOMATIC MESSAGE ACCOUNTING RECORDING CENTER (AMARC)	A centralized system which keeps a record of all billing and Automatic Message Accounting messages for ESS offices.
BUSINESS AND RESIDENCE CUSTOM SERVICES (BRCS)	BRCS are a large set of business and residence service features that are typically called "centrex". BRCS allows substantial flexibility in the way the features are constructed. BRCS feature packages can be preconstructed, customized, or clustered.
CAC	Carrier Access Code is the 5-digit prefix 10XXX where XXX is the 3-digit CIC (Carrier Identification Code). A new CIC expansion feature was introduced in 5E9(1) that increased the CAC to 7-digit prefix (i.e. 101XXXX) with 4-digit carrier codes.
CAMA PSAP	A PSAP that has CPE (Customer Premises Equipment) which can provide the attendant with the caller's ANI via CAMA-like signaling. The CAMA PSAP allows the attendant to use Enhanced 911 features such as Selective Transfer.
CAMA-LIKE SIGNALING	Analog trunks with MF signaling using CAMA ANI format. This is the signaling used between the E911 serving office and a CAMA PSAP. This signaling is one-way, from the 5ESS Switch to the CAMA PSAP.
CAMA SIGNALING	Centralized Automatic Message Accounting Signaling. A signaling scheme normally used to transmit ANI (Automatic Number Identification) information from a local switch not equipped for AMA recording to another switch capable of AMA recording. This type of signaling is commonly used between the end office and the E911 tandem office, although CCS7-ISUP trunks and direct seizure trunks may also

	be used. CAMA signaling has been adapted for E911 use to forward the caller's directory number to the PSAP.
CAS	CAS (CPE Alerting Signal) is a dual tone sent to the ADSI CPE to "wake it up" that an ADSI call is coming in. Currently implemented by CIDCW (Calling Identity Delivery With Call Waiting) and also used with CWD (call Waiting Deluxe).
CENTRALIZED AUTOMATIC MESSAGE ACCOUNTING (CAMA)	A trunk group which carries customer dialed 7- or 10- digit toll calls to Centralized Automatic Message Accounting equipment where recording and timing of a connection are done automatically in addition to the switching function.
CENTRALIZED AUTOMATIC REPORTING ON TRUNKS (CAROT)	CAROT is a minicomputer based system that controls transmission and operational trunk tests for all exchanges in a particular area that are equipped with compatible Remote Office Test Lines (ROTL) and responders.
CENTRAL PROCESSOR (CP)	The Centralized processor of 5ESS which performs the part of call processing, administration, and maintenance which cannot be economically distributed to the Switching Modules.
COMMON CHANNEL INTEROFFICE SIGNALING (CCIS)	An interoffice signaling scheme in which address and supervision signaling for trunks is carried over a data network rather than over the associated trunk facility.
DATA BASE MANAGER (DBM)	A software subsystem which is responsible for the access and updating of all translation data.
DEFAULT ROUTING	Automatically routes a 911 call to a predesignated PSAP when the primary PSAP cannot be determined. The 5ESS Switch uses this data for non-ESA routing.
DIRECT SEIZURE TRUNK	A trunk which does not send dialed digits to the E911 serving office. ANI may or may not be received after the trunk is seized at the incoming end. Also called a Direct Connect Trunk.
DIGITAL FACILITY INTERFACE (DFI)	Circuitry in a Digital Line/Trunk Unit that terminates a single Digital Facility.
DIGITAL LINE/TRUNK UNIT (DLTU)	The equipment unit which interfaces digital (T1) trunks and digital loop carrier/concentrator systems.
DIGITAL SERVICE UNIT (DSU)	The equipment unit which performs the functions of Tone Decoding, Tone Generation, conferencing, and certain AC tests.
DIGROUP	The 24 channels in a digital carrier system.
DIRECTLY CONNECTED TEST UNIT (DCTU)	This unit is accessible by every Line and Trunk Unit and provides a number of facility tests which require metallic access to lines and trunks.
DUAL LINK INTERFACE (DLI)	The DLI provides a two-way interface between each switching module and the Time Multiplexed Switch.
ENGINEERING AND ADMINISTRATIVE DATA ACQUISITION SYSTEM (EADAS)	A traffic data collection system which provides the interface between an ESS office and the Total Network Data System.
ESA	E911 Service Adjunct. A processor, attached to the switch via a DSL link, that provides ANI to ESN translation for E911 Service.
ESN	Emergency Service Number. The emergency service number is a number that defines the set of emergency services, e.g., police, fire, hospital, within a particular district or zone.
ESCO	Emergency Service Central Office. A number to identify the originating office or calling area of the 911 caller. An ESCO may be assigned to trunk groups and to the dialing plans for local lines. It translates to a selective routing indicator, a default ESN, and an NPD.
FEATURE CONTROL (FC)	A software subsystem which sequences call processing actions at a hardware independent level.
FEDERAL CARD	A calling card issued to FTS 2000 customers.
FIXED TRANSFER	Allows a PSAP attendant to transfer a 911 call to a particular PSAP location by operating one key.
FOREIGN EXCHANGE LINES (FX)	Special customer-access lines permitting a phone physically located in an area served by one Central Office to have a Telephone Number that includes a different Central Office Code.
FTS ROUTING NUMBER	The number returned in the CAS card validation reply message and matches an OSPS internally stored FTS routing number. This number is used to route calls to the FTS private network.
GATED DIODE CROSSPOINT (GDX)	An analog crosspoint capable of withstanding the high voltage signals present on customer lines.
GSM	Global SMs are those SM/SM-2000 equipped with a SS7 PSU and terminating SS7

	signaling links . A VCDX only sm-2k, or up to 16 SM/SM-2Ks may be GSMs.
HIGH LEVEL SERVICE CIRCUIT (HLSC)	A generalized service circuit in the Line Units used to perform ringing and coin control functions.
HUNT-BUSY	A condition where the switch will not offer a call to a particular hunt terminal because the terminal is a busy, a switch-maintained limit on that terminal's capacity for handling calls would be exceeded, or the terminal is deemed unavailable for hunting even though the ISDN interface serving the hunt terminal may not be busy.
IC	Inter-LATA Carrier handles Inter-LATA calls dialed via the North American Numbering Plan, and may be allowed to handle Intra-LATA toll calls through the Intra-LATA PIC capability, or Intra-LATA local calls dialed with a CAC.
ICLATA	Inter-LATA Carrier's Intra-LATA Capability, also same as Intra-LATA PIC.
INPUT/OUTPUT PROCESSOR (IOP)	Provides interfaces to CRT, to hard copy printers, to magnetic tape drives, and a Master Control Center.
INTEGRATED SERVICES DIGITAL NETWORK (ISDN)	ISDN service gives the capability of switching both voice and data over the same line.
INTRA-LATA LOCAL CALLS	All Intra-LATA calls that are not defined to be Intra-LATA PIC/Intra-LATA Toll calls are referred to as Intra-LATA Local calls. These calls are carried by the LEC unless dialed with a CAC (Carrier Access Code) for an IC (Inter-LATA Carrier) with approval to carry Intra-LATA calls.
INTRA-LATA PIC	Inter-LATA Carrier's Intra-LATA Capability. Also, used synonymously with ICLATA and Intra-LATA toll.
INTRA-LATA PIC/Intra-LATA TOLL/TOLL Calls	Intra-LATA PIC or Intra-LATA Toll Calls are any Intra-LATA calls which are open to competition. Usually such calls are inter-switch and are not defined by the tariff as a Local Calling Area call or an EAS (Extended Area Service) call. The LEC defines which calls are Intra-LATA PIC/Intra-LATA Toll calls.
LATA	Local Access and Transport Area is a defined non-overlapping geographical area where an EAEO (Equal Access End Office) and/or AT (Access Tandem) can provide a carrier access to the local exchange.
LEC	Local Exchange Carrier, the Local Telephone Company that owns the switch, provides the local loop, and serves as the default carrier for Intra-LATA calls.
LINE UNIT (LU)	The part of the Switching Module which provides terminations for lines that are concentrated onto 64 Time Slots.
MAIN DISTRIBUTING FRAME (MDF)	A connection system that interfaces cable pairs and switching equipment.
MANUAL DIAL TRANSFER	Allows the PSAP attendant to manually dial the directory number of the destination.
MASTER CONTROL CENTER (MCC)	Provides the human-machine control interface for the 5ESS. It consists of a video display terminal with keyboard telephone set. The Trunk and Line Work Station is also part of the MCC.
MESSAGE SWITCH (MSGS)	The unit that provides for the transfer of call processing and administrative messages between the Switching Modules and the administrative processor, and between any two Switching Modules. The MSGS also contains the Message Switching and Clock Unit.
METALLIC SERVICE UNIT (MSU)	Provides metallic access, miscellaneous scanning and distributing functions, ALIT capabilities, and Gated Gated Diode Crosspoint composition in 5ESS.
MH	The MH (Message Handler) resides in an SM-2000 and provides for message transfer between an SM-2000 and the QLPS hardware.
MODULE CONTROLLER (MC)	An equipment grouping common to all Switching Modules. It consists of the Module Processor, the Signal Processor, the Time Slot Interchanger, and the Control Interface.
MODULE PROCESSOR (MP)	Part of the Module Controller, it consists of a microprocessor and its associated memory.
NCT	An NCT (Network Control and Timing) link has 256 time slots and runs at a rate of 32.768 Mb/s. The number of NCT links required can vary from two to four in groups of two (00 - 03).
NCT2	An NCT2 link has 512 time slots and runs at a rate of 65.536 Mb/s. The number of NCT2 links required can vary from two to twenty-four in groups of two (00 - 23).
NETWORK CONTROL AND TIMING (NCT) LINK	Connects an Switching Module to the Time Multiplexed Switch, provides Time Slot paths for network connections, carries a control Time Slot to the modules, and distributes timing to the module.

NLI	The NLI (Network Link Interface) manages the interfaces between an SM-2000 and the NCT2 links. They are optionally equipped in groups of two, from two to eight for Release 1. Each NLI provides for one NCT2 link connection.
NON-HUNT DN	A telephone number for a specific terminal within the hunt group. If a user calls the non-hunt DN, hunting is bypassed, and the call is offered only to the called terminal.
NPD	Numbering Plan Digit. First digit of ANI outputted to a CAMA PSAP; it represents the originating NPA of the call.
OFFICE DATA ADMINISTRATION (5ODA)	A Lucent Technologies program that builds the 5ESS Office Data Base.
ONTC	Office Network and Timing Complex, also known as the TMS.
OPERATIONAL SUPPORT SYSTEM (OSS)	Common support systems outside an ESS office developed by the BELL SYSTEM to assist the Operating Companies (e.g., AMARC, COSMOS, RMAS).
OPERATIONAL TEST	The ability to test the signaling capabilities of a trunk.
OPERATOR SERVICES POSITION SYSTEM (OSPS)	OSPS is a feature of the 5ESS Switch that provides operator services, such as, Directory Assistance (DA) and Toll and Assistance (T&A).
ORIGINATING CMC CALL/RECORD	A CMC Originating call is one that originates in or is received by the LEC network and is routed TO a CMC. CMC AMA records are made in the switch directly connected to the CMC Type 2A or Type 2B interface. Such CMC AMA records are called "Originating CMC" records but have Structure Codes (653/654) commonly associated with "Terminating IC" calls. This definition is based on Bellcore requirements GR-1504-CORE.
ORIGINATING WSP CALL/RECORD	A WSP originating call is one that originates in or is received by the LEC network and is routed to a WSP. WSP AMA records are in the switch directly connected to the WSP Type 1 interface. Such WSP AMA records are called "Originating WSP" records but have a Structure Code (653) commonly associated with "Terminating IC" calls.
PERIPHERAL CONTROL (PC)	A software subsystem which manages and controls the switching peripherals.
PERIPHERAL INTERFACE CONTROL BUS (PICB)	A duplex set of wires carrying control between the Module Controller and a Peripheral Unit of an Interface Module.
PERIPHERAL INTERFACE DATA BUS (PIDB)	A duplex set of wires carrying 32 time slots of data between the Module Controller and a Peripheral Unit of an Switching Module.
PIC	Presubscribed Inter-LATA Carrier, an IC which handles Inter-LATA calls dialed without a CAC. A PIC can be associated with a line and IDP (Individualized Dialing Plan) group or with the entire office.
PIPE	A pipe is a high bandwidth path for message transport between a QLPS QTMSLINK and a given QLPS endpoint (an MH in an SM-2000). It is a physical path capable of sustaining HDLC traffic from the QLPS, through the TMS, the NLI, the TSI and the APC, to the MH.
PSAP	Public Safety Answering Point. Location, or equipment at the location, where emergency attendants receive "911" call.
PTC	Presubscribed Intra-LATA Toll Carrier, an IC (or LEC) which handles Intra-LATA toll calls dialed without a CAC. A PTC can be associated with a line and IDP (Individualized Dialing Plan) group (CENTREX) or with the entire office.
QGL	
QGP	The QGP is an MSGS (Message Switch) subdevice that provides for message transport between the MSCU (Message Switch Control Unit) and QLPS hardware. None, one, or two QGPs may be equipped per MSGS, depending on office traffic characteristics.
QLI2	The QLI2 (Quad-Link Interface Model 2) circuit pack plugs into the CM2 (Communications Module Model 2) and provides the NCT2 interface between the CM2 and SM-2000. QLI2s plug into any existing QLI slot in the TMS except for the FLI (Foundation Link Interface) slot. CM2s equipped with QLI2s support both Single Fabric and Dual Fabric configurations.
QTMSLNK	A port connection on the QLPS board of the TMS. Each QLPS board has four QTMSLNKs.
REMOTE MEMORY ADMINISTRATION SYSTEM (RMAS)	RMAS is a multimicroprocessor system that increases the efficiency of centralized data base administration for all types of ESS's. It significantly reduces the time required to enter Recent Changes and to retrieve data, automates the production of

	office records, and provides reports that assist in managing both the data base and the personnel performing this work.
REMOTE SWITCHING MODULE (RSM)	Provides the capability of having a 5ESS Switching Module remotely located from the host 5ESS and its Administrative Module, and extends the ESS features and services to a remote group of customers outside the normal area of the 5ESS Central Office.
ROLLOVER FIELD	A data item on a form may be specified as a "Rollover" field, that is, whatever value was entered in the field on the previous form will be automatically repeated on all subsequent forms.
RSM STAND-ALONE CALL PROCESSING (SA)	Provides the capability for an RSM to continue limited call processing while in the Stand-Alone state.
SECURED FEATURES	The optional service features that require enabling the feature before it is operational.
SECURED FEATURE ADMINISTRATOR (SFA)	The person designated by the operating telephone company to perform the enabling of secured features.
SELECTIVE ROUTING	An E911 feature that selectively routes a 911 call to the primary PSAP associated with the originating station.
SELECTIVE TRANSFER	Allows a PSAP attendant to transfer a 911 call to the correct secondary PSAP for the caller's emergency service zone. The call is transferred based on the code sent by the PSAP and the telephone number stored in the ESN form.
SIGNAL PROCESSOR (SP)	The circuitry in the Switching Modules that detects signal changes on the channels.
SUBSCRIBER LOOP CARRIER - 96 (SLC-96)	The SLC System is a digital loop carrier pair gain system designed as a supplement or replacement for cable, and serves up to 96 subscribers at the remote site.
SWITCHING CONTROL CENTER SYSTEM (SCCS)	Provides facilities needed for efficient centralized maintenance of all types of Stored Program Control Electronic Switching Systems.
SWITCHING MODULE (SM)	The equipment grouping which provides line and trunk terminations, service circuits call processing functions and Time Division Switching.
TERMINATING CMC CALL/RECORD	A CMC Terminating call is one incoming FROM a CMC Type 2A or Type 2B interface, for completion in or via the LEC network. Such CMC AMA records are called "Terminating CMC" records but have Structure Codes (626/627) commonly associated with "Originating IC" calls. This definition is based on Bellcore requirements GR-1504-CORE.
TERMINATING WSP CALL/RECORD	A WSP Terminating call is one incoming from a WSP Type 1, for completion in or via the LEC network. Such WSP AMA records are called "Terminating WSP" records but have a Structure Code (625) commonly associated with "Originating IC" calls.
TIME DIVISION NETWORK (TDN)	The central network of the 5ESS. It includes the Time Slot Interchange, network Control and Timing Links, and the Time Multiplexed Switch.
TIME MULTIPLEXED SWITCH (TMS)	The Time Multiplexed Space Switch which connects NCT links together during specified Time Slots.
TIME SLOT (TS)	A unit of time during which a single sample of communication is sent throughout the 5ESS Network.
TIME SLOT INTERCHANGE (TSI)	The circuitry in the Switching Module which multiplexes the peripheral channel data to different Time Slots on the NCT links.
TRANSMISSION TEST FACILITY (TTF)	A service circuit which performs all voice-frequency transmission tests, (e.g., ROTL, 100 series test lines).
TRUNK AND LINE WORK STATION (TLWS)	Provides maintenance Personnel access to lines and an interface administration and supports portable testing equipment such as voltmeters and transmission measuring sets.
TRUNK UNIT (TU)	An analog interface unit which terminates loop and 4-wire trunks.
TYPE 1 INTER CONNECTION	Connection to a telephone company end office. It provides connections only to and from terminals served by that end office including lines, private trunks and other WSPs having terminations within the switch itself. These restrictions are provided only through digit analysis data in the switch, since the specific restrictions would be difficult to determine for every case.
TYPE 2A INTER-CONNECTION	Connects to a land based tandem switch, LT (Local Tandem) or AT (Access Tandem). Type 2A interconnections also provide connections to and from

	co-located lines in the tandem, inter-LATA carriers, and other CMCs having terminations within the LATA. This feature does NOT provide AMA billing support for the connections between CMC and a Local Tandem Switch.
TYPE 2B INTER-CONNECTION	Connects to a telephone company end office. It provides connections only to and from terminals served by that end office, including lines, private trunks and other CMCs having terminations within the switch itself.
UNIVERSAL SERVICE ORDER CODE (USOC)	The line class code defined in Office Record 5306, Line Class Code.
WSP	Wireless Service Provider, previously known as a CMS (Cellular Mobile Carrier).

3. ACRONYM DEFINITIONS

Acronym	Definition
12NC	Numeric 12-Digit Product Code
13A	Bubble Memory Recorded Announcement System
1AEB	1A Event Buffer
1PSS	No. 1 Packet Switching System
2B1Q	2 Binary 1 Quaternary
2STPE	No. 2 Signal Transfer Point Emulator
2W	Two-Wire
2W/4W	2 Wire To 4 Wire
2WE&M	2 Wire Ear And Mouth
3B20	Bell Super-Mini Computer
3B20D	3B20 Duplex
3B5	Small System Processor Control Unit
3BCC	3B Processors Central Control
3BCU	3B Control Unit
3BEB	3B Event Buffer
3BI	3B (Computer) Interface
3BPCF	Modified 3B Processor Peripheral Control Frame
3BSCSD	3b Scanner/Signal Distributor
3BTAC	3B Terminal Access Controller
3BTAC	3b Terminal Access Controller
3CL	A Type Of Toll Switch Board
4B3T	4 Binary 3 Ternary
4W	Four Wire
5-FTS	5ESS Field Test Set
5E2	5ESS Switch Second Domestic Generic
5E3	5ESS Switch Third Domestic Generic
5E4	5ESS Switch Fourth Domestic Generic
5E5	5ESS Switch Fifth Domestic Generic
5ESE	5ESS Switch Small Exchange
5SDH	5ESS Switch Subdevice Handler
5SDHMM	5SDH Multimod
5SDHSM	5SDH Small Office
100 TEST LINE	Measures far to near end loss and near end noise.
102 TEST LINE	Measures far to near end loss.
105 TEST LINE	Measures two-way loss and noise.

3.1 A

Acronym	Definition
A&DCU	Alarm And Digroup Control Unit
A&M	Administration And Maintenance
A/D	Analog To Digital Conversion
A/L	A-Law To Linear
AABS-AP	Automated Alternate Billing Services - Automated Position
AAP	Automated Access Prompting
AAS	Application Administration Subsystem
AATLSOS	Alternate Access to Language Specific Operator Services
AATOS	OSPS Alternate Access to Operator Systems
AAU	Alarm Adaptor Unit
AAU	Audible Alarm Unit
AB	Access Barred
AB	Alarm Battery Alarm

ABC	Automatic Bill Calling
ABD	Average Business Day
ABLKD	Abnormally Blocked
ABS	Absent Subscriber Service
ABSBH	Average Busy Season Busy Hour
AC	Action Complete
AC	Alternating Current
AC	Analog Access
AC	Attendant Conference
AC	Audit Control
AC	Authorization Codes
AC	Automatic Callback
ACA	Automatic Circuit Assurance
ACBC	Automatic Callback Calling
ACC	Access Code
ACC	Administrative Control Center (An OSPS Office Head)
ACC	Alarm Conversion Circuit
ACCB	Access Bus
ACCS	Automated Calling Card Service
ACCSQ	Automated Calling Card Sequence
ACCT	Account Code
ACD	Automatic Call Distribution
ACD	Automated Call Directory
ACD	Automatic Call Distributor/Distribution
ACDF	Automatic Call Distribution Features
ACE	Automated Cable Expertise
ACE	Automatic Calling Equipment
ACG	Automatic Call Gapping
ACHI	Application Channel Interface
ACK	Acknowledge
ACL	Alternate Component List
ACM	Address Complete Message
ACM	Apparatus Coded Module
ACMOS	Automatic Customer Message Out-putting System
ACO	Additional Call Offering
ACOF	Attendant Control Of Facilities
ACP	Action Point
ACP	All-Call Privacy
ACP	Advanced Communications Package
ACQS	Automatic Charge Quotation Service
ACRG	Access Code Restriction Group
ACS	Alarm Call Service
ACS	Audible Call Screening
ACS	Automatic Call Simulator
ACSI	Automatic Calling Station Identification (BRCS/ISDN Feature)
ACSR	Automatic Customer Station Rearrangement
ACT	Active
ACT	Alternative Code Treatment
ACTB	All Concentrator Trunks Busy or ATB
ACTR	Automatic Call Type Recognition
ACTS	Automated Coin Toll Service
ACU	Automatic Calling Unit
ACVT	Attendant Control of Voice Terminals
AD	Abbreviated Dialing
ADDR	Address
ADE	Adaptive Design Engineering
ADLM	Advanced Distribution And Location Model
ADM	Adaptive Delta Modulation
ADOB	Alternate Destination On Busy
ADP	Automatic Diagnostic Process
ADPCM	Adaptive Differential Pulse Code Modulation
ADR	Alternate Data RAM
ADS	Architecture Development Specification
ADSI	Analog Service Display Interface
ADU	Audio & Display Unit
AEC	Audit, Edit And Check
AEMIS	ACD-ESS Management Information System
AFR	Automatic Flexible Routing
AGA	Automatic Gain Adjust

AGC	Auto Gain Control
AI	Access Interface
AI	Address Incomplete
AI	Assignment Request Indicator
AIC	Agent Intercom Call
AIC	Automated Initial Calls
AIC	Automatic Intercept Centers
AILS	Automated Inward Line Screening
AIM	Analog Interface Module
AIM	Application Integrity Monitor
AIN	Advanced Intelligent Network
AIOD	Auto Identified Outward Dialing
AIOD	Auto Input/Output Dialing
AIS	Alarm Indication Signal
AIS	Automatic Intercept System
AIU	Analog Interface Unit
AIU	Application Interface Unit
ALCB	Access Line Control Block
ALI	Automatic Location Identification
ALIT	Automatic Line Insulation Testing
ALM	Alarm
ALPX	Administration Of Lines In A Power Cross State
ALT	Automatic Link Transfer
ALU	Analog Line Unit
ALU	Arithmetic Logic Unit
ALV	Automatic Line Verifier
ALW	Allow
AM	Administrative Module
AM	Area Manager
AM-RTA	AM-Regional Technical Assistance
AMA	Automatic Message Accounting
AMAC	Automatic Message Accounting Collection System
AMACS	Automatic Message Accounting Collection System
AMAKP	Automatic Message Accounting Kernel Process
AMARC	Automatic Message Accounting Recording Center
AMARS	Automatic Message Accounting Recording System
AMASE	Automatic Message Accounting Standard Entries
AMAT	AMA Teleprocessing
AMATAN	Automatic Message Accounting Tape Analyzer
AMATP	Automatic Message Accounting Teleprocessing
AMATPS	Automatic Message Accounting Teleprocessing
AMDC	AMA OSDS System Process
AMGR	Audit Manager Program
AMI	Alternate Mark Inversion
AML	Automatic Maintenance Limit
AMLC	Automatic Maintenance Limit Count
AMPS	Advanced Mobile Phone Service (Now AUTOPLEX)
ANC	All Number Calling
ANI	Automatic Number Identification
ANIF	Automatic Number Identification Failure
ANM	Answer Message
AO	Add-On
AO&M	Administration, Operation And Maintenance
AOSTT	Automatic Out-Of-Service Trunk Test Dispatcher
AP	Address Parity
AP	Administrative Printer
AP	Administrative Processor
AP	Applications Processor
AP	Argument Pointer
AP	Attached Processor
AP	Automated Position
APB	Attached Process Block
APC	Adjacent Point Code
APC	Auxiliary Power Card
APDAN	Auxiliary Processor Data Available
APECS	Advanced Programmable Electronic Call Simulator
APF	All PINs Fail
APH	Application Protocol Handler
API	Access Provider Identifier

API	Action Point Identifier
APID	Applications Processor Identification
APLS	Auxiliary Program Library System
APMH	Attached Processor Message Handler
APPRC	5ESS Switch Application Recent Change
APREQ	Auxiliary Processor Request
APS	Apparatus Product Schematic
APS	Attached Processor System
APS	Automated Position System
APSM	Apparatus Product Schematic For Manufacture
APT	Automatic Progression Testing
AQ	Auto Quote
AQTP	Autoquote Terminal Process
AR	Assert Range
AR	Automatic Recall
AR/AC	Auto Recall/Auto Call Back
ARDY	Asynchronous Ready
ARGC	Argument Counter
ARGP	Argument Pointer
ARS	Automatic Route Selection
ARSB	Automated Repair Service Bureaus
ARU	Audio/Audible Response Unit
ARU/TP	Audible Response Unit - Terminal Process
ARUC	Audible Response Unit Controller
AS	Administrative Services Subsystem
AS	Analysis System
AS	Administrative Services
ASB	Assistance Service Board
ASB	Attendant Source Billing
ASC	Alarm Service Unit
ASC	Alarm Status Circuit
ASC	Announcement Storage Circuit
ASCII	American Standard Code For Information Interchange
ASF	Attribute Specification File
ASM	Administrative Status Monitor
ASM	Automated Switching Module = PSM Or SM
ASMDR	Advanced Station Message Detail Recording (Switch)
ASP	Advanced Services Platform
ASP	Alarm Status Panel
ASP	Application Specific Package
ASP	Assignment Source Point
ASP	Auxiliary Services Position
ASAP	Automated Service Access Prompting
ASAP R2	Automated Service Access Prompting Release 2
ASR	Automatic Send And Receive
ASR	Automatic Speech Recognition/Recognizer
ASSDL	Automatic Allocation Of Signaling Data Links
ASSERT	Assert Subsystem (For Making Assertions)
ASST	Assisting
AST	Acknowledge Seizure Timeout
ASW	All Seems Well
AT	Access Tandem
AT	Action Time
AT	Administrative Terminal
ATA	Asynchronous Terminal Adapter
ATB	Address Translation Buffer
ATCAF	Automated Test Calling Facility
ATCO	Automation of TCS/CPS Override
ATD	Attendant Through Dialing
ATD	Automatic Test Dispatcher
ATH	Authorization Code
ATIME	Absolute Time
ATLAS	Automatic Testing And Load Analysis System
ATME	Automatic Transmission Measuring Equipment
ATM	Asynchronous Transfer Mode
ATMS	Automatic Transmission Measuring System
ATOMICS	Advanced Traffic Observation And Management Information Collection System
ATOS	Automated Toll Operator Services
ATP	Access Transport Parameter

ATP	Advanced Telemetry Processor
ATP	Alarm Terminal Process
ATP	All Tests Passed
ATP	Announcement Terminal Process
ATP	Automated Terminal Process
ATP	SS7 Access Transport Parameter
ATS	Automatic Terminal Setup
ATSC	Auto Termination Of Signaling Irregularity Calls
ATT	Attendant
ATTS	Automatic Trunk Test Scheduler
ATTT	Automatic Trunk Test Table
ATU	Analog Trunk Unit
AU	Audit Subsystem
AUDIT	A Sanity Communication Command
AUTISS	Automatic Time Slot Switching
AUTO	Automatic Unit Testing Tool
AUTOVON	Automatic Voice Network
AUTRAX	Automatic Traffic Recording And Analysis Complex
AVCDA	Automatic Voice Charge And Duration Advice
AVD	Alternate Voice/Data
AVRT	Avoidance Routing
AVT	Access Via Tandem
AWT	Average Work Time
AXP	Auxiliary Processor Cabinet
AXPIC	Auxiliary Processor Initialization & Operation Capability
AXPU	Auxiliary Processor Unit

3.2 B

Acronym	Definition
B8ZS	Bitwise 8 Zero Suppression Code
B911	Basic 911 Service
BACH	Basic ACD And Call Handling
BANCS	Bell Administration Network Communication System
BBG	Basic Business Group
BBHC	Billing Busy Hour Capacity
BCAC	Business Customer Administration And Control
BCID	Business Customer Identification Number
BCLID	Bulk Calling Line Identification
BCON	Battery Connect
BCR	Bell Communication Research
BCR	Bus Control Register
BDEV TAB	Block Device Table
BDU	Bus Display Unit
BER	Bit Error Rate
BFOR	Battery Forward
BGB	Bidirectional Gating Bus
BGNEX	Begin Execution
BGR	Buffered Bidirectional Gating Register
BGSP	Background System Process
BHC	Block Hardware Check
BHC	Busy Hour Calls
BIB	Backward Indicator Bit
BIC	Bus Interface Controller
BITS	Basic Interexchange Telephone Service
BL/NA	Busy/No Answer
BLA	Blocking-Acknowledgement
BLDG	Building
BLF	Busy Lamp Field
BLS	Basic Local Service
BLV	Busy Line Verification
BLX.25	Communications Protocol - See X.25
BMF	Backup Management Facility
BMI	Batch Mode Immediate (RC)
BMR	Batch Mode Release
BND	Billing Number Delivery
BNS	Billed Number Screening
BOC	Bell Operating Companies

BOC	Build-Out Capacitor
BOS	Bit-Oriented Signaling
BOS	Business Office Supervisor
BOSS/PT	Business Office Support System/Programmers Terminal
BPIDB	Bypass Peripheral Interface Data Bus
BPS	Bits Per Second
BPSS	Basic Packet Switching Service
BPT	Breakpoint Trap
BQPN	Block Queries for Private Numbers
BRCS	Business And Residential Customer Services
BRCSDb	BRCS Data Block
BREV	Battery Reverse
BRG	Bridge/Bridging
BRI	Basic Rate Interface
BRIV	Basic Rate Interface Verification
BSC	Business Services Center
BSI	Bearer Service Identification
BSN	Backward Sequence Number
BST	Basic Services Terminal
BT	Buffer Threshold
BTSR	Bootstrapper Board
BUCP	Backup Control Process
BUD	Back Update Database
BUF	Buffer
BVA	Billing Validation Application
BVF	Billing Validation File
BWM	Broadcast Warning Message
BX.25	A CCITT Communications Protocol - See X.25
BY	Busy

3.3 C

Acronym	Definition
C	Connect
C&D	Control And Display
C&FC	Coin & Fee Check
C/D	Control Display
C/E	Cause And Effect
CA	Cache Address Bus
CA	Call Accepted
CA	Call Appearance
CA	Circuit Administrator
CA	Community Address
CA	Connect Acknowledge
CA	Coverage Analyzer
CAC	Cache Controller
CAC	Carrier Access Code
CAC	Common Administrative Capability
CAC	Country Access Code
CAC	Customer Administration and Control
CACS	Customer Administration Center System
CAD	Computer Aided Design
CADN	Circuit Administration
CADV	Combined Alternate Data Voice
CAG	Centralized Administrative Group
CAI	Call Assembly Index
CAI	Computer Aided Instruction
CAI-ICOM	Call Appearance Intercom
CACH EKTS CA	Call Appearance
CALL	Computer Assisted Lesson Library
CAM	Cache Memory
CAM	Computer Aided Manufacturing
CAMA	Centralized Automatic Message Accounting
CAN	Cancel
CAP	Capability
CAP	Communications Audit Process
CAP	Competitive Access Provider
CAPFIT	CAPacity Fit

CAPFORMS	Capability Forms System
CAPMGR	Capability Manager
CAR	Customer Access Restriction
CAROT	Centralized Automatic Reporting On Trunks
CAS	CPE Alerting Signal
CAS	Customer Account Services
CAS NCP	Customer Account Services Network Control Point
CATL	Code Answer Test Line
CATLAS	Centralized Automatic Trouble Location And Analysis System
CATP	Conditional All Tests Pass
CB	Change Back
CB	Control Block
CB	Control Bus
CC	Call Completion
CC	Call Connected
CC	Call Coordinator
CC	Common Control
CC	Central/Common Control
CC	Common Channel Signaling
CC	Conference Circuit
CC	Control Console
CC	Country Code
CC	Common Control
CCA	CMOS Cell Array
CCA	Code Coverage Analyzer
CCB	Channel Control Block
CCB	Communications Control Buffer
CCBCOM	Channel Control Block Communication Region
CCC	Custom Calling Coordinator
CCCA	Central Coordinator Circuit Administration
CCD	Common Capabilities Document
CCF	Call Confirmation Message
CCF	Corporate Component File
CCI	Call Characteristic Index
CCI	Computer Consoles Incorporated
CCIF	Call Coordinator Interflow
CCIOB	Central Control Input Output Bus
CCIS	Common Channel Interoffice Signaling
CCIS6	Common Channel Signaling System No. 6 Domestic
CCISPCCH	CCIS PC Handler
CCITS	Common Control Integrated Test System
CCITT	International Telegraph And Telephone Consultative Committee
CCITT6	CCITT Common Channel Signaling System Number 6
CCITT7	CCITT Common Channel Signaling System Number 7
CCITT7-PSIU	PSIU Containing The CCITT7 Signaling Terminals
CCITT7-SM	SM Containing The CCITT7-PSIU
CCM	Call Connect Message
CCM	Call Control Modules
CCMA	Common Channel Maintenance Administration
CCOP	Call Coordinator - Operator
CCOT	Call Coordinator - Originating Treatment
CCPUMP	Business And Residential Custom Services
CCQS	Centralized Charge Quotation Service
CCRD	Calling Card
CCS	Centrum Call Seconds
CCS	Common Channel Signaling
CCS	Common Communication Subsystem
CCS	Hundred Call Seconds
CCS7	Common Channel Signaling, CCITT Version 7
CCSA	Common Control Switching Arrangement
CCTT	Call Coordinator - Terminating Treatment
CCU	Combined Channel Unit
CCV	Call Charge Verification
CCW	Cancel Call Waiting
CD	Cache Data Bus
CD	Charge Delay
CD	Circuit Description Document
CD	Common Data
CD	Common Data Pack (Of The ISLU)

CD	Control Distribution Frame
CDA	Call Data Accumulator
CDA	Carrier Detect (RS-232)
CDA	Charge And Duration Advice
CDA	Configuration Status Audit
CDAC	Control & Diagnostic Access Circuit
CDAL	Control And Diagnostic Access Link
CDAR	Customer Dialed Account Recording
CDB	Circuit Data Block
CDBCOM	Circuit Data Block Communication Region
CDC	Call Directing Code
CDC	Central Data Collection
CDC	Control Distributor Controller
CDC	Control/Data Circuit
CDC	Country Destination Code
CDCU	Control Distribution Controller Unit
CDEVTAB	Block Device Table
CDF	Common Design File
CDI	Code Index
CDI	Control And Data Interface
CDL	Call Distribution/Description Language
CDIM	Carrier Destination Mapping
CDMA	Code Division Multiple Access
CDMPU	Control Distribution Message Processor Unit
CDNCU	Control Distribution Network Clock
CDO	Community Dial Office
CDOS	Customer-Dialed Operator-Serviced
CDP	Custom Dialing Plan
CDPR	Customer Dial Pulse Receiver
CDR	Call Detail Record
CDR	Channel Data Register
CDSDREAD	A Command To Read Data From An FPC Subdevice
CDSDWRITE	A Command To Send Data To An FPC Subdevice
CDT	Communications Display Terminal
CDT	Communications Display Terminal/Trunk
CDX	Compact Digital Exchange
CE	Cause-Effect
CENTREX	Central Office PBX
CERDIP	Ceramic Dual In Line Package
CF	Call Forwarding
CF	Coin First
CF	Control Fanout
CF	Control Frame
CFA	
CFA	Carrier Failure Alarm
CFB	Call Forwarding Busy
CFBL	Call Forwarding Busy Line
CFDA	Call Forwarding Don't Answer
CFDA/CW	Call Forwarding Don't Answer after Call Waiting
CFF	Central Firmware File
CFH	Call Failure Handling
CFN	Call Forwarding Because No Answer
CFNS	Call Forwarding Night Service
CFPF	Call Forwarding Over Private Facilities
CFR	Centralized Flexible Rating
CFR	Coin Flexible Rate
CFUS	Call Forwarding Unrestricted Source
CFV	Call Forwarding Variable
CG	Concentrator Group
CGA	Carrier Group Alarm
CGID	Calling Party Identification
CgPS	Calling Party Subaddress
CH	Call Hold
CH	Core Hardware
CHAN	Channel
CHANNEL	Peripheral-Side TSI Time Slot
CHCKT	Channel Circuit
CHCT	Channel Circuit
CHD	Call Hold

CHDB	Channel Data Block
CHILL	CCITT High Level language
CI	Call Identify
CI	Carrier Interconnect
CI	Control Interface
CI	Craft Interface
CI	Critical Information
CIA	Critical Indicator Administrator
CIB	Centralized Intercept Bureau
CIB	Control Interface Bus
CIC	Carrier Identification Code
CIC	Circuit Identification Code
CIC	Controller Interface Circuit
CIC	Customer Information Center
CID	Call Identifier
CID	Conditionally Initializable Data
CIDB	Control Interface Data Bus
CIDCW	Calling Identity Delivery on Call Waiting
CIID	Customer Identification Card
CIM	Clear Indication Message
CIM	Cluster Interface Module
CIMA	Computer Integrated Manufacturing Architecture
CINT	Command Interrupt
CIP	Carrier Identification Parameter
CIP	Critical Indicator Panel
CIR	Customer Information Release
CK	Check Bits
CK	Conflicting Key
CKT	Circuit
CKTDATA	Circuit Data Audit
CL	Communication Line
CLC	Clear Confirmation
CLCI	Common Language Trunk Identifier
CLEI	Common Language Equipment Identification
CLFR	Communication Link Fault Recovery
CLI	Called/Calling Line Identification
CLI	Circuit Level Indicator
CLI	Clear Indication
CLK-CNT	Clock-Control
CLLI	Common Language Location Identifier
CLM	Communication Link Monitor
CLM	Core Linkage Module
CLMP	Communication Link Maintenance Process
CLR	Clear
CLR	Clear Request
CLRC	Circuit Layout Record Card
CLRER	Clear Channel Error
CLRT	Control Link Receiver/Transmitter
CLV	Calling Line Verification
CLWC	Cancel Leave Word Calling
CM	Communication Module
CM	Communication Package Subsystem
CM	Coverage Monitor
CM	Interprocessor Communication System
CM1	Communications Module 1
CM2	Communications Module 2
CMAC	Centralized Machine Administration Center
CMC	Cellular Mobile Carrier
CMD	Command
CMDF	Combined Main Distributing Frame
CMDR	Centralized Message Detail Recorder
CMGA	Craft Message Generator Analyzer
CMI	Control Mode Idle
CMISE	Common Management Information Service Element
CMKP	Communications Kernel Process
CMOC	Centralized Maintenance and Operation Center
CMON	Craft Interface Integrity Monitor
CMOS	Complementary Metal Oxide Semiconductor
CMP	Communication Module Processor

CMS	Circuit Maintenance System
CMSP	Central Manager System Process
CMSS	Customer Message Service System
CN	Change Notice
CN	Charge Number
CN	Conference Notes
CN	Control And Network Frame
CN	Customer Networking
CNA	Customer Name And Address Records
CNAC	CCIS Network Administration Center
CNAM	Calling Party Name
CNCC	Customer Network Control Center
CND	Calling Number Delivery
CNDTF	Coin Dial Tone First
CNGI	Calling Number Identification Services Intragroup Delivery Only
CNGI	CNIS Intra-group Only Delivery
CNI	Change Number Intercept
CNI	Common Network Interface
CNI/IMS	Common Network Interface/Interprocess Message Switch
CNIGI	Calling Number Intragroup ICLID
CNIGI	CNIS Intra-Group Delivery Option
CNIS	ISDN Calling Number Identification Services
CO	Central Office
CO	Change Order
CO	Change Over
CO	Cutover
COAN	Common Operator Access To Network
COC	Class Of Charge
COCOTS	Customer Owned, Coin Operated Telephones
CODEC	Coder-Decoder
COEES	Central Office Equipment Estimation System
COER	Central Office Equipment Report
COFF	Common Object File Format
COH	Consultation Hold
COM	Computer Output Microfilming
COMCNTRL	Common Control
COMDAC	Common Data And Control Circuit
COMDATA	Common Data
COMIC	Community Interface Control
CON	Congestion
CONC	Concentrator
CONCSCAN	Concentrator And Scanner Circuit
CONF	Conference
CONFIG	Configuration Control
CONT	Controller
COP	Common Optional Package
CORC	Customer Originated Recent Change
COS	Class Of Service
COSMOS	Computer System For Main Frame Operations
COT	Central Office Technician
COT	Central Office Terminal
COT	Common Optical Termination
COT	Customer Originated Trace
COV	Changeover Signal
COWG	Central Office Work Group
CP	Call Processing
CP	Central Processor
CP	Circuit Pack
CP-REXS	Central Processor Routine Exercise Scheduler
CPA	Commercial Power Alarm
CPB	Controller Peripheral Bus
CPBP	Central Processor Backup Process
CPC	Card Protection Center
CPC	Circuit Provisioning Center
CPD	Central Pulse Distributor
CPD	Circuit Pack Design
CPDL	Call Processing Data Link
CPE	Customer Premises Equipment
CPH	Calls Per Hour

CPH	Communication Protocol Handler
CPI	Central Processor Intervention
CPID	Linecard Register Containing Circuit Pack Identifier
CPLR	Coupler Data Block
CPN	Calling Party Number
CPN/BN	Calling Party Number/Billing Number
CPNP	Calling Party Number Presentation
CPOS	Call Processing Operating System
CPPCBLA	Central Processor Process Control Block Link Area
CPS	Circuit Pack Schematic
CPS	Country Pair Screening
CPS	Customer Premises Systems
CPSM	Circuit Pack Schematic For Manufacture
CPT	Controlled Product Test
CPTR	Circuit Pack Test Requirements
CPU	Call Pickup
CQB	Circuit Queuing Blocks
CR	Call Record
CR	Call Record Assembler
CR	Call Request
CR	Critical Alarm
CRA	Call Record Assembler
CRA	Call Record Assembler
CRC	Cyclic Redundancy Check/Code
CREG	Concentrated Range Extension With Gain
CRI	Circuit Revision Instruction (Teletype)
CRLU	Cost Reduced Line Unit
CRM	Circuit Reservation Message
CRM	Clear Request Message
CRM	Commands And Reports Manual
CRO	Cancel Rerouted Overflow
CRR	Centralized Rate And Route
CRR	Controlled Rerouting
CRS	Centralized Results System
CRSAB	Centralized Repair Service Attendant Bureau
CRT	Cathode Ray Terminal
CRTSI	Cost Reduced Time Slot Interchanger
CRTX	Common Real Time Executive Operating System
CRUCC	Cost Reduced Universal Conference Circuit
CRUTD	Cost Reduced Universal Tone Decoder
CRUTG	Cost Reduced Universal Tone Generator
CRV	Call Reference Value
CS	Call Sent
CS	Call Store
CS	Cell Site
CSA	Carrier Serving Area
CSA	Configuration Status Audit
CSADB	Centralized Service Assessment Display Board
CSAR	Centralized System For Analysis And Reporting
CSC	Customer Service Center
CSD	Circuit Switch Data
CSD LIMIT	Call Reference Busy Limit
CSD NBLIMIT	Call Notification Busy Limit
CSDC	Circuit Switched Digital Capability
CSE	Carrier Selection Enforcement
CSINT	Concentrator And Scanner Interface Circuitry
CSMDRS	Centralized Station Message Detail Recording System
CSO	Central Services Organization
CSOP	Complex Service Order Process
CSOP	Coordinator Of Spooler Output Processes
CSP	Control Switching Point
CSP	Controller Subordinate Process
CSPDN	Circuit Switched Public Data Network
CSR	Customer Station Rearrangements
CSRID	Customer Station Rearrangement Identification
CSS	Centralized Special Services
CSS	Computer Subsystem
CST	Central Standard Time
CST	Combined Services Terminal

CSU	Cache Store Unit
CSU	Combined Service Unit
CSU	Channel Service Unit
CSV	Circuit Switched Voice
CSV LIMIT	Call Reference Busy Limit
CSV NBLIMIT	Call Notification Busy Limit
CT	Call Type
CT	Central Trunk Test Unit
CT	Congestion Tone
CTA	Call Transfer Attendant
CTIAC	Call Transfer Individual All Calls
CTIIO	Call Transfer Individual Incoming Only
CTIO	Call Transfer Internal Only
CTS	Common Test System
CTS	Control Time Slot
CTSP	Control Time Slot Pump Process
CTTU	Centralized Trunk Test Unit
CTTU/RTTU	Centralized Trunk Test Unit/Remote Trunk Test Unit
CTU	Cell Translation Update
CTX	CENTREX
CU	Control Unit
CU	Converter Unit
CU/TK	Common Update/Trunking
CUD	Central Update Database
CUP	Control Unit Power
CUP	Customer Programmability
CUT	Circuit Under Test
CVT	Circuit Validation Test
CW	Call Waiting
CWI	Call Waiting Indication
CWC1	Call Waiting with Cancel 1
CWC1DT1	Call Waiting with Cancel 1 with Distinctive Tone 1
CWC1DT2	Call Waiting with Cancel 1 with Distinctive Tone 2
CWC2	Call Waiting with Cancel 2
CWC2DT	Call Waiting with Cancel 2 with Distinctive Tone
CWD	Call Waiting Deluxe
CWDC1	Call Waiting Deluxe with Cancel 1
CWDC2	Call Waiting Deluxe with Cancel 2
CWDC2DT	Call Waiting Deluxe with Cancel 2 with Distinctive Tones
CWDCDT1	Call Waiting Deluxe with Cancel 1 with Distinctive Tone 1
CWDCDT2	Call Waiting Deluxe with Cancel 1 with Distinctive Tone 2
CWDIO	Call Waiting Deluxe Incoming Only
CWDIODT	Call Waiting Deluxe Incoming Only with Distinctive Tones
CWDT	Call Waiting Deluxe Terminating
CWDTDT1	Call Waiting Deluxe Terminating with Distinctive Tone 1
CWDTDT2	Call Waiting Deluxe Terminating with Distinctive Tone 2
CWIO	Call Waiting Incoming Only
CWIODT	Call Waiting Incoming Only with Distinctive Tones
CWL	Call Waiting Lamps
CWO	Camp-on (BRCS Feature)
CWO	Call Waiting Originating
CWT	Call Waiting Terminating
CWTD1	Call Waiting Terminating with Distinctive Tone 1
CWTD2	Call Waiting Terminating with Distinctive Tone 2
CWTFD	Call Waiting Feature Definition
CXR	Carrier

3.4 D

Acronym	Definition
D	Disconnect
D+AR	Data Rate And Adaptation Method
D/A	Digital To Analog Conversion
D/A	Digital/Analog
D2SBS	Duplex Dual Serial Bus Selector
D4	A Type Of Channel Bank
DA	Data
DA	Destination Address

DA	Digit Analysis
DA	Directory Assistance
DA	Dynamic Access Subsystem
DAA	Direct Agent Access
DAA	Design Automation Assistant
DAB	Directory Assistance Bureau
DAC	Directory Assistance - Charging
DACS	Digital Access And Cross Connect System
DACS IV-2000	Digital Access and Cross Connect System IV-2000
DACTSR	Data, Control And Service Circuitry
DACU	Device Attachment Control Unit
DALB	D Channel Application Linkage Block
DAM	Data Access Model
DAM	Dual Access Memory
DAP	Display Administration Process
DARAM	Dual Access Random Access Memory
DART	Debugger For A Remote Target
DAS	Data Auxiliary Set
DAS	
DASC	Directory Assistance System Computer
DASS	Digital Access Signaling System
DATA	DATA Subsystem
DB	Database Subsystem
DB	Decibel
DB	Display Buffer
DBA	Data Base Administrator
DBAS	Data Base Administration System
DBM	Data Base Manager
DBMS	Data Base Management System
DBS	Duplex Bus Selector
DBTG	Data Base Task Group
DBU	Dial Backup Unit
DC	Device Control (Set Of IA5 Characters)
DC	Direct Current
DC	Directly Connected Test Unit
DC	Do Not Care
DCA	Dynamic Channel Assignment
DCB	Device/Diagnostic Control Block
DCCB	D-channel control block
DCD	Data Collection Device
DCD	Digital Call Distribution
DCDB	Digit Collection Data Block
DCDB	D-Channel Data Block
DCE	Data Circuit-Terminating Equipment
DCE	Data Communications Equipment
DCEC	Database Change And Evaluation Committee
DCF	Defensive Check Failure
DCF	Digital Carrier Facilities
DCLU	Digital Carrier Line Unit
DCO	Digital Central Office
DCO	Digital Controlled Oscillator
DCP	Data Communications Protocol
DCP	Distributed Call Processing
DCR	Directory Charge Recording
DCRGS	Data Collection And Report Generation Of Resource Usage Information System
DCS	Diagnostic Control Structure
DCS	Digital Conference System
DCS	Digital Cellular Switch
DCT	Digital Carrier Terminal
DCT	Digital Carrier Terminal/Trunk
DCT	Direct Connect Trunks
DCT	Dispatcher Control Table
DCTN	Defense Commercial Telecommunications Network
DCTU	Directly Connected Test Unit
DCW	Dial Call Waiting
DCWT	Distinctive Call Waiting Tone
DD	Data Delivery
DD	Delay Dial
DDA	Directory Database Administration

DDAS	Dynamic Data Access Subsystem
DDCC	Design And Documentation Coordination Committee
DDD	Direct Distance Dialing
DDI	Direct Dialing In
DDL	Data Definition Language
DDL	Derived Data Links
DDM-2000	Dual Digital Multiplexer - 2000
DDP	Data Definition Process
DDS	Digital Data Service/System
DDSBS	Duplex Dual Serial Bus Selector
DDSN	Digital Derived Services Network
DEACT	Deactivate
DEMUX	Demultiplexer
DEN	Digital Equipment Number
DEP	Data Entry Procedure
DESEP	Destination Separation Class
DESS	Digital Electronic Switching System
DEV	Device
DEVID	Device Identification
DF	Data Fanout
DF	Disk File Unit
DF	Distributing Frame
DF	Duplex Failure
DFC	Disk File Controller
DFD	Data Flow Diagram
DFF	Digital Facilities Frame
DFI	Digital Facility Interface
DFI-H	RISLU Host DFI
DFI-H1	RISLU Host DFI Type 1(Remotes A PICB And A PIDB To Remote Site)
DFI-H2	RISLU Host DFI Type 2(Remotes A PIDB To Remote Site)
DFI-R	RISLU Remote DFI
DFI-R1	RISLU Remote DFI Type 1(Remotes A PICB And A PIDB To Remote Site)
DFI-R2	RISLU Remote DFI Type 2(Remotes A PIDB To Remote Site)
DFTAC	Distributing Frame Test Access Circuit
DFU	Digital Facilities Unit
DFU	Disk File Unit
DG	Digroup
DG	Diagnostic Control Subsystem
DG	Diagnostics Supervisor
DGEN	Data Generation
DGN	Diagnose/Diagnostic
DGT	Digit Analysis
DI	Data Interface
DI	Destination Index
DI	Dielectric Isolation
DIAG	Diagnose
DIAGC	Diagnostic Control Program
DIAMON	Diagnostic Monitor Program
DID	Direct Inward Dialing
DIF	Digital Interface Frame
DIM	Digital Interface Module
DIO	DMA I/O Bus
DIOB	Director Memory Access I/O Bus
DIOR	Direct International Originations
DIP	Dual Inline Package
DIS	Disconnect
DISC	Disconnect
DISPDB	Display Data Block
DIST	Distribute
DIT	Display Information Table
DIVA	Digital Input-Voice Answer-back
DKDRV	Disk Driver
DKI	Disc/Disc Inverter
DL	Data Link
DLC	Digital Loop Carrier
DLDSL	Data Link Digital Subscriber Line
DLI	Dual Link Interface (Part Of SM)
DLICON	Dual Link Interface Configuration
DLIT	Demand Line Insulation Test

DLM	Digital Link Module
DLN	Direct Link Node
DLP	Decode Level Point
DLRU	Data Link Receiving Unit
DLT	Data Link Terminal
DLT	Digital Link Trunk Frame
DLT	Digital Link Trunk Port
DLTU	Digital Line And Trunk Unit
DLTU-RH	RISLU Host DLTU
DLTU-RR	RISLU Remote DLTU
DLTU/LU	Digital Line Trunk Unit/Line Unit
DLU	Data Link Unit
DM	Disconnected Mode
DM	Domain
DMA	Direct Memory Access
DMA/IO	Direct Memory Access/IO Unit
DMAC	Direct Memory Access Controller
DMAM	Deferred Maintenance Administrator And Monitor
DMAS	Dedicated Maintenance And Administrative Services
DMCH	DMA Channels
DMD	Dot Mapped Display
DMERT	Duplex Multi-Environment Real-Time Operating System
DMG	Digital Master Group
DMI	Digital Multiplexed Interface
DML	Data Manipulation Language
DMODE	Linecard Register For Controlling The D-Channel Mode
DMON	Diagnostic Monitor Process
DMU	Data Manipulation Unit
DMW	Digital Milliwatt
DN	Diagnostics-SM Subsystem
DN	Directory Number
DNA	Data Network Address
DNA	DN Appearance
DNCP	Diagnostics-CP Subsystem
DND	Do Not Disturb Service
DNET	Defer Non-Essential Tasks
DNHR	Dynamic Non-Hierarchical Routing
DNIC	Data Network Identification Code
DNS	Data Networking Services
DNT	Dialed Number Trigger
DOC	Dynamic Overload Control
DOD	Direct Outward Dialing
DOMSCR	Dominant Screening
DOPS	Digital Ordering And Planning System
DOR	Division Of Revenue
DOTS	Digital Office Timing Supply
DP	Destination Point
DP	Dial Pulse/Pulsing
DP	Duplex Processor
DPAT	Dialing Plan Access Treatment
DPB	D-Channel Port Block
DPB	Data Port Board
DPBX	Digital Private Branch Exchange
DPC	Data Port Circuit
DPC	Destination Point Code
DPCM	Differential Pulse Code Modulation (TV Signal Compression)
DPH	Data Priority High
DPIDB	Directly Connected Peripheral Interface Data Bus
DPKT	D-channel Packet
DPL	Data Priority Low
DPLL	Digital Phase Lock Loop
DPN	Directed Pickup Nonbarge-In
DPN	Distribute Point Number
DPNSS	Digital Private Network Signaling System
DPT	Diagnostic Phase Table
DPU	Directed Pickup With Barge-In
DQD	Directory Query Display
DR	Distinctive Ring
DRE	Directional Reservation Equipment

DRS	Digital Reference Sequence
DS	Digital Signal
DS0	64-Kilobit-per-Second PCM Transport Facility
DS0	Digital Signal Level 0
DS1	1.544 Mega-baud Data Channel
DS1S	Digital Signal Level 1 SONET
DSA	Dial Service Assistance
DSBLD	Disabled
DSC	Data Set Cabinet
DSC	Digital Services Circuit
DSC	Dual Serial Channel
DSCCOM	Digital Service Circuit Common
DSCH	Dual Serial Channel
DSCP	Digital Service Circuit Pack/Port
DSCU	Digital Service Circuit Unit
DSD	Direct Services Dialing
DSD-NSC	Direct Services Dialing - Network Services Center
DSDC	Direct Services Dialing Capability
DSE	Direct Signaling Event
DSI	Data Subscriber Interface
DSIOS	Data Subscriber Interface Operating System
DSL	Digital Subscriber Line; also called a BRI Basic Rate Interface
DSLCL	Digital Subscriber Line Concentrator
DSLINIT	DSL Initialization
DSM	Direct Signaling Message
DSN	Defense Switched Network
DSO	One 64 Kilobit Per Second Channel of A T1 Line
DSP	Digital Signal Processor
DSS	Digital Switching System
DSS	Direct Station Selection
DSS	Display Station Set
DSSC	Dual Serial Data Channel
DST	Destination Bus
DSTC	Digital Serving Test Center
DSTT	Direct Signaling Translation Test
DSU	Digital Service Unit
DSU1-CONF	Digital Service Unit 1 - Conference Circuits
DSU2	Digital Service Unit Model 2
DSUCOM	Digital Service Circuit Unit - Common
DSUG	Digital Service Circuit Unit (With Global Functions)
DSUL	Digital Service Circuit Unit (With Local Functions)
DSX	Digital Cross-Connect (Frame)
DT	Basic Digital Terminal
DT	Destination Type
DT	Data Transport
DTA	Dial Through Announcement
DTD	Dial Tone Delay
DTDA	Dial Tone Delay Alarm
DTE	Data Terminating Equipment
DTF	Dial Tone First
DTF	Digital Transmission Facility
DTGS	Direct Trunk Group Selection
DTMF	Dual Tone Multifrequency
DTO	Decentralized Toll Office
DTP	DAS/C Terminal Process
DTQ	Delay Treatment For Queuing
DTR	Data Terminal Ready
DTSA	Linecard Register That Assigns GIDB Time Slot To D-Channel
DTT	Digital Transmission Terminals
DTTTL	Dial Transfer To Tandem Tie Line
DTU	Digital Trunk Unit
DU	Design Unit
DUC	Dual Access Utility Circuit
DUE	Detection of Unauthorized Equipment
DUIC	Direct User Interface Controller
DUP	Data User Part
DVO	Data Voice Office
DXD	Digit By Digit Analysis

3.5 E

Acronym	Definition
E&M	Ear And Mouth
EA	Emergency Action
EA	Equal Access
EA	Error Analysis
EA	Exchange Access
EA	Extended Address Bit
EACK	Channel Error Acknowledge
EADAS	Engineering And Administrative Data Acquisition System
EADAS/NM	Engineering and Administrative Data Acquisition System For Network Administration
EADAS/NORGEN	EADAS/Network Operations Report Generator
EAEO	Equal Access End Offices
EAI	Emergency Action Interface
EAMF	Equal Access Multifrequency
EAN	Equipment Access Network
EAP	Elevated Audit Process
EARN	Equipment Access Relay Network
EARN	Equipment Action Interface
EAS	Exchange Access Signaling
EAS	Extended Area Service
EB	Event Buffer
EC	Electronic Console
EC	External Data Link Communication Package
ECA	Exchange Carrier Association
ECB	Echo Cancellation Boards
ECD	Equipment Configuration Database
ECD/SG	Equipment Configuration Data (Or Database) / Service Groups
ECDGEN	Equipment Configuration Data Generation Program
ECDMAN	Equipment Configuration Data Manager
ECH	Echo Canceled Hybrid
ECIS	Embedded CCIS Protocol
ECIS6	Embedded Common Channel Office Signaling
ECO	Emergency Change Over
ECP	Engineering Change Procedures
ECP	Executive Control Processor
ECR	Emergency Call Record
ECT	Equipment Configuration Table
ECTD	Expanded Call Type Determination
ECTP	Evaluation Control Terminal Process
ECU	Echo Cancellation Unit
EDAC	Enhanced Digit Analysis And Collection
EDBMH	External Data Base Message Handler
EDLCP	External Data Link Communication Package
EDS	EPSCS Data Switch
EDS CND	
EDSL	Extended Digital Subscriber Line
EE	Execution Environment
EF&I	Engineered, Furnished And Installed
EFS	Error Free Second
EIC	Exchange Identification Code
EIH	Error Interrupt Handler
EIRS	Expanded In-Band Ringback Signal Generation
EIS	Expanded Inband Signaling
EIS	External Information Systems
EKTS	Electronic Key Telephone Service
ELI	Electric Line Interface
ELIGI	Enhanced Limited Intragroup ICLID
ELP	Encode Level Point
ELS	Electronic Loop Segregation
ELT	Emergency Load Transfer
EM	Electromechanical
EMB	Engineering Methods Bulletin
EMC	Electromagnetic Compatibility
EMI	Electro-Magnetic Interference
EML	Expected Measured Loss
EMM	Expanded Main Memory

EMMP	Enhances Message Module Processor
EMP	Electro-Magnetic Pulse
EMS	Effective Mass Filter
EMSP	Enhanced Modular Signal Processor
EMTR	Equipment Manufacturing Testing Requirements
EN	Equipment Number
ENFIA	Exchange Network Facilities For Interexchange/Interstate Access
EO	End Office
EOATA	End Office Access Trunk Arrangement
EOC	End Of Call
EOS	Extended Operating System
EOT	End Of Tape/Transfer
EPH	Enhanced Protocol Handler
EPIC	Engineering Purchased Integrated Circuits
EPLS	Emergency Priority Line Service
EPO	Enhanced Professional Office
EPROM	Erasable Programmable Read Only Memory
EPS	Equipment Product Schematic
EPSCS	Enhanced Private Switched Communication Service
EPSM	Equipment Product Schematic For Manufacture
EQL	Equipment Location Number
EQSTAT	Equipage State Field In RC View
ER	Equipment Report
ER	Error Register/Request
ERA	Error Analysis Register
ERL	Echo Return Loss
ERROR	Linecard Register That Signals GIDB Errors
ES	Errored Seconds
ESA	E911 Service Adjunct
ESAC	Electronic Switching Assistance Center
ESB	Emergency Service Bureau
ESC	Enhanced Services Complex
ESCO	Emergency Service Central Office
ESD	Electrostatic Discharge
ESN	Emergency Service Number
ESP	Engineering Specification Practices
ESP	Enhanced Services Provider
ESP	Essential Service Protection
ESP	External Security Password
ESPOTS	Extended Super Plain Old Telephone Service
ESR	Error Source Register
ESSX	Private facilities feature which emulates a PBX in the 5ESS-2000 Switch
EST	Equipment Status Table
ET	Exchange Terminator/Termination
ETN	Electronic Tandem Network
ETS	Electronic Tandem Switching
ETS/ETN	Electronic Tandem Switch/Electronic Tandem Network
EUO	???
EWD	End With Disconnect
EV	Administrative Event Reporting
EX	Exercise
EXC	Execute
EXT	Extension
EXT	External
E BIT	Busy/Idle Bit In A Time Slot

3.6 F

Acronym	Definition
FA	Fault Recovery
FA	Firmware Administration
FAs	Feature Activators
FAC	Facility Administration And Control
FAC	Feature Assignment And Construction
FACCS	Facility Associated Common Channel Signaling
FACMS	Firmware Administration Change Management System
FACS	Facility Assignment Control System
FADS	Feature Access During Speech

FAP	Feature Activation Point
FARPID	Far Process Identification
FAS	Facility Associated Signaling
FBDB	Free Buffer Descriptor Blocks
FBI	Feature Button Inspect
FB-ICOM	Feature Button Intercom
FCD	Feature Code Dialing
FCG	False Cross And Ground
FCOS	Far Class Of Service
FCS	Frame Check Sequence
FCT	Firmware Coordination Team
FCU	Format Control Unit
FDB	Feature Data Base
FDM	Frequency Division Multiplexing
FDMA	Frequency Division Multiple Access
FDS	Feature Design Specification
FDX	Full Duplex
FEDT	Far-End Data Tone
FEM	Front End Menu
FENPA	Far End Numbering Plan Area (Far End Area Code)
FEV	Far End Voice
FFU	Fuse Filter Unit
FG	Failure Group
FG	Foreground (Peripheral Control)
FGB	Feature Group B
FGBOL	Feature Group B Originating LATA
FGC	Feature Group C
FGD	Feature Group D
FGDOL	Feature Group D Originating LATA
FI	Facilities Interface
FI	
FIB	Find Indicator Bit
FIC	Film Integrated Circuit
FICU	Fault Insertion Control Unit
FID	Feature Identifiers
FIDB	Facilities Interface Data Bus
FIFO	First-In First-Out
FIM	Fiber Interface Module
FIP	File Inquiry Processor
FIPS	Facility Interface Processors
FIRM	Firmware Subsystem
FISU	Fill-In Signal Unit
FIT	Failure In Time (Typically 10E9 Device Hours)
FIT	Fully-Initializing Terminal
FIU	Facilities Interface Unit
FLT	Fault
FLT	Fault Locating Terminal
FLTRCV	Fault Recover
FLZ	Find Low Zero
FM	Feature Model
FM	File Management/Manager
FMC	Force Management Centers
FNSI	Forward Number Specific Information
FONL	Force On Line
FP	Fast Pump
FP	Feature Processor
FP	Frame Pointer
FP	Fuse Panel
FPC	Foundation Peripheral Controller (Part Of MSGS)
FPCCON	Foundation Peripheral Controller Configuration
FPCH	Foundation Peripheral Controller Handler
FPFH	Fast Pump Facility Handler
FPI	Full Process Initialization
FPID	Far Process Identification
FPS	Forms Processor System
FPSP	Fast Pump System Process
FPT	Functional Pack Test
FPTP	Fast Pump Terminal Process
FPU	Fuse Panel Unit

FR	Fault Recovery
FRCD	Forced Active
FRL	Facility Restriction Level
FRMR	Frame Reject Response
FRP	Fault Recovery Program
FRPH	Frame Relay Protocol Handler
FRS	Feature Requirements Specification
FRS	Flexible Route Selection
FSK	Frequency Shift Keying
FSM	Finite State Machine
FSN	Forward Sequence Number
FSR	Frequency Select Ringing
FSTT	Finite State Transition Table
FTAM	Form Translation And Mapping
FTB	Facility Test Bus
FTP	Feature Terminal Process
FTS	Federal Telecommunication System
FTS	Field Test Set
FTS/NRA	Federal Telecommunications/Number Remote Access
FU	Fan Unit
FW	Firmware
FWA	Full Wave Average
FWCLI	Firmware Change Level Indicator
FX	Foreign Exchange
FX-ROTL	Foreign Exchange Lines For The Remote Office Test Line

3.7 G

Acronym	Definition
GD	Global D Channel
GDA	Global Data Area
GDATA	Global Data
GDB	General Deactivation Procedure
GDS	Gated Diode Switch
GDSF	Global Digital Services Facility
GDSU	Global Digital Service Unit
GDU	Global Design Unit
GDX	Gated Diode Crosspoints
GDXAXS	GDX Access
GDXC	Gated Diode Crosspoint Compensator Pack
GDXCTRL	Gated Diode Crosspoint Access
GEN	General Registers
GFAS	General Feature Access Scheme
GFH	Global Fault Handler
GFM	Global Function Module
GIDB	Group Interface Data Bus (For ISLU)
GL	Global Symbol
GLAU	High Level Access Unit
GLG	General Line Group
GLIB	Generic Library
GLS	Generalized Line Signaling
GLU	General Line Unit
GMOS	Group Manager Operator Services
GNP	General Numbering Plan
GNPO/T	General Numbering Plan Originating/Toll
GNPSNI	General Numbering Plan Singular Number Identification
GOP	Global Overload Process
GPD	Group Partitioned Data
GPDB	General Purpose Buffer Descriptors
GPIC	Group Primary Carrier
GPIM	Global Position Interface Module
GPITS	General Purpose Integrated Test System
GPIU	General Purpose Interface Unit
GPORT	Global Port
GRASP	Generic Access Program (Or Package)
GRASPIM	Generic Access Program For The Interface Module
GRCV	Growth Recent Change Verify
GREP	Global Regular Expression Print

GROW	GROWth Equipage State
GRSP	Global Routing System Process
GSDB	Grid Summary Scan Data Block
GSL	Gas Surge Limiter
GSM	Global Service Module
GSS	Global System Status
GTEI	Group Terminal Endpoint Identifier
GTG	General Trunk Group
GTG	Generalized Tone Generation
GTT	Global Title Translation
GTU	General Trunk Unit

3.8 H

Acronym	Definition
H/M	Hotel/Motel
HBIS	Hotel Billing Information System
HCC	Hardware Change Committee
HCISLU	High Capacity Integrated Services Line Unit
HCMICU	High Capacity Message Interface And Clock Unit
HCMSGs	High Capacity MSGs
HD	High Day
HDBH	High Day Busy Hour
HDFI	Host Digital Facilities Interface
HDLC	High Level Data Link Control
HEX	High Energy Crosspoint
HG	Half Group
HIC	Hybrid Integrated Circuit
HILO	High-Low Technique
HILVL	High Level
HINIT	Hardware Initialization
HLAU	High Level Access Unit
HLDA	Hold Acknowledge
HLL	High Level Language
HLSC	High Level Service Circuit
HM	Hotel Motel
HMIRA	Human Machine Input Request Administration
HMKP	Human Machine Kernel Process
HMSIP	Human Machine Spooler Input Process
HNPA	Home Numbering Plan Area
HOBI	Hotel Billing Information Center
HOBI	Hotel Billing Information System
HOC	Host Collector
HP	Hard Pulse
HP	Hi Priority
HSC	High Level Service Unit
HSM	Host Switching Module
HSR	Hardware Status Register
HSSDS	High Speed Switched Digital Service
HST	Hashsum Tables
HSU	High Level Service Circuit Unit
HTE	Hardware Test And Evaluation
HTLU	High Traffic Line Unit
HTP	Host Interface Module Terminal Process
HTR	Hard to Reach
HTT	Hardware Troubleshooting Tools
HTU	High Level Test Unit
HU	Hardware Units
HW	Hardware
HZ	Hertz Cycles Per Second

3.9 I

Acronym	Definition
I	Information
I.110	CCITT Reference: General Structure Of I Recommendations
I.120	CCITT Reference: Integrated Services Digital Networks

I.320	CCITT ISDN Protocol Reference Model Description
I.411	CCITT ISDN User-Network Interfaces Reference
I.430	CCITT ISDN Layer 1 (Physical Layer) Specification
I.431	CCITT Primary Rate Layer 1 (Physical Layer) Specification
IA	Ineffective Attempt
IA	Intraexchange
IAD	Integrated Access Distributor
IAM	Initial Address Message
IAN	Integrated Analog Network
IAPXITS	Integrated Test System INTEL Processors
IAR	Immediate Access Random Access Memory
IB	Instruction Buffer
IBDN	Individual Billing Directory Number
IBHC	Input Buffer Head Cell
IBNS - R2	International Billed Number Screening - Release 2
IC	InterLATA Carrier
IC	Incoming Call
IC	Integrated Circuit
IC	Interexchange Carrier
IC	Interorganization Coordination Team
ICAD	Initialization And Configuration Administration
ICAI	Idle Call Appearance Inspect
ICAN	Individual Circuit Analysis
ICB	Incoming Calls Barred
ICF	Inter-LATA Carrier Form
ICI	Incoming Call Identification
ICI	ISDN Call Identification
ICL	Inserted Connection Loss
ICL	Inter Cluster Link
ICLID	Incoming Call Line Identification
I-CNAM	ISDN Calling Name for BRI
I-CNIS	ISDN Calling Number Identification Services
ICON	Initialization Control
ICS	Inmate Calling Services
ICT	Incoming Trunk
ICVC	International Card Verification Center ID
ID	Immediate Dial
ID	Individualized Dialing
IDAS	Integrated Routing Assignment System
IDB	INWATS Database
IDC	Integrated Digital Capability
IDCU	Integrated Digital Carrier Unit
IDDD	International Direct Distance Dialing
IDE	Initial Development Environment
IDEAS	Integrated Digital Extension For Analog Switches
IDL	Interoffice Data Link
IDLC	Integrated Digital Loop Carrier
IDN	Integrated Digital Network
IDP	Individualized Dialing Plan
IDPI	Internal Data Path Identifier
IDS	Interconnection Design System
IDS	Interprocessor Data Synchronization
IDT	Integrated Display Terminal
IE	Information Element
IE	Input Equipment
IE	Interexchange
IEC	Interexchange Carrier
IEDS	ISDN Electronic Directory Service
IFMH	Interflow Message Handler
IGC	Inter-Gateway Circuits
IH	Interrupt Mask
IHA	Incremental Hardware Addition
IIA	Interrupt Inhibit Administrator
IIGW	Inter-ISM Gateway
IITS	Interactive Integrated Test System (Formerly STS)
IM	Immediate Mode (RC)
IM	Input Message
IM	Integrity Monitor
IM	Interface Module (now SM)

IM	Interrupt Mask
IM-OM	Input And Output Message Manuals
IM-REXS	Interface Module Routine Exercise Scheduler
IM/OM	Input Manual/Output Manual
IMBP	Interface Module Backup Process
IMC	Interface Module Cabinet
IMC	Interface Module Control Cabinet
IMLT	Integrated Mechanized Loop Testing
IMP	Improved Module Processor
IMP	Interface Module Processor
IMPU	Interface Module Processor Unit
IMR	Initial Modification Request
IMS	Interprocess Message Switch
IMST	Interface Module System Test
IMT	Inter-Module Trunk
IN	Initialization
INA	Integrated Network Arrangement
INADS	Initialization And Administration System
INC	International Carriers
IND	Indication
INETS	Interim NETS
INFORM	Information
INH	I/O Inhibit
INIT	Initialization
INIT	Initiate
INOP	Inward Operator
INPA	Interchangeable NPA
INSEP	Incoming Separation Class
INV	Direct-To-Alternating Current Inverter
INV	Inverter (Disk)
INVTR	Inverter
INWATS	Inward Wide Area Telecommunications Service
IOC	International Operator Center
IODRV	Input/Output Driver
IOMI	Input/Output Microprocessor Interface
IOMM	Input/Output Message
IOP	Input/Output Processor
IOPC	Input/Output Peripheral Controller
IORN	I/O Read (Active Low)
IOS	Improved Outpulsing Service
IOWN	I/O Write (Active Low)
IP	ISDN Interworking Unit Port
IP	Improved Pump
IP	In Progress
IP	Intelligent Peripheral
IP	Initialization Processor
IPC	Inter-Process Communication
IPL	Initialization Processor Load
IPM	Interruptions Per Minute
IPS	Interrupts Per Second
IPWS	Interactive Planning Work Station
IR	Interrupt Request
IREG	Integrated Range Extension With Gain
IRN	Integrated Ring Node
IRQ	Invalid Request For Supplementary Service
IS	Information Separator
IS	Interrupt Set Register
IS	Interrupt Source
ISAT	ISDN Attendant
ISC	Intelligent Serial Controller
ISC	International Switching Center
ISCN	Integrated Services Channel Number
ISD	International Subscriber Dials
ISDN	Integrated Services Digital Network
ISDN-UP	Integrated Services Digital Network User Part (Of CCITT7)
ISDNBASE	ISDN Base Code Loadable Package.
ISDNBRCS	ISDN BRCS Code Loadable Package
ISDRT	Integrated Services Digital Remote Terminal
ISDS	Incremental Software Development System

ISLC	Integrated Subscriber Loop Carrier
ISLU	Integrated Services Line Unit
ISLU2	Integrated Services Line Unit - 2
ISLUBASE	ISLU Base Code Loadable Package
ISM	Integrated Services Module (outdated acronym)
ISN	Integrated Services Network
ISP	Intermediate Switching Point
ISPA	Integrated Services Port Administrator
ISPF	Interactive Session Productivity Facility
ISSN	Integrated Special Services Network
ISTF	Integrated Services Test Facility
ISU	Identification Service Unit
ISU	Initial Signal Unit
ISUP	Integrated Services - User Part
IT	Intertoll
ITE	Installation Test Equipment
ITIME	OSDS Time Relative To OSDS Init
ITLH	(2 Wire) Incoming Trunk Loop, Hook
ITLM	(2 Wire) Incoming Trunk Loop, Metering
ITP	Interaction Test Plan
ITS	Integrated Test System
IU	Interface Unit
IUB	Interface-Unit Bus
IUI	Integrated User Interface
IXC	Inter-Exchange Carrier

3.10 J

Acronym	Definition
JF	Junctor Frame

3.11 K

Acronym	Definition
KA	Knowledge Access
KAM	Knowledge Access Model
KB	Knowledge Base
KB/S	Kilobits Per Second
KBPS	Kilobits Per Second
KCS	Key Control Service
KDB	Kernel Debugger
KHZ	Kilohertz
KM	Kilometer
KP	Key Pulse
KPCB	Kernel Process Control Block
KSR	Keyboard Send/Receive
KSU	Key Service Unit
KTTP	Keying Trunk Terminal Process
KW	Key Word

3.12 L

Acronym	Definition
LABS	LATA-Wide Business Service
LAC	Loop Assignment Center
LACT	Local Customer Administration Terminal
LADT	Local Area Data Transport
LAMA	Local Automatic Message Accounting
LAN	Local Area Network
LAP	Link Access Protocol
LAPB	Link Access Protocol B
LAPD	Link Access Protocol D
LASS	Local Area Signaling Services
LATA	Local Access And Transport Area
LAU	Link Adapter Unit (Was AAU)
LBRA	Line Battery Reversal On Answer

LC	Last Call
LC	Line Card Of The ISLU
LC	Line Controller
LC	Loop Closure
LCAMOS	Loop Cable Administrative And Maintenance Operations System
LCAS	Local Customer Administration System
LCC	Line Class Code
LCCB	Logical Channel Control Block
LCEN	Line Card Equipment Number
LCI	Local Call Intercept
LCIE	Lightguide Cable Interconnect Equipment
LCP	Linked Call Processing
LCR	Least Cost Routing
LCSN	Lower Chip Select
LCU	Link Controller Unit
LD	Long Duration (Call)
LD	Loop Disconnect
LDC	Long Duration Call
LDFT	Load Disk From Tape
LDG	Logical Device Group
LDI	Logical Device Identification
LDIN	Logical Device Identification Number
LDIT	Local Digit Interpreter Table
LDMC	Loop Data Maintenance Center
LDN	Listed Directory Number
LDS	Lesson Development System
LDSU	Local/Logical Digital Service Unit
LDSUB	Local Digital Service Unit Bus
LDSUF	Local Digital Service Unit Feature
LE	Link Establishment (Message)
LEC	Local Exchange Carrier
LED	Light Emitting Diode
LEN	Line Equipment Number
LF	Line Forwarding
LG	Line Group
LGC	Line Group Controller
LGP	Line Group Power Board
LHT	Long Holding Time
LI	Link Interface
LIB	Link Interface Bus
LIC	Line Interface Circuit
LICON	Link Interface Configuration
LIDB	Line Interface Data Bus
LIDB	Line information data base
LIGI	Limited Intra-group ICLID
LIM	Link/Local Interface Module
LIT	Line Insulation Test
LIU	Line Interface Unit
LL	Logical Link
LLA	Low Level Access
LLCB	Logical Link Control Block
LLID	Logical Link Identifier
LLM	Logical Link Map
LLN	Line-Link Network
LLP	Line Link Pulsing
LLSC	Low Level Service Circuits (AC)
LLSCU	Low Level Service Circuit Unit
LM	Link Map
LMDRS	Local Message Detail Recording System
LML	Line Maintenance Lists
LMOS	Loop Maintenance Operations System
LMR	Load Modification Request
LN	Link Node
LNI	Line Interface (Cabinet Or Frame)
LO	Local Office
LONAL	Local Off-Network Access Line
LOS	Loss Of Signal
LOSL	Line Out Of Service List
LOT	Loader Option Tape

LOTS	Load Originating Test System
LP	Logical Port
LP	Logical Processors
LP	Loopback
LPCDF	Low Profile Conventional Distributing Frame
LPE	Logical Procedure Error
LPIC	Line Primary Carrier
LPID	Logical Port ID
LPR	Last Party Release (An MFC Signal)
LPT	Load Process Team
LRSP	Local Routing System Process
LS	Link Set
LS	Listing Services
LSI	Loop Side Interface
LSI	Loop Supervision Incoming
LSM	Local Switching Module
LSO	Loop Start Outgoing
LSO	Loop Supervision Outgoing
LSOS	Language Specific Operator Services
LSR	Line Signaling Repeater
LSSU	Link Status Signal Unit
LSU	Local Storage Unit
LSU	Lone Signal Units
LSV	Line Status Verifier
LT	Line Termination
LT	Line Trunk Frame
LTA	Load Transfer Acknowledgement
LTATA	Local Tandem Access Trunk Arrangement
LTD	Local Test Desk
LTD	Local Traffic Diversion
LTOSL	Line Temporary Out Of Service List
LTP	Line Test Position
LTP	Line Trunk Peripheral Cabinet
LTP	Local Test Position
LTP	Logical Test Port
LTR	Load Transfer Request
LTS	Loop Test Start
LTSB	Line Time Slot Bridging
LT	Long Term Tone
LU	Line Unit
LU-81	1981 Line Unit
LU-83	1983 Line Unit
LUC	Line Utilization Check
LUCHAN	Line Unit Channel Circuit
LUT	Line Under Test
LUTS	Locked-Up Trunk Scan
LV1ERR	Level 1 Error
LV2ERR	Level 2 Error
LV3ERR	Level 3 Error
LVL1ERR	Level 1 Error
LVL2ERR	Level 2 Error
LVL3ERR	Level 3 Error
LW	Leave Word
LWC	Leave Word Calling
LWC-IO	Leave Word Calling - Incoming/Outgoing
LWC-O	Leave Word Calling - Outgoing

3.13 M

Acronym	Definition
M	Mandatory
M	Miscellaneous Cabinet
MA	Main Store Array
MA	Milli-Amps
MAAP	Maintenance And Administration Panel
MAC	Memory Administration Center (See RMAC)
MAC-4	BELLMAC-4 Microcomputer
MAC-OSS	Machine Administration Center - Operation Support System

MAJ	Metallic Access Junctors
MALU	Miscellaneous Analog Line Unit (Now MLU)
MAN	Manual
MAN	Metallic Access Network
MAR	Microstore Address Register
MAS	Main Store
MAS	Module Alarm System
MASA	Main Store Array
MASB	Main Store Bus
MASC	Main Store Controller
MASDU	Metallic Access Scan Distribution Unit
MASK	Linecard Register For Masking Out Errors Noted By ERROR Register
MASM	Main Store Module
MASU	Main Store Update
MASUB	Main Store Update Bus
MATT	Matcher And Transfer Tracer
MAU	Metallic Access Unit
MAUUI	Message Associated User-to-user Information
MAX	Metallic Access
MBKS	Multibutton Key System
MBPS	Megabits Per Second
MC	Maintenance Circuit
MC	Master Control
MC	Microcode Number For Firmware Products
MC	Modular Communications
MC	Module Controller
MC68000	Micro Computer Type 68000
MCA	Misrouted Centralized Automatic Message Accounting
MCA	Module Circuit Administrator
MCA	Multiple Call Appearances
MCB	Maintenance/Message Control Block
MCB	Module Control Bus
MCBA	MCB Array
MCBI	MCB Index
MCC	Maintenance (Master) Control Center
MCC	Master Control Center
MCC/ROP	Master Control Center Receive Only Printer
MCH	Maintenance Channel
MCO	Manual Changeover
MCR	Modular Capability Request
MCRT	Master/Maintenance Cathode Ray Tube/Terminal
MCS	Memory Chip Select
MCS	Message Command System
MCS	Microcontrol Store
MCS	Microprocessor Call Simulator
MCS	Module Conversion Specification
MCT	Malicious Call Trace
MCTF	Malicious Call Trace On Flash
MCTSI	Module Controller/Time Slot Interchange
MCTSIU	Module Control And Time Slot Interchanger Unit
MCTU	Module Controller And TSI Unit
MCTUFR	Module Controller and TSI Unit Fault Recovery
MCU	Module Control Unit
MCW	Memory Card Writer
MD	Message Delivery
MD	Module Declaration (File)
MD-PH	Message Delivery Protocol Handler
MDB	Message Buffer Data Blocks
MDCT	Logical Device Record
MDCT	Minor Device Chain Table
MDF	Main Distributing Frame
MDII	Machine Detected Interoffice Irregularities
MDL	Management Data Link
MDL	Message Definition Language
MDL	Message Delivery Data Link
MDM	Modular Data Module
MDM	Modular Digital Modem
MDR	Message Detail Recording
MDR-CP	Message Detail Recording To Customer's Premises

MDSL	Multiplexed Digital Subscriber Line
MEAS	Measurements
MEAU	Module Elevated Audits (Process)
MECCA	Mechanized Evaluation Of Call Completion Anomalies
MECH	More Efficient Call Handling
MEM	Memory
MEMB	Multi-Line Hunt Group Member
MES	Message
MET	Multibutton Electronic Telephone
MEU	Memory Expansion Unit
MF	Memorandum For File
MF	Message Forwarder
MF	Multi-Frequency
MFC	Modular Feature Construction/Customization
MFC	Multifrequency Code/Compiler
MFKP	Multifrequency Key Pulsing
MFOS	Multifunction Operations System
MFOSS	Multifunctional Operations Support System
MFRI	Multifrequency Ringing Interface
MFT	Metallic Facility Terminal
MH	Manual Hold
MH	Message Handler
MH2	Metro Hub 2
MH3B	3B Message Handler
MHD	Moving Head Disk
MHDC	Moving Head Disk Control
MHDD	Moving Head Disk Drive
MHDD/C	Moving Head Disk Data Clock
MHDI	Moving Head Disk Interface
MHZ	Mega-Hertz
MI	Maskable Interrupt
MI	Message Interface
MIB	Message Interface Bus
MIC	Message Insertion Circuit
MICO	Module Integrity Control
MICO	Module Integrity Controller
MICON	Message Interface Configuration
MICU	Message Interface Clock Unit
MICU	Message Interface Control Unit
MICU/TMS	Message Interface Clock Unit/Time Multiplexed Switch
MICU2	Message Interface/Clock Unit, Model 2
MID	Module Identifier
MIM	Miscellaneous Interface Module
MIP	Maintenance In Progress
MIP	Micro Interface Program
MIPTG	Multiple internal protocol trunk groups
MIR	Microinstruction Register
MIS	Management Information System
MIS	Microstore
MIS	Module Interface Specification
MISC	Miscellaneous Frame
MJ	Major Alarm
MKDSK	Make Disk Process
MLG	MTSO Load Generation Software
MLG	Miscellaneous Line Group
MLG	Multi Line Group
MLHG	Multi-Line Hunt Group
MLHGMN	Multi-Line Hunt Group Member Number
MLI	Message Link Interface
MLOS	Multi-Lingual Operator Services
MLPP	Multi-Level Precedence Preemption
MLT	Mechanized Loop Test System
MLT-2	Mechanized Loop Testing System Generation 2
MLTS	Micro Level Test Set
MLTS/MIP	Micro Level Test Set/Interface Program
MLTSI	Micro Level Test Set Interface
MLU	Miscellaneous Line Unit
MM	Multi Metering
MM	Multi-Module

MM-REXC	Multi Module Routine Exercise Controller
MMGR	Memory Manager
MMJ	Major Alarm
MML	CCITT Human-Machine Language Used For 5ESS - Operator Interaction
MMP	Module Message Processor (Part Of SM And MSGS)
MMPCON	Module Message Processor Configuration
MMPH	Module Message Processor Handler
MMRSM	Multi-Module Remote Switching Module
MMST	Multi-Module System Test
MMSU	Modular Metallic Service/Switch Unit
MMT/C	Meet Me Teleconferencing
MMU	Multimessage Unit
MN	Minor Alarm
MNTACC	Maintenance Acknowledge Command
MNU	Message Not Understood
MOD	Module
MOD-CONT	Module Controller
MODCONT	Modular Controller
MOFI	Module Only Full Initialization
MOJ	Metering Over Junction
MOR	Manual Over Ride
MOS	Metal Oxidized Silicone
MOS	Module Operation System
MOSI	Module Only Selective Initialization
MOUT	Microprocessor Data (T-Interface Output)
MP	Modem Pool
MP	Module Processor
MPC	Message Peripheral Controller
MPCI	Message Peripheral Controller Interface
MPDAV	Module Processor Data Available
MPI	Module Processor Interface
MPI	Multiple Protocol Handler Images
MPOTP	Modem Pool Originating Terminal Process
MPREQ	Module Processor Request
MPSC	Multi-Protocol Serial Controller
MPTP	Modem Pool Terminal Process
MPTP	Monitoring Position Terminal Process
MPTTP	Modem Pool Terminating Terminal Process
MPU	Module/Message Processor Unit
MPUP	Module Packet Unloading Process
MRAU	Module Routine Audits (Process)
MRD	Message Retrieval Display
MRF	Maintenance Reset Function
MS	Measurements
MS	Message Switch
MS	Mobile Stations
MSA	Microstore Address Bus
MSB	Message Sampling Board
MSC	Message Service Center
MSC	Message Switch Controller
MSC	Mobil Switching Centers
MSCU	Message Switch Control Unit
MSCU2	Message Switch Control Unit - Model 2
MSCUCON	Message Switch Control Unit Configuration
MSD	Message Sequence Diagram
MSD	Microstore Data Bus
MSDRV	Message Switch Driver
MSG	Message
MSG	Message Switch
MSG2	Message Switch, Model 2
MSI	Message Service Indicator
MSKP	Message Switch Kernel Process
MSL	Mapping Specification Language
MSL	Mode Select Logic
MSM	Message Switch Maintenance
MSPC	Message Switch Peripheral Controller
MSPP	Message Switch Peripheral Processor
MSPU	Message Switch Peripheral Unit
MSS	Message Service System

MSU	Master Scanner Unit
MSU	Message Signal Unit
MSU	Metallic Service Unit
MT	Magnetic Tape Unit
MTB	Manual Toll Board
MTB	Metallic Test Bus
MTC	Magnetic Tape Controller
MTCB	MTC Bus
MTCE	Maintenance
MTG	Miscellaneous Trunk Group
MTI	Maintenance Interface
MTI	Message Transport Interface
MTIB	Metallic Test Interconnect Bus
MTP	Message Transfer Part
MTP	Metallic Test Pair
MTP	Monitor Terminal Process
MTS	Message Telephone Service
MTS	Message Time Slot
MTSO	Mobile Telephone Switching Office
MTTF	Manual Test Trunk Function
MTTP	Manual Trunk Test Panel
MTTR	Mean Time To Restore
MTTST	Manual Transmission Testing
MTTY	Maintenance Teletypewriter
MTTY PC	Maintenance Teletype Peripheral Controller
MTTYC	MTTY Controller
MTTYPC	Maintenance Terminal Peripheral Controller
MTU	Metallic Test Unit
MTU	Miscellaneous Trunk Unit
MU	Master Unit
MUCSO	Multi-Channel Software Oscilloscope
MUM	Multi Unit Message
MUPH	Multiple Position Hunt
MUPHQ	Multiple Position Hunt With Queuing
MUX	Multiplexer
MVDT	Maintenance VDT
MVP	Multiline Variety Package
MW	Multiway Calling
MWC	Multiway Calling Modular
MWI	Message Waiting Indicator

3.14 N

Acronym	Definition
NAC	Network Access Control
NAC	Network Administration Center
NAC	Normalized Area Code
NAIL-UP	Assign Time Slots Permanently Connected
NAIU	Network Access Interface Unit
NAL	Network Access Lines
NAM	Number Acknowledge Message
NANP	North American Numbering Plan
NAP	Name Private
NAQ	Network Autoquote
NC	Network Clock
NC	Network Control Sub-Subsystem
NC	No Circuit
NCA	Network Control Analysis
NCAI	Non-Idle Call Appearance Inspect
NCCON	Network Clock Configuration
NCD	Network Call Denial
NCEO	Non-Conforming End Office
NCLK	Network Clock
NCMU	Network Clock And Message Unit (Now MICU)
NCP	Network Control Point
NCPE	Network Control Point Emulator
NCSP	Network Control System Process
NCT	Network Control And Timing

NCT	Network Control And Timing Link
NCTE	Network Channel Terminating Equipment
NCU	Network Clock Unit
NEL	Next Event List
NED	Network Entity Discriminator
NEMOS	Network Management Operations Support System
NEN	
NESS	Network Element Services Signaling
NETCOM	Network Committee On Operations And Maintenance
NETS	Nationwide Emergency Telecommunications System
NETSTAR	Network Subscriber Transaction Administrative And Recording System
NG	No Good
NHCMS	Nonhost CMS
NI	National ISDN or Network Interconnect
NI-2	National ISDN-2
NI-3	National ISDN-3
NIM	Network Indication Message
NISDN	National (or Standard) ISDN
NIT	Non-Initializing Terminal
NITS	Non-Interfering Integrated Test System
NLI	Network Link Interface
NM	Network Management
NMA	Network Management Administration
NMC	Network Management Center
NME	Non-Correctable Memory Error
NMI	Nonmaskable Interrupt
NN	National Number
NNDA	Name Number Display Allowed
NNP	Name Number Private
NOC	Normalized Office Code
NP	Node Processor
NPA	Numbering Plan Area
NPD	Numbering Plan Digit
NPM	N-Channel Performance Monitor
NR	Number Received
NRA	Network Remote Access
NRAI	Network Remote Access International
NRM	Network Resource Module
NRP	Network Routing Processor
NRZ	Nonreturn To Zero
NS	Number Services
NSEP	Network Switching Engineering Practice
NSP	Number Services Position
NT	Network Terminal
NT-1	Network Termination Type 1
NT1	Common Carrier Side Network Terminal (Interface)
NT2	Subscriber Side Network Terminal (Interface)
NTC	Network Control And Timing Link
NTP	Non Test Procedures
NTR	No Tests Run
NTS	Network Time Slot
NTTMP	Network Trunk Transmission Measurement Plan
NTU	Notification To Use
NU	Noninterfering Unit
NU	Number Unobtainable
NUI	Network User Identification
NUTS	Nonusage Trunk Scan
NXX	Office Code (Part Of Dialed Number)

3.15 O

Acronym	Definition
O&M	Operations And Maintenances
OA	Operator Actions
OA&M	Operations, Administration, And Maintenance
OAC	Operator Speed Of Answer Consistency
OAMSSR	Operations, Administration, And Maintenance Switching System Requirements
OAP	OSPS Administrative Processor

OAS	Operator Assignment Schedule
OAT	Operator Assignment Tables
OAU	Office Alarm Unit
OC	Overload Control
OCB	Outgoing Calls Barred
OCDN	Original Called Directory Number
OCF	Outward Calling Features
OCL	Operator Communications Link
OCM	Originating Call Model
OCN	SS7 Original Called Number parameter
ODA	Office Data Administration System
ODA	Office Data Assembler
ODB	Office Data Base
ODB	On Demand B-channel
ODBE	Office Data Base Editor
ODD	Office Dependent Data
ODID	Operator Dialing Identifier Digit
ODIN	On Line Data Integrity System
ODL	Optical Data Link
ODL-50	A Pair Of 45Mb/s Optical Data Links
ODP	Office Dialing Plan
OECC	Operator Entered Class Of Charge
OEN	Originating Equipment Number
OF	Office Records
OFC	Office Code
OFIDs	Optioned Feature System IDs
OFL	Off Line
OFR	Office Records
OFS	Optioned Feature System
OGT	Outgoing Trunk
OHD	Off-Hook Delay
OHI	Off-Hook Immediate
OID	Operator Login Identification
OIL	Open Items List
OILD	Overwrite Incremental Loader
OIM	Originating Interface Module
OIT	Operator Interrupt Time
OIU	Office Interface Unit
OKP	Operational Kernel Process
OKTR	Operator Keyed Trouble Report
OLI	Originating Line Identity
OLP	Overlap Outpulsing
OLS	Originating Line Screening
OM	Output Message
OMC	Outgoing Manual Call
OMS5E	Office Monitoring System For The 5ESS Switch
OMUP	Operation And Maintenance Part (Of Signaling System 7)
ONAL	Off-Network Access Line
ONI	Operator Number Identification
ONL	On Line
ONPA	Originating Numbering Plan Area
ONTC	Office Network And Timing Complex
OOAMSSR	Operations Administration And Maintenance Switch System Requirements
OOB	Out Of Band
OOC	Overlap Originating Controller
OOF	Out Of Frame
OOS	Out Of Service
OOSF	Out Of Service Family Of Equipment
OOSFE	Out Of Service Family Of Equipment
OP	Operate Abstract Device
OP	Operation
OP	Originating Point
OP	Output
OPC	Office Point Code
OPC	Operator Position Circuit/Controller
OPC	Origination Point Code
OPER	OPERational Equipage State
OPIC	Operator Position Interface Circuit
OPOR	Output Port

OPR	Off-Line Printer
OPS	Operator Position Subsystem
OPSP	Off-line Pump System Process
OPT	Operator Position Terminal
OPTP	Off-line Pump Terminal Process
OPTP	Operator's Position Terminal Process
OPVC	Operator Position Voice Circuit
ORB	Office Repeater Bay
ORIG	Originating
ORIG-TP	Originating Terminal Process
ORM	Optically Remote Module (outdated acronym)
OROP	Originating Operator
ORS	Operator Response Simulator
ORTA	Operator Routing And Terminal Allocation
OS	Operator Service
OS	Operating System
OS	Origination Scanner
OSAC	Operator Speed Of Answer Consistency
OSC	Operator Service Center
OSC	Operator Services Capability
OSC	Origination Scan Control
OSCS	Operator Services Class Selector
OSDC	Operator Special Dialed Codes
OSDD	Operations Systems Deliverable Documentation
OSDS	Operating System For Distributed Switching
OSDS-C	Operating System For Distributed Switching - Central Processor
OSDS-M	Operating System For Distributed Switching - Interface Module
OSDS-P	Operating System For Distributed Systems - Protocol Handler
OSM	Originating Switch Module
OSN	Operations Support Network
OSO	Operator Services Office
OSO	Originating Screening Office
OSPID	Operating System Process Identification
OSPS	Operator Services Position System
OSS	Off-Line Support Systems
OSS	Operational Support System
OSSIM	Operational Support System Simulator
OST	Operating System Trap
OST	Originating Station Treatment
OSU	Operator Services Unit
OT	Originating Treatment
OTDX	Originating Toll Digital Exchange
OTLH	(2 Wire) Outgoing Trunk Loop, Hook
OTLM	(2 Wire) Outgoing Trunk Loop, Metering
OTP	Originating Terminal Process
OTRP	Operator Trouble Report Printer
OTTS	Outgoing Trunk Transmission System
OUTWATS	Outward Wide Area Telecommunications Service
OV	Overload Subsystem
OVFL	Overflow
OVR	Overflow
OW	Order Wire
OWS	One Week Schedule
OWT	Operator Work Time

3.16 P

Acronym	Definition
P/AR	Peak To Average Ratio
P48	Parallel Bus With 48 Leads
PA	Program Address
PA	Program Application
PABX	Private Automatic Branch Exchange
PAD	Packet Assembler/Disassembler
PAD	Physical Address
PADL	Page Descriptor Language
PAGS	Paging Supervisor
PAL	Programmed Arrays Of Logic

PAM	Process Administration Module
PAM	Pulse Amplitude Modulation
PAR	Program Address Register
PAS	Protected Application Segment
PAT	Position Acknowledge Timeout
PAT	Position Assignment Table
PAU	Power And Alarm Unit
PB	Packet Bus
PBHC	Peak Busy Hour Calls
PBI	Peripheral Bus Interface
PBP	Packet Bus Port
PBU	Peripheral Bus Unit
PBX	Private Branch Exchange
PC	Peripheral Controller Subsystem
PC	Port Control
PC	Position Controller
PC	Primary Center
PC	Procedures (Capability Unit)
PC	Program Change
PC-BGS	Peripheral Control - Background Scheduler
PC-FGS	Peripheral Control - Foreground Scheduler
PCADB	Peripheral Control And Data Buses
PCB	Printed Circuit Board
PCB	Process Control Block
PCBI	Process Control Block Index
PCBLA	Process Control Block Link Area
PCC	Circuit Switch Data Capability Control Center
PCC	Paired Country Code
PCC	Peripheral Control Channel
PCC	Peripheral Controller Cabinet
PCC	Portable C Compiler
PCCA	Power Control Cabinet 'A'
PCD	Peripheral Control Data
PCF	Peripheral Control Frame/Facility
PCFD	Power Distribution Cabinet
PCFH	Per Call Fault Handler
PCI	Panel Call Indicator
PCI	Panel Control Indicator
PCITS	Peripheral Controller Integrated Test System
PCM	Pulse Code Modulation
PCO	Plant Control Office
PCOP	Port Camp-on Process
PCP	Process Control Process
PCP	Per Call Privacy
PCPEIH	Error Interrupt Handler
PCPMD	Process Maintenance Driver
PCRID	Processor ID
PCS0	Peripheral Chip Selects 0 To 5
PCS	Personal Communications Services
PCSD	Peripheral Controller Subdevices
PCT	Peripheral Configuration Table
PCTF	Per Call Test Failure
PCU	Position Controller Unit
PD	Path Descriptor
PD	Peripheral Device
PD	Power Distribution
PDB	Private Data Block
PDB	Process Data Block
PDD	Post Dialing Delay
Pddb	Path Data Block
PDF	Page Descriptor File/Filter
PDL	Peripheral Diagnostic Language
PDL/5	Peripheral Diagnostic Language
PDM	Pulse Duration Modulation
PDN	Packet/Public Data Network
PDR	Power Down Request
PDS	Page Descriptor Shell
PDU _s	Protocol Data Units
PEATS	Program Evaluation And Test Simulator

PECCA	Palletized Equipment Cabling And Cooling Assembly
PECS	Programmable Electronic Call Simulator
PEH	Peripheral Error Handler
PERFR	Peripheral Fault Recovery
PESA	Peripheral Error Source Analysis
PEX	Public Exchange
PF	Packet Fanout
PF	Power Feeder
PF	Printout Follows
PF	Private Facility
PFA	Private Facilities Access
PFAT	Partial Feature Access Tandem
PFEO	Partial Feature End Office
PFI	Physical Fault Insertion
PFR	Peripheral Fault Recovery
PFT	Power Failure Transfer
PFX	Prefix Index
PG	Pair Gain
PGS	Pair Gain System
PGTC	Pair Gain Test Controller
PGV	Pair Gain Vehicle
PH	Parity High
PH	Path
PH	Physical Layer
PH	Protocol/Package Handler
PHA	Protocol Handler for Asynchronous Transfer Mode
PH4	Protocol Handler 4
PHDB	Path Data Block
PHDB	Protocol Handler Data Bus
PHPCP	Protocol Handler Pump Control Process
PHPUMP	Protocol Handler Pump Software In Protocol Handler
PHV	Protocol Handlers for Voice
PI	Central Processor Intervention
PI	Packet Interface
PI	Peripheral Interface
PI	Program Index
PI	Protocol Interpreter
PI	Packet Interface
PIB	Packet Interconnect Bus
PIC	Peripheral Interface Controller
PIC	Polyethylene Insulated Conductor (Wire Cable)
PIC	Primary Carrier
PIC	Priority Interrupt Controller
PIC2	Presubscribed Intra-LATA PIC/Intra-LATA Toll Carrier.
PICB	Peripheral Interface Control Block
PICB	Peripheral Interface Control Bus
PICOM	Packaging And Interconnection Committee
PICRT	Peripheral Interface Controller Routing Table
PICS	Plug-In Inventory Control System
PICS/DCPR	Plug-In Inventory Control System/Detailed Continuing Property Record
PID	Process Identification
PIDB	Peripheral Interface Data Block
PIDB	Peripheral Interface Data Bus
PIDENT	Program Identification
PIM	Position Interface Module (outdated acronym)
PIN	Personal Identification Number
PINIT	Processor Initialization
PIO	Peripheral I/O Sub-Subsystem
PIP	Plug-In Processor
PIPUMP	Pump Software For Packet Interface
PIR	Program Interrupt Request
PISO	Parallel In Serial Out
PIT	Page Information Table
PK	Program Supplementary Information
PL	Parity Low
PL	Purchase Limit
PLBQ	Purchase Limits Balance Quotation
PLI	Peripheral Link Interface
PLIT	Prohibit Line Insulation Test

PLL	Phase Locked Loop
PLOCK	Process Lock
PM	Path Map
PMJ	Power Major Alarm
PMMP	Pumped Module Message Processor
PMP	Path Movement Protocol
PMS	Picturephone Meeting Service
PMT	Path Map Table
PMU	Precision Measurement Unit
PNDP	Private Network Dialing Plan
PNGW	Packet Network Gateways
PNI	Private Network Interface
PNS	Private Network Services
POC	Peripheral Object Conversion
POCSI	Plain Old Circuit-Switched ISDN Call (Also Known As PODS)
PODS	ISDN Equivalent Of POTS (Also Known As POCSI)
POP	Point Of Presence
POPS	Plain Old Position Seizure
PORTLA	Port Linkage Area
POTS	Plain Old Telephone Service
PP	Port Processor
PPB	Permanent Packet B Channel Packet Switching
PPC	Pump Peripheral Controller
PPCCON	Pump Peripheral Controller Configuration
PPM	Periodic Pulse Metering
PPMCOM	PPM Common Circuit
PPMDB	Periodic Pulse Metering Data Block
PPMU	Periodic Pulse Metering Unit
PPR	Pulse Point Register
PPS	Pulse Per Second
PPSDN	Public Packet Switched Data Network
PPSN	Public Packet Switch Network (Formerly LADT)
PRAM	Protected Random Access Memory
PRC	Primary Rate Carrier
PRE	Protectional Reservation Equipment
PRI	Primary Rate Interface
PRI	Private Rate Interface
PRM	Primitive
PRM	Process Recovery Message
PROC	Processing
PROCALL	Programmable Call Simulator
PROCNO	Process Number
PROCOL	Programmable Call Generator
PROM	Programmable Read Only Memory
PROMUS	Prompt Remotely Operated Memory Updating System
PRR	Post Recovery Report
PRR	Previously Rerouted
PRR	Processor Replacement Retrofit
PRT	Path Record Table
PRX	Processor Controlled Exchange
PS	Packet Services
PS	Protocol Subsystem
PSA	Project Standard Attribute (File)
PSAP	Public Safety Answering Point
PSBR	Primary Segment Base Register
PSD	Position Status Display
PSD	Processor Scanner And Signal Distributor
PSDI	Parallel Serial Data Interface
PSDN	Packet Switched Data Network
PSDP	Circuit Switch Digital Capability Data Port
PSDS	Public Switched Digital Services
PSE	Program Store Enable
PSIU	Packet Switch Interface Unit
PSK	Phase Shift Keying
PSM	Position Switching Module
PSM	Power Switch Monitor
PSN	Private Switch Network
PSN	Public Switch Network
PSPD	Partial Signal/Partial Dial

PSPD	Permanent Signal Partial Dial
PSPDN	Packet Switched Public Data Network
PSPP	PSIU Pump Process
PSS	Packet Switching Service
PSTN	Public Switched Telephone Network
PSU	Packet Switch Unit
PSU-2	Packet Switch Unit - 2
PSUCOM	Packet Switch Unit Common Controller
PSW	Program Status Word
PT	Program Timer
PTC	Port Control Sub-Subsystem
PTP	Position Terminal Process
PTRDB	Pointer Data Block
PTS	Per Trunk Signaling
PTSB	PIDB Time Slot Block
PU	Peripheral Units
PU	Pick Up
PU	Power Unit
PU	Program Update
PUC	Peripheral Unit Controller
PUCDL	Peripheral Unit Controller Data Link
PUCR	Pump Control
PUMPCON	Peripheral Pump Control Software
PUT	Port Under Test
PVC	Permanent Virtual Call/Circuit
PWB	Printed Wiring Boards
PWE	Present Worth Of Expenditure
PWP	Parity/Write Protect
PWR	Power
PWRCONV	Power Converter
PX	Power Cross

3.17 Q

Acronym	Definition
Q	Internal Register
QGP	Quad-Link Gateway Processor
QID	Query Identification
QLI2	Quad-Link Interface Model 2
QOB	Queue On Busy
QPC	Quick Patch Compiler
QRYDB	Query Data Block
QTL	Queuing For Trunk And Lines
QLPS	Quad-Link Packet Switch
QTMS	QLPS TMS
QUANTUM	Easy Reach 700 Calls

3.18 R

Acronym	Definition
R	Release
R	Ring Lead (Of Two Wire Pair)
R-DFI	RSM-Digital Facility Interface
RA	Random Access
RA	Rate Adapt
RA	Recorded Announcement
RA	Release Acknowledge
RA	Remote Access
RA	Resource Allocator
RAC	Rate Center
RADN	Remote Access Directory Number
RAF	Recorded Announcement Frame/Function
RAI	Recorded Announcement Interface
RALU	RAM Arithmetic Logic Unit
RAM	Random Access Memory
RAO	Revenue Accounting Office
RAQ	Rerouted Autoquotes

RAR	Return Address Register
RARAM	Rapid Access RAM
RARAM	Rapid Access Ram
RAS	Remote Alarm Section(Of LAU)
RASB	RISLU Alarm Simulator Box
RASC	Residence Accounting Service Center
RASTP	Remote Alarm Section Terminal Process
RAU	Recorded Announcement Unit
RAU	Remote Alarm Unit
RB	Reverse Battery
RBD	Receive Buffer Descriptor
RBLK	A Read Block Command
RC	Recent Change Subsystem
RC	Remote Concentrator
RC&V	Recent Change And Verify
RC/V	Recent Change And Verify
RC/VFY	Recent-Change And Verify (Subsystem)
RCF	Remote Call Forwarding
RCF	Ringer Continuity Failures
RCI	Routing Control Indicator
RCLK	Receive Clock
RCLK	Remote Clock
RCMAC	Recent Change Memory Administration Center
RCMAS	Recent Change Memory Administration System
RCMAWG	Recent Change Memory Administration Work Group
RCR	Recent Change Report
RCS	Routing Control Service
RCV	Receive
RCV	Recent Change And Verify
RCYC	Ringing Cycles
RD	Read Channel Data Buffer
RDN	Redirecting Directory Number
RDFI	Remote Digital Facility Interface
RDT	Recall Dial Tone
RDT	Remote Digital Terminal
REG	Range Extender With Gain
REJ	Reject
REL	Release
REPT	Report
REQ	Request
REX	Routine Exerciser
RFA	Receive Frame Area
RFD	Receive Frame Descriptor
RG	Register
RG	Ringing Generator (ISLU)
RI	Ring Interface
RI	Route Index
RIAR	Reduce Input Acceptance Rate
RIM	Remote Interface Module (Now RSM)
RIMPCH	RIM PC Handler
RINT	Read Channel Interrupt State
RISLU	Remote Integrated Services Line Unit
RL	Release Link
RL	Repeat Later
RLA	Remote Link Administration
RLI	Remote Link Interface
RLT	Release Link Trunk
RLTCS	Release Link Transfer With Call Splitting
RLTD	Routine Line Test Dispatcher
RM	Feature Remoting Subsystem
RM	Recall Message
RMAC	Remote Memory Administration Center
RMAP	Remote Memory Administration Position
RMAP/ST	Remote Memory Administration Position/Smart Terminal
RMAS	Recent Change Memory Administration System
RMAS	Remote Memory Access System
RMC	Remote Maintenance Console
RMP	Remote Maintenance Processor
RMS	Remote Monitoring System

RMS-D	Remote Measurement System (Digital)
RMT	Remote Maintenance Terminals
RMU	Rotate Mask Unit
RMU	Remote Measurement Unit
RMV	Remove
RN	Redirecting Number
RND	Redirecting Number Delivery
RNDIS	Receive Disable (Active Low)
RNPCM	Receive Pulse Code Modulation
RNR	Receiver Not Ready
RO	Residential Origination
ROH	Receiver Off Hook
ROM	Read Only Memory
ROP	Receive/Read Only Printer
ROPC	Remote Operator Position Controller
ROS	Request Out Of Service
ROSE	Remote Operations Service Element
ROTL	Remote Office Test Line
ROTS	Rotary Out Trunks Selector
RP	Resistor Panel
RP	Radio Port
RPA	Remote Protocol Access
RPAM	Receive Pulse Amplitude Modulation
RPC	Ring Peripheral Controller
RPCM	Read Block Of Peripheral Controller RAM
RPCU	Radio Port Control Unit
RPE	Remote Procedure Error
RPI	Return To Point Of Interrupt
RPLY	Reply
RPM	Remote Packet Module
RPN	Relative Path Number
RPOA	Registered Private Operating Agency
RPSM	Remote Position Switching Module
RPTERR	Report Handler
RQIP	Request In Progress
RR	Receiver Ready
RR	Reroute
RR	Route Relay
RRM	Recall Rejection Message
RRM	Routing Request Message
RRP	Rate And Route Pattern
RRR	Reduce Route Request
RS	Receive Synchronizer
RS	Ring To Silent
RSD	Route Status Display
RSM	Remote Switching Module
RSR	Read Channel Service Request
RSS	Receive Signal State Bits
RSS	Remote Switching System
RST	Channel Status Register
RST	Restore To Service
RSTN	Reset Input To 80188
RSU	Remote Switching Unit
RT	Remote Terminal
RT	Residential Termination
RT	Routing And Terminal Allocation
RTA	Remote Trunk Arrangement
RTA	Routing And Terminal Allocation Subsystem
RTAC	Regional Technical Assistance Center
RTC	Real Time Clock/Counter
RTD	Remote Traffic Diversion
RTD	Round Trip Delay
RTI	Return From Interrupt
RTI	Route Index
RTIME	OSDS Time Relative To Switch Init
RTKD	Respond To Key Data
RTRE	Real-Time Rating External
RTRS	Real Time Rating System
RTS	Real Time Status Report

RTS	Remote Test System
RTS	Request To Send (RS232 Lead)
RTSP	Real Time Status Process
RTTD	Routine Trunk Test Dispatcher
RTTU	Remote Trunk Test Unit
RTU	Right to Use
RU	Receive Unit
RVB	Reverse Battery
RVPT	Revertive Pulsing Transceiver
RVT	Revertive (Signaling)
RWC	Remote Wire Center
RX	Remote Exchange
RXO	Remote Exchange Office
RY	Recovery

3.19 S

Acronym	Definition
S	Setup
S/N	Signal To Noise Ratio
SA	Service Area
SA	Service Assistant
SA	Setup Acknowledge
SA	System Administrator
SAB	Subaccount Billing
SABM	Set Asynchronous Balance Mode
SABM	Stand-Alone Billing Memory
SABME	Set Asynchronous Balance Mode Extended
SABMR	Set Asynchronous Balance Mode Restricted
SAC	Scan Applique Circuit
SAC	Service Access Codes
SAC	Special Area Code
SAC	Store Address Control
SAIS	Semi-Automatic Intercept System
SAP	Service Access Point
SAP	System Alarm Process
SAPI	Service Access Point Identifier
SAR	Store Address Register
SARD	Systems And Requirements Data Base
SARTS	Switch Access Remote Test System
SAS	SAS (Subscriber Alerting Signal) is standard call waiting tone
SAS	Service Announcement System
SAS	Stop And Switch
SASS	Switching Administration Support System
SAT	Store Address Translation
SAU	Secure Access Unit
SBAC	Station Billing Of Attendant Handled Calls
SBC	Single Board Computer
SBR	Segment Base Register
SBR	Standby-Ready
SC	Sectional Center
SC	Series Completion
SC	Service Code
SC	Speed Call
SC	Stable Clear
SC/A	Signal Converter/Allotter
SC/SD	Scanner And Signal Distributor
SC/SDA	Scan And Distribute Administrator
SCA	Shared Call Appearance
SCAD	Subscriber Changeable Abbreviated Dialing
SCANS	Software Change Administration And Notification System
SCB	Stack Control Block
SCBI	SCB Index
SCC	Specialized Common Carriers
SCC	Switching Control Center
SCCOF	Selective Customer Control Of Facilities
SCCP	Signaling Connection Control Part
SCCS	Source Code Control System

SCCS	Switching Control Center System
SCD	System Capability Description
SCF	Selective Call Forwarding
SCH	Serial Channel
SCN	Service Circuit Node
SCNR	Scanner Ring
SCNT	Scanner Tip
SCO	Switch Cut Off
SCOCS	Selected Class of Call Screening
SCOP	System Campon Process
SCOPS	Small Centralized Operator Position System
SCOTS	Surveillance And Control Of Transmission Systems
SCP	Service Control Point SCPN
SCR	Selective Call Rejection
SCR	Store Control Register
SCR	System Capability Recommendation
SCSD	Scanner And Signal Distributor
SCT	Special Confirmation Tone
SCT	Subscriber Call Termination
SCT	Subscriber Carrier Terminal
SCU	Signal Conversion Unit
SCU	System Control Signal
SD	Schematic Drawing
SD	Service Description
SD	Signal Distributor
SDA	Selective Distinctive Alert
SDC	Store Data Control
SDE	Segment Descriptor Entry
SDH	Subdevice Handler
SDHMM	Subdevice Handler Multi Mod
SDHSM	Subdevice Handler Small Office
SDL	Signaling Data Link
SDL	Specification And Description Language
SDL	Synchronous Data Links
SDL-SM	Signaling Data Link Switching Module
SDL/GR	Specification And Description Language/Graphic Language
SDL/PR	Specification And Description Language/Program Language
SDLC	Synchronous Data Link Controller
SDLT	Supplementary Digital Line-Trunk Frame
SDM	Space Division Module
SDN	Software Defined Network
SDN	Switched Digital Network
SND/NRA	Software Defined Network/Number Remote Access
SDOC	Selective Dynamic Overload Control
SDP	Software Demand Paging
SDP	Software Development Process
SDR	Store Data Register
SDRBLK	A Subdevice Read Block Command
SDS	Shared Data Segment
SDSC	Synchronous Data Set Controller
SDSI	SLC-96 Digital Facility Interface
SDST	Software Development System Test
SDT	Special Dial Tone
SDU	Scan And Distribution Unit
SDWBLK	A Subdevice Write Block Command
SE	Service Evaluation
SE	System Engineering
SEC	Service Evaluation Center
SECM	Subscriber Expensive Call Monitoring
SECPT	Security Printer Terminal
SEED	Self Electro-Optic Effect Devices
SEP	Signaling End Point
SEQ	Sequence Data
SETID	Set Identifier
SF	Single Frequency
SF	Status Field
SFG	Simulated Facility Group
SFI	STXS-1 Facility Interface
SFID	Secured Feature ID

SG	System Generation Database
SGD	Semi Global Data Area
SGD	System Generation Database
SGDB	Service Group Data Block
SGEN	System Boot Image Builder For DMERT
SGRO	Special GROWth Equipage State
SGS	Software Generation System
SH	Start Hunt
SHDN	Shared DN
SHT	Short Holding Time
SI	Screening Index
SI	Screening Interface
SI	Shelf Interface
SI	Software/System Integrity Subsystem
SI	Subscriber Incompatible
SI	System Initialization
SI	System Integration
SI	System Integrity Subsystem
SI0	Sequenced Information Zero Frames
SI1	Sequenced Information One Frames
SIB	Subunit Interface Bus
SIC	STS Interface Circuit
SIC	Service Indicator Code
SICO	Switch/System Integrity Controller
SICO	System Integrity Control
SIF	Signaling Information Field
SIGI	Signaling Irregularities
SILC	Selective Incoming Overload Control
SIM	Switch/System Integrity Monitor
SIO	Signaling Information Octet
SIOC	Selective Incoming Overload Control
SIP	Single In-Line Package
SIP	Spooler Input Register
SIPO	Serial In Parallel Out
SIPS	System Integrity For Packet Switching
SIR	Store Instruction Register
SISO	System Integrity Control
SIT	Shared Interoffice Trunk
SIT	Special Information Tones
SIU	Synchronous Interface Unit
SL	Signaling Links
SLA	Signaling Link Available
SLA-EP	Signaling Link Available Emergency Proved
SLA-NP	Signaling Link Available Normally Proved
SLATS	Selected Lines And Trunks System
SLATTS	Selected Line And Trunk Translations
SLC	Signaling Link Code
SLC	Subscriber Loop Carrier/Concentrator
SLC-96	Subscriber Loop Carrier
SLC-RT	Subscriber Loop Carrier Remote Terminal
SLD	Special Long Distance
SLEN	SLC-96 Line Equipment Number
SLG	Standard Line Group
SLIC	Subscriber Line Interface Circuit
SLI	STS-1 Link Interface
SLIM	Subscriber Line Instrument Measuring Circuit
SLIM	Subscriber Loop Instrument Measurements
SLIM	Subscriber Loop Interface Module
SLIM2	Subscriber Line Interface Measurement 2
SLINE	Supplementary Line Frame
SLM	Signaling Link Management
SLM	Synchronous Line Module
SLMC	Signaling Link Management Control
SLP	Single (Physical) Link Procedures
SLPC	Synchronous Link Peripheral Controller
SLS	Signaling Link Selection field
SLT	Signaling Link Terminal
SLT	Supplementary Line Trunk Frame
SLU	Signaling Link Unavailable

SLU	Standard Line Unit
SM	Swap Message
SM	Switch Maintenance (Subsystem)
SM	Switching Module
SM2K	Switching Module 2000
SMARS	Switch Maintenance Analysis And Recovery Strategies
SMAS	Switch Maintenance Access System
SMC	Switch Maintenance Control
SMCT	Standing Malicious Call Trace
SMDR	Station Message Detail Recording
SMER	Switch Maintenance Error Recognition
SMEST	Switch Maintenance Equipment Status Table
SMETDS	Standard MSG Trunk Design System
SMFC	Semi-Compelled Multifrequency Signaling
SMH	Signaling Message Handler
SMICO	Switch Maintenance Integrity Controller
SMIM	Switch Maintenance For The Switching Module
SMKP	Switch Maintenance Kernel Process
SMMP	Service Module Message Processor (Part Of MSGS)
SMMS	Switch Maintenance For The Message Switch
SMP	Switching Module Processor
SMPU	Switching Module Processor Unit
SMS	Service Management System
SMS	Station Management System
SMS	Switch Maintenance Subsystem
SMS	Symbol Management System
SMSI	Simplified Message Service Interface
SMST	SM System Test
SND	Single Number Dialer
SNM	Signaling Network Management
SNU	Signal Not Understood
SO	Service Observing
SOC	Service Observing Circuit
SOCG	Service Order Control Group
SOEC	Service Order Entry Center
SONDS	Small Office Network Data System
SOP	Service Observation Position
SOP	Service Order Processor
SOP	Spooler Output Process
SOS	Subscriber Out Of Service
SOST	Special Operator Service Traffic
SP	Signal Processor
SP	Signaling Point
SPB	Supplementary Protocol Block
SPC	Signaling Point Code (CCITT7)
SPC	Stored Program Control
SPCL	Special
SPCS	Stored Program Control System
SPH	Session Protocol Handler
SPID	Service Profile Identifier
SPL	Sound Pressure Level
SPM	Subscriber Private meter
SPN	Scan Point Number
SPO	Special Overlay Register
SPO	System Process Operations
SPOOL	Simultaneous Peripheral Operations On-Line
SPOTS	Super Plain Old Telephone Service
SPP	Single Process Purge
SPSU	Signal Processor And Switch Unit
SPYDER	Synchronous/Asynchronous Protocol Data Formatter
SQAP	System Quality Assurance Plan
SQD	Supplemental Query Data Query
SR	Silent To Ring
SR	Station Restriction
SRA	Standby-Ready Acknowledgement
SRA	Switching Resource Allocator
SRAM	Static Random Access Memory
SRAT	Stability Run Analysis Team
SRC	Processor Source Bus

SRC	Software Recovery Control
SRDY	Synchronous Ready
SREG	Special Register
SRG	Sleeve Ring Ground
SRL	Singing Return Loss
SRM	Shared Resource Monitor
SRM	Signaling Route Management
SROD	Service Restriction in the Outgoing Direction
SS	Special Screening
SS	Sub System
SS7	Signaling System 7
SSAP	Session Service Access Point
SSB	Special Service Board
SSBR	Secondary Source Base Register
SSC	Special Service Center
SSC	Subsystem Coordinator
SSD	Software Subsystem Description
SSN	Subsystem Number
SSP	Service Switching Point
SSP	Small System Processor
SSP800	Service Switching Point For Basic 800 Service
SSR	System Status Register
SSU	Special Service Unit
SSU	Subsequent Signal Unit
ST	Serving Team
ST	Signaling Terminal
ST	Start
ST-PH	Signaling Terminal Protocol Handler
STA	Synchronous Terminal Adapter
STAT	Status
STAT MUX	Statistical Multiplexing
STBY	Standby
STC	Serving Test Center
STD	Subscriber Toll Dialing
STE	SONET Termination Equipment
STEP	Signaling Transfer and End Point
STF	Some Tests Fail
STFU	Switching Transmission Facility Unit
STG	Standard Trunk Group
STGR	Structural Growth Rate
STIU	Switching Transmission Interface Unit
STLWS	Supplementary Trunk And Line Work Station
STM	Signaling Traffic Management
STMS	Supplementary Time Multiplexed Switch
STORM	Standard Transmission Rate for Optically Integrated Remote Switching Module
STP	Signal Transfer Point
STP	Stop
STPC	Signaling Transfer Point Code
STPH	Signaling Terminal Protocol Handler
STQDB	Serving Team Queue Data Block
STR	Selective Trunk Reservation
STR	Send to Resource
STRM	Signaling Traffic And Route Management
STRM SP	STRM System Process
STS	Software Test System (Presently IITS)
STS	Subscriber Test Station
STS-1	Synchronous Transport Signal
STSX-1	STS-1 Electrical Interface
STSY	SDL/PR Translation System
STU	Standard Trunk Unit
SU	Service Unavailable
SU	Signal Unit
SU	Slave Unit
SU	Software Update
SU	System Update/Generic Retrofit
SUIB	Subunit Interface Bus (Connects SMP & TSIU)
SUPLN	Supplementary Line
SUPR	System Update Procedure
SUSN	Signal Unit Sequence Number

SUT	Switch Under Test
SVI	Service Intercept
SW	Software
SW	Switch
SW	Switch Maintenance
SWC	Six Way Calling
SWEST	Switch Maintenance Equipment Status Table
SXS	Step-By-Step (Switching System)
SYS	System
SYU	Synchronization Signal Unit

3.20 T

Acronym	Definition
T	Terminal
T	Tip Lead (Of Two Wire Pair)
T&A	Toll And Assistance
T&C	Time & Charge
T&M	Talk And Monitor
T&R	Tip And Ring (The Two Local Telephone Wires)
T-LINK	Test Bus (Metallic Link)
T1	24-Channel Digital Carrier
T1FAC	T1 Facility
TA	Telecommunication Administrations
TA	Terminal Adaptor
TA	Test And Access
TA	Toll And Assistance
TAA	Transfer Allowed Acknowledgement
TAC	Test Access Circuit
TAF	Test Analysis Filter
TAMA	Message Detail Recording On Tie Trunks
TAP	Terminal Allocation Process
TAP	Toll & Assistance Position
TAP	Transaction Amount Parameter
TAPE	Tape Drive
TAS	Test Access Slot
TAT	Termination Attempt Trigger
TAU	Test Access Unit
TB/IS	Transaction Block/Integrity System
TBCU	Test Bus Control Unit
TBCU	Trunk Bus Control Unit
TBD	Transmit Buffer Descriptor
TBN	True Billing Number
TC	Teleconferencing
TC	Terminal Controller
TC	Time And Charges
TC	Toll Center
TC	Transaction Capability (CCITT No. 7)
TC	Transient Clear
TC/SC	Transient Or Stable Clear
TCA	Telephone Company Administration
TCAP	Transaction Capabilities Application Part
TCAP	Translation Capabilities Application Protocol
TCB	Timer Control Block
TCBC	To Change
TCBH	Time Consistent Busy Hour
TCBU	Test Bus Control Unit
TCF	Test Call Facility
TCM	Terminating Call Model
TCM	Time Compression Multiplexing
TCM	Traveling Class Mark
TCOC	Traffic Change-Over Control
TCP	Test Control Process
TCS	Terminating Code Screening
TCS	Test Control System
TCT	Toll Connecting Trunks
TCU	Tape Control Unit
TDAS	Traffic Data Administration System

TDATA	Transmit Data
TDB	Task Data Block
TDCLK	Transmit Data Clock
TDCU	Traffic Data Collection Unit
TDM	Time Division Multiplex
TDMA	Time Division Multiple Access
TDN	Time Division Network
TDS	Traffic Data System
TDTP	Traffic Diversion Terminal Process
TDVS	TCM Data Voice Subscriber
TDX	Toll Digital Exchange
TE	Terminal Equipment
TE1	Terminal Equipment Type 1 (ISDN)
TE2	Terminal Equipment Type 2 (Non-ISDN)
TEC	Test Equipment Control Terminal Process
TECTP	Test Equipment Control Terminal Processes
TEI	Terminal Endpoint Identifier
TEMP	Temporary Register
TEN	Terminal Equipment Number
TEN	Trunk Equipment Number
TERA	Trunk Error Report Analysis
TF	Transmitter Formatter (PIDB Interface)
TFA	Transfer Allowed
TFC	Toll Fraud Control
TFC	Transmission Fault Control
TFIU	Transmission Facility Interface Unit
TFOS	Transparency Feature Optioning System
TFP	Transfer Prohibited (SS7 Signal)
TFS	Trunk Forecasting System
TFU	Treated Facilities Unit
TG	Terminal Group
TG	Translation Guide
TG	Trunk Group
TGBL	Trunk Group Busy Lamps
TGI	Terminal Group Identifier
TGN	Trunk Group Number
TGSR	Terminal Group and Station Restrictions
TI	Timer
TIC	Termination Of Interexchange Calls
TIC	Translation Integrity Check
TICB	T Interface Core Breadboard
TID	Tuple Identifier
TIDB	Transmission Interface Data Buses
TIE	Time Interval Error
TIM	Terminating Interface Module
TIM	Treated Interface Module
TIRKS	Trunks Integrated Records Keeping System
TITAN	Transmission Impairment Testing and Analysis
TIU	Treated Interface Unit
TKG	Trunk Group
TKO	Trunk Offering (Service)
TKS	Terminal Key System
TL	Test Logic
TLA	Tuple Level Access
TLDI	Toll Digit Translation Index
TLI	Tool Location Independence
TLM	Trouble Locating Manual
TLM	Trunk And Line Maintenance
TLN	Trunk Link Network
TLP	Transmission Level Point
TLP	Trouble Locating Procedure
TLPR	Trouble Locating Process
TLTP	Trunk And Line Test Position
TLWS	Trunk And Line Work Station
TLWS/MT	Trunk And Line Work Station Metallic Test
TM	Task Manager
TM	Terminal Maintenance
TMCU	Time Multiplexed Control Unit
TMDF	Trunk Main Distributing Frame

TMEH	Terminal Maintenance Exception Handler
TTMS	Time Multiplexed Switch
TMS2	Time Multiplexed Switch Model 2
TMSC	Time Multiplexed Switch Control
TMSCON	Time Multiplexed Switch Configuration
TMSCU	Time Multiplexed Switch Control Unit
TMSGU	TMS Growth Unit
TMSLNK	TMS NCT L-Link
TMSMC	TMS Maintenance Control
TMSP	TMS Processor
TMSU	Time Multiplexed Switch Unit
TMT	Traffic Management
TMTP	Terminal Maintenance Terminal Process
TMUX	Transmission Multiplexer
TN	Telephone Number
TN	Telephone/Terminating Number
TNDS	Total Network Data System
TNEN	Transmit Enable (Active Low)
TNET	Transport Network
TNOP	Total Network Operations Plan
TNS	Transit Network Selection
TOAD	Tools Access Data Base
TOD	Time Of Day
TOLD	Toll Diversion To Attendant
TORC	Time Of Day Originated Recent Change
TOS	Trunk Out Of Service
TOSL	Trunks Out Of Service List
TP	Task Processor
TP	Terminal Process
TP	Test Positions
TP	Toll Point
TP	Trunk Processor
TPAM	Transmit Pulse Amplitude Modulation
TPC	Teleprocessing Controller
TPDF	Tie Pair Distribution Frame
TPT	Test Progress Tone
TPR	Terminating Point Restriction
TPRE	Terminating Point Restrictions Expansion
TR	Technical Reference
TR	Trunk Reservation
TRA	Terminal Resource Allocator
TRBL	Trouble
TRCC	T-Carrier Restoration Control Center
TRCLSI	Translation Routine Class Of Service Information
TRD	Timed Release Disconnect
TRF	Traffic
TRMT	Transmit
TRR	Tip Ring Reversal
TRS	Telecommunications Relay Service
TRXS	TCM Remote Exchange Subscriber
TS	Time Slot
TS16	Time Slot 16
TSA	Time Slot Assign
TSAP	Transport Service Access Point
TSDB	Time Slot Data Blocks
TSI	Time Slot Interchange
TSI	Traffic Service Index
TSIU	Time Slot Interchange Unit
TSM	Time Slot Multiplexer
TSO	Toll Switch Operator
TSP	Traffic Service Position
TSPS	Traffic Service Position System
TSS	Time Sharing System
TSS	Time Slot Set
TSS	Trunk Servicing System
TSSR	Toll Switch System Requirement
TSSS	Toll Switching System Specification
TST	Time - Space - Time
TSTK	Test Trunk

TT	Telephony/Telegraphy
TT	Terminating Treatment
TT	Touch-Tone
TT	Transmission Test Unit
TT	Trunk Termination
TTC	Test Trunk Circuit
TTC	Timed Talk Cut-Off
TTF	Transmission Test Facility/Function
TTIM	Treated Trunk Interface Module
TTL	Transistor To Transistor Logic
TTMC	Transmission Test And Measurement Control
TTP	Terminating Terminal Process
TTP	Transmission Treatment Process
TTP	Trunk Test Panel
TTR	Trunk Trouble Report
TTS	Test Tone Source
TTTP	Talking Trunk Terminal Process
TTU	Transmission/Trunk Test Unit
TTY	Teletypewriter
TTYC	Teletypewriter Controller
TTYMSG	Teletype Message
TU	Tape Unit
TU	Trunk Unit
TUP	Telephone User Part (Of CCITT7)
TUR	Traffic Usage Recorder
TUS	Test Utility System
TV	Transfer Vector
TWC	Three Way Calling
TWX	Teletypewriter Exchange
TYMSG	TTY Message Subsystem

3.21 U

Acronym	Definition
UA	Unnumbered Acknowledge
UAC	Utility Access Circuit
UALU	Universal Analog Line Unit (See LU)
UART	Universal Asynchronous Receiver Transmitter
UATU	Universal Analog Trunk Unit (See TU)
UAV	Unavailable
UBA	Unblocking-Acknowledgement
UBL	Unblocking
UBM	Unsuccessful Backward Failure Message
UC	Utility Circuit
UCA	Unauthorized Centralized Automatic Message Accounting
UCB	Unit Control Block
UCC	Universal Conference Circuit
UCD	Uniform Call Distribution
UCI	Unified Control Interface Of The ISLU
UCONF	Universal Conference Circuit
UCS	User Control String
UCSN	Upper Chip Select (MCS Signal)
UCT	Utility Call Trace
UDT	Universal Tone Detector
UEQP	Unequipped
UI	Unnumbered Information
UI	User Interface
UID	Utility Identification
ULARP	User Level Automatic Restart Process
ULG	Universal Line Group
UNASN	Unassigned
UNAV	Unavailable
UNEQ	UNEQuipped Equipage State
UNEQUIP	Unequipped
UNICAD	Uniform Computer Aided Design
UNIQ	Uniqueness Field - OSDS
UNR	Uncontrolled Not Ready
UPB	Update Bus

UPNNP	Uniform Private Network Numbering Plan
USART	Universal Synchronous/Asynchronous Receiver/Transmitter
USB	Usage Sensitive Billing
USC	Universal Service Circuit
USEC	Universal Services Echo Canceler
USER	User Side Equipment
USOC	Universal Service Order Code
USS	User Support System
USTWC	Usage Sensitive Three Way Calling
UT	Generic Utility (Subsystem)
UTC	Unified Trunk/Telephone Circuit
UTD	Universal Tone Detector/Decoder
UTG	Universal Tone Generator
UTG	Universal Trunk Group
UTP	Unit Test Plan
UTS	Umbilical Time Slot
UUD	User To User Data Message
UUMD	User-To-User Message Data
UXS	Unexpected Stop Dial

3.22 V

Acronym	Definition
V.110	CCITT Recommendation: V-Interface DTE Support By An ISDN
VAD	Virtual Address
VALNPA	Valid Numbering Plan Area
VALNXX	Valid Office Code
VAR	Variable
VAT	Valid Answer Timing
VAX	Digital Equipment Corporation Super-Mini Computer
VBSC	Variable Broadband Switching Capability
VC	Virtual Call/Circuit
VCDX	Very Compact Digial Exchange
VCO	Voltage Controlled Oscillator
VCOX	Voltage Controlled Oscillator
VCS	Virtual Circuit Switched
VDS	Voice Data Set; Provides Basic ISDN (2B+D) Access
VDT	Video Display Terminal
VDU	Video Display Unit
VER	Verify
VF	Voice Frequency
VFD	Vacuum Fluorescent Display
VFL	Voice Frequency Link
VIOS	Visually Impaired Operator System
VIRGOS	Video Interactive Regional Ordering Specification
VIT	Visible Instruction Table
VLA	View Level Access
VLMM	Very Large Main Memory
VLSI	Very Large Scale Integration
VMS	Voice Messaging System
VMWI	Visual Message Waiting Indicator
VN	Virtual Network (Model)
VNL	Via Net Loss
VPA	Voice Path Assurance
VPATH	View Path
VPN	Virtual Private Network
VQ	Voice Quoted
VRCP	Voice Recognition Call Processing
VSA	Voice Switched Attenuator
VSF	Voice Store And Forward
VSS	Voice Storage System
VT	Virtual Terminal
VT	Virtual Tributary

3.23 W

Acronym	Definition

WATS	Wide Area Telephone Service
WBLK	A Write Block Command
WCA	Write Channel Control/Address Register
WD	Write Channel Data Buffer
WMS	Writable Microstore
WP	Write Protect
WPN	Work Program Number
WS	Wink Start
WSC	Window Status Timer
WSN	Work Station Number

3.24 X

Acronym	Definition
X.21	Circuit-Switched Data Control Protocol For Terminal To Network
X.25	Communications Protocol Used Between MSGS And SM
X.31	CCITT ISDN Packet Mode Terminal Equipment Support Rec.
X.71	X.21 Related Protocol Used Between Circuit-Data Networks
X.75	X.25 Related Protocol Used Between Packet Data Networks
X86	C Compiler For The 8086
XBAR	Crossbar (Switching System)
XID	Exchange Identifier
XIM	Extended Interface Module
XMDR	Expanded Message Detail Recording
XMT	Transmit
XST	Stop Dial Timeout

3.25 Y

Acronym	Definition
YACC	Yet Another Compiler Compiler

3.26 Z

Acronym	Definition
ZCS	Zero Code Suppression
ZS	Zero Suppression

SEC. 7: 5ODA (5ESS SWITCH-2000 OFFICE DATA ADMINISTRATION) USERS GUIDE

1. GENERAL

The 5ODA (5ESS-2000 Switch Office Data Administration) System, is software developed by Lucent Technologies to generate the office dependent database for the 5ESS-2000 Switch machine. The steps required in building a 5ESS-2000 Switch database are:

1. Before any processing of office input data can begin, the System Equipment Engineer (the line engineer) must first register the office (Section 5.1 "Office Registration").
2. After the office has been registered, the Operating Company personnel and the line engineer can begin to enter and/or correct the office input data interactively (Section 4.8 "The DE Command"). Through a separate set of procedures, data can be entered in a bulk mode.
3. The database is verified for errors both during and after the data entry process (Section 6.4 "The CROSSCHECK Command").
4. The System Equipment Engineer determines when the MMST (Multi-Module System Test) and SMST (Switching Module System Test) processes need equipment related data, and transmits this data to a support processor at the Oklahoma City Works (Section 6.9 "The SENDIMST Command").
5. Office records are produced both during and after the data entry process (Section 4.14 "The RECORDS Command").
6. Mapping of the office input data into the base relations occurs after data entry is completed and verified (Section 6.6 "The MAPPING Command").
7. Generation of the fully populated Office Dependent Data for the 5ESS-2000 Switch (Section 6.7 "The DBGEN Command").

Certain of the above responsibilities are performed by the Operating Company personnel and some by the Lucent Technologies Line Engineer. For the sake of clarity, the User's Guide addresses each group separately:

- Telephone Company Commands are used by the appropriate Operating Telephone Company organizations, e.g. the line administrator and the trunk administrator.
- Lucent Technologies Commands are used by the Lucent Technologies SEE (Systems Equipment Engineering) organization (the line engineer).

This user distinction is necessary because a number of 5ODA commands are not for general use. They are intended for use only by the Lucent Technologies Line Engineer who has the overall responsibility for the correct generation of the 5ESS-2000 Switch database via the 5ODA system.

2. GENERAL REQUIREMENTS OF THE 5ODA WORK STATION

The 5ODA user connects from his particular work station to the 5ODA computer via the switched telephone network. The 5ODA work station must consist of the following hardware:

2.1 CRT Terminal

ASCII compatible; full duplex; asynchronous; minimum 80 column by 24 line display; direct cursor addressing; from 1200 bps (bits per second) up to 28,800 bps operation, with a clear line and compression 115,000 bps is possible; upper and lower case keyboard; EIA cable interface; interface to and control of an attached hard-copy line printer. Some currently Supported Terminals (attached printer interface):

VT100 - Digital Equipment
TT4425 - Teletype

Some currently Supported Terminals (no printer interface):

VT52 - Digital Equipment
HP2621 - Hewlett Packard

2.2 Line Printer

Required Configuration: attached to and controlled by ASCII terminal; 132 column print line; tractor feed; 1200 bps (bits per second) operation; EIA cable interface; flow control compatible with controlling terminal.

2.3 Data Set and Phone

Required Configuration: either 1200 bps or up to 28,800 bps operation; modulation and signaling compatible with any of the following specifications: ITU-T, V.34, V.32bis, V.32, V.23, V.22bis, V.22, V.21, Bell212A, Bell103J.

2.4 Cables

EIA cables must be provided to connect the CRT terminal, line printer, data set and phone. The length of the cables and the type of connectors (male/female) depend on the equipment selected.

2.5 Terminal and Modem Configuration

The terminal and modem must be configured to communicate with host using ASCII code, no parity, 10 bits per character (1 start bit, 8 data bits, 1 stop bit).

Please refer to the documentation provided with your terminal and printer for your equipment's set-up options.

A complete list of terminal types compatible with the 5ODA system is not contained in this document due to the fact that this list grows weekly. However, a complete list may be obtained when logging onto the 5ODA system. The introductory login session asks the user to enter terminal type. If the carriage return is typed in response to this question, a complete list of all valid CRT terminals will print.

3. ACCESSING THE 5ODA SYSTEM

Before any user may access the 5ODA system, the operating company office must be registered by the Lucent Technologies Line Engineer. This registration procedure is discussed in detail in the Lucent Technologies Systems Equipment Engineer section of this manual (Section 5.1 "Office Registration").

Once the office is registered, the 5ODA user may connect with the 5ODA system currently at Lucent Technologies located at the Network Software Center 5ODA Production Facility in Lisle, Illinois. The user

interacts with this system from a remote work station via 1200 up to 28,800 bps lines using the toll free number:

For the odutsc machine located at the Network Software Center:

1-800-358-3497

The user can also connect to the remote processor through the Datakit® address:

il/cu/odutsc (U.S. Market)

3.1 Logging On To The 5ODA System

If dialing into a processor, the user will be prompted *Enter username>>*. The user types in the login assigned to him by the Lucent Technologies Line Engineer followed by **<return>**. This login consists of a two letter group ID and a six alphanumeric base and control number. The line administration login consists of li+base and control (e.g., li1234d0). The trunk administration login consists of tr+base and control (e.g., tr1234d0). The Lucent Technologies Line Engineer's login consists of we+base and control (e.g., we1234d0). The read only login used by support personnel consists of re+base and control (e.g., re1234d0).

The next step in logging-on is to enter the password. This password should be obtained from the Regional Line Engineer. After logging on to the system, it is advised that the user execute the *password* command to change the password to one of his/her choice.

- ▲ **CAUTION:** Password administration varies from machine to machine and each user is responsible for keeping track of his/her own password in a secure place. The password must be used every time the user logs on. The 5ODA administrator does not know the user's password.

Thereafter, every 8 weeks, the password expires and the user will have to choose a new one. This procedure is followed for security purposes. When the password expires, the user will log in and the system will respond *Your password has expired. Choose a new one. New Password:*. The user should then type in a password of his/her choice, at least six characters long. The password does not appear on the CRT screen as it is typed in. The user is asked to type in the password a second time for verification.

The next time and every time thereafter the user logs on, the system prompts with: *Password:* (if the user is connecting to the remote processor through Datakit). If the user has dialed into the system and logged on, the system prompts with: *Enter user password>>*. The password does not appear on the screen as the user types it in for security purposes. If the user makes a typographical mistake during this log-on procedure, the system prompts with: *Login incorrect. login:* (if the user is connected to the remote processor through Datakit), and the user should try again. If the user is logging in through dialup of the 800 number and makes a typographical mistake while typing in the password, the system prompts with: *Enter user password>>* and the user should try again.

- **NOTE:** Care must be taken when entering your login and password to be sure you enter both with all lower case letters. Using upper case letters will cause problems later on during the log on session.

Once the user has correctly entered both login and password, the system prompts: *Enter your initials (first, middle, last):*. These initials are required during the log-on process because they are used in the generation of printable output. This is explained in detail in paragraph Section 4.18, "The LISTF Command", of this section.

After the user has correctly entered his initials, the system prompts with: *Enter terminal type or hit return:*.

Pressing the carriage return produces a list of all valid CRT terminal types. The user then identifies the terminal type and enters it.

It is possible that a particular office may have more than one Lucent Technologies order processing at a particular time. For example, an office may start to process a growth ODA while the initial order is still processing. There even may be more than one order for a particular office type, for example G (FITTS Growth). However, using the same login, the user may access either the growth ODA or the initial ODA and specifically the desired order number.

If the above situation exists, the system lists the available databases by the office-type, the Lucent Technologies order-number, and the description of the office-type; it then prompts the user for the ODA number associated with the desired order. If only one office database exists for the desired office-type, the user may enter the correct key letter for the type of office database. Possible valid key letters are:

- G - FITTS Factory Growth Database
- I - Initial Database
- R - Retrofit Database
- M - Off-line Growth Databases
- N - New Non-equipment Off-line Database

When login, password, initials, and terminal type have all been entered correctly, the system prints on the user's CRT screen, information regarding that particular office, such as the office name and type, software release issue, ODA issue and WECO order number. After these messages print, the user has entered the 5ODA system and can begin the job of assembling office data via the 5ODA system commands.

3.2 System Control Characters

When the system is waiting for a command from the user, it prompts the user with *Enter command:.* At this point, the user can enter any valid 5ODA command. (See Figure 1 : "5ODA User Command Summary".)

Certain control characters are available to modify the interaction between the CRT terminal and the 5ODA system. They are:

<return>

- a carriage return is required after every line the user types in.

<CTRL-s>

- suspends the flow of output to the screen. Depress the control key while typing in the letter "s".

<CTRL-q>

- resumes the flow of output to the screen. Depress the control key while typing in the letter "q".

<CTRL-h>

- erases the previous character. Depress the control key while typing in the letter "h". On some terminals, this erase character may be a key labeled "back space".

@

- erases the whole line.

<DELETE> or <BREAK>

- stops execution of a command. Delete or break returns the user to the command level prompt (*Enter command:.*). On some terminals, this key may be labeled "rub out".

3.3 Logging Off the 5ODA System

When the user wishes to log off the 5ODA system, he/she responds to the *Enter Command:* prompt by typing in a

3.3.1 <CTRL-d>

This is done by depressing the control key and typing in the letter "d".

This ends the session with the 5ODA system, however the user must still physically hang up the phone.

4. TELEPHONE COMPANY COMMANDS

NOTE: If greeted by a menu, proceed to Section 7 ,

The Operating Telephone Company Line and Trunk Administrations have responsibility for the great majority of the office input data and, therefore, have access to the majority of the 5ODA commands. This section of the User's Guide is devoted to these commands. The Lucent Technologies Line Engineer can also execute these commands; however, there are a few additional commands which are restricted and only the Lucent Technologies Line Engineer can execute them. These restricted commands are referred to as Lucent Technologies Company commands and are addressed in Section 6 , "LUCENT TECHNOLOGIES COMMANDS").

The main responsibility of the Telephone Company personnel is data entry. Before the data entry command **de** is explained, discussion of the **helpenv**, **password**, **manual**, **news** and **letter** commands will be helpful.

4.1 The "HELPENV" Command

The help command, **helpenv**, displays on the user's CRT screen useful information about a specified topic. Whenever *Enter command:* is displayed, the user can enter the **helpenv** command using the following format (where | indicates "or").

helpenv [*commands* | *office* | *forms* | *records* | *offloc*]

The following types of information are available:

commands - all 5ODA user commands and brief description of each.

office - current office information (e.g., base and control, software release issue, etc.).

forms - all form types (see Figure 9).

records - all record types (see Figure 10).

Examples of a valid **helpenv** command are:

helpenv

- generates a list of all the types of information available.

helpenv commands

- generates a list of all valid 5ODA commands.

4.2 The "PASSWORD" Command

The 5ODA system allows the user to change his password at any time using the **password** command. After the user enters the command

4.2.1 password

the system prompts the user for both the existing password and a new password. Since neither the old password nor the new password appears on the screen as the user types it in, the user is asked to type in the new password twice to insure that it is not mistyped.

The new password must be at least six alphanumeric characters. Only the first eight characters of the password are significant (i.e., the computer system reads only the first eight characters). The password must contain at least one non-alpha character. The user must use the new password the next time he/she logs on.

- ▲ **CAUTION:** Because there is no way for the system administrator to determine a user's password, the user is responsible for remembering his/her own password and recording the password in a secure place.

4.3 The "MANUAL" Command

The **manual** command prints reference information and instructions on the execution of the specified 5ODA command. Manual pages are designed to be concise descriptions of user commands and can provide the user with a quick and immediate on-line reference. The manual pages print on the user's attached line printer unless the **-s** option is used to divert the output to the user's CRT screen. Manual pages can be printed to regional data centers by using the **prtoreg** command.

Commands executable only by the Lucent Technologies Line Engineer are referred to as Lucent Technologies commands. This status is indicated by a "W" beside the section number which accompanies the manual page command name (e.g., CROSSCHECK(1W)).

Manual pages are based on standard format sections:

NAME

- gives the name and the purpose of the command.

SYNOPSIS

- summarizes the format of the command. Anything listed between square brackets (e.g., [-s]) is optional.

OPTIONS

- lists all of the available options and their descriptions.

DESCRIPTION

- describes the command in detail.

EXAMPLES

- gives examples of usage.

SEE ALSO

- directs the user to other documents and/or manual pages.

WARNINGS

- points out areas of concern and potential problems where applicable.

The command format follows:

manual [-s] [manual-pages(s)] [every] [*userguide*]

The options are:

-s - Prints the specified output on the user's CRT screen. When the -s option is omitted, the output prints to the user's attached printer.

manual-page(s) - Prints the manual page(s) for the specified command.

every - Prints all available manual pages.

userguide - Prints out the *5ODA User's Guide*

Examples of a valid **manual** command are:

manual

- prints a list of all manual pages available since no command is specified.

manual de

- prints the **de** manual page on the user's attached printer.

manual records -s

- prints the **records** manual page on the user's CRT screen.

manual userguide

- prints the 5ODA User's Guide on the user's attached printer.

manual every

- prints all available manual pages on the user's attached line printer.

4.4 The "NEWS" Command

The **news** command is used to keep the user informed of current computer system news. For example, when a user logs into the system he/she may see the following line of text on the screen

news: Xmas phones commands

indicating system news that may be of interest to the user. To find out what this news is, execute the **news** command along with the item you want to see. For the above example, type

news Xmas

and the system news regarding the computer access schedule during the Christmas holidays will be displayed. Because news items are written to all users on that particular machine, some news items may not pertain to 5ODA users. If, after reading the news item, it does not apply, merely ignore it. By typing in **news** without any items, a list of news items available prints on the user's CRT screen.

4.5 The "LETTER" Command

The **letter** command prints messages from the Lucent Technologies Line Engineer or the 5ODA System Administrator. It also informs the user when some 5ODA commands have completed processing (**records**, **crosscheck**). If, immediately after logging on, the user sees the message *You have mail*, he/she can type in

letter

and the messages will print on the user's CRT screen followed by a question mark. The user must then either remove the message file by typing **d** and **<return>** or save the message file by pressing the **<return>** key. If the user does not have any messages, the system responds with *no mail*.

The **letter** command can also be used to send messages. By using the format (where | indicates "or"):

letter *line* | *trunk* | *weco*

the user can specify the person receiving the message. The *line*, *trunk* or **weco** options can be used to send messages to the specified person with the same base and control. The user can then type in the message with as many lines as necessary. When the message is complete, enter **<CTRL-d>** on a line all by itself to end the message, send it to specified person, and exit the **letter** command. The *Enter command* prompt is then displayed.

4.6 The "SUGGEST" Command

The **suggest** command is a means for the user of the 5ODA process to suggest enhancements to 5ODA user interface commands. Such suggestions might include: improvements on how existing 5ODA commands work, new commands to aid 5ODA processing, new options to existing commands, or new processing features or services related to 5ODA production.

Please note that this command is not a replacement for current methods of communication regarding day-to-day processing of offices. Do not use the **suggest** to document problems with an office's data, nor any problems that require immediate attention. Neither should this command be used for informational questions, scheduling concerns, or administrative concerns.

The **suggest status** command allows the user to review the status of previously proposed suggestions.

4.7 The "ONLINE" Command

The **online** command tells the user who is logged on with the same base and control. The command lists the login name, the terminal number and the login time for each current user.

4.8 The "DE" Command

The **de** command is the 5ODA interactive data entry command which allows the user to enter, change, review or delete data in the database. The 5ODA system uses the general purpose ODIN system to perform these interactive data entry capabilities.

In the data entry command, select a form and then enter or change the data associated with a single form instance on the specified form (e.g., customer telephone number 5551313). Figure 9 is a list of examples of the forms associated with a User Group (line, trunk, or weco). In the example above, customer TN (Telephone Number) 555-1313 is a form instance on the line form. The user can obtain a list of the forms associated with the line or trunk logins via the **<help>** command within **de** command.

Information is error checked as it is entered with error messages displayed at the bottom of the user's CRT screen. **de** performs two levels of data checking:

Level 1 checks are range and syntax checks of a single field and

Level 2 checks are error checks performed between items within the same instance of a logical form.

While in the **de** command, the user can request that the current form instance displayed on the CRT screen be saved in a file for later printing on an attached printer. Any number of form instances can be queued for printing by responding to *Enter Review, Change-insert or Print* with a **p**. After execution of the **de** command, the user must then execute the **listf** command to produce a hard-copy **de** printout (see Section 4.18 , "The "LISTF" Command").

The **de** command is executed by typing

de[*form name*][*operation*]]

The command prompts for form name and database operation unless these parameters are passed in from the command line. The next section explains the prompts in detail.

Form selection

When the **de** command displays the form selection prompt *Enter name of form:*, the user can make one of three valid responses:

- a valid form name followed by **<return>** (e.g., mlhg)
- enter **<help>** followed by **<return>** to produce a list of all the forms and database operation permissions that the user is allowed to access (see Figure 4)

NOTE: This "help" command must be entered with angle brackets on either side: **<help>**

- or press **<return>** to exit the **de** command and return to the *Enter command:* prompt.

If the user specifies a valid form name , the **de** command verifies that the user is allowed access to that form type (line, trunk, or weco) and proceeds to the database operation prompt. If access to the specified form type is denied, **de** displays

You are not allowed access to this form.

Enter name of form:

The user must then use one of the three options described above. If the user incorrectly enters a form name, **de** displays

Invalid form specified: lne. Try again.

Enter name of form:

If the user responds with **<help>**, **de** displays all the form names the user is allowed to access, along with the database operation permissions that he has been granted for each form. Figure 4 shows a sample of **<help>** message in the **de** command. In that example, the user is allowed to access 11 different forms, and "review" (read only) seven of the forms (indicated by the "r" preceding the form type), but the user can "insert", "review", "update" and "delete" only four of the forms (indicated by the "irud" preceding the form name). Using this **<help>** list, the user can then choose a valid form name. When the user includes the form name on the command line, the user bypasses the form selection prompt and is given the database operation selection prompt. With this option the user can only operate on that form during the **de** session.

4.8.1 Database Operation Selection

After the user has selected a form, a database operation must be specified. When the **de** command displays the database operation prompt *Enter Data Base Operation Code*:, the user enters one of the following four valid database operations- **i**, **r**, **u** or **d** - followed by **<return>**.

i

- to insert a new form instance in the database.

r

- to review without changing an existing form instance in the database.

u

- to update an existing form instance in the database.

d

- to delete an existing form instance from the database.

The database operation prompt displays only those database operations that the user is permitted to use for the selected form (seeFigure 5). If the user is allowed only one of the four operations (usually "review"), **de** does not display the prompt since the user has no choice, but moves directly to a full-screen display of a "blank" form instance of the selected form (seeFigure 6 and Figure 7).

The command line also accepts an operation (**r**, **i**, **u**, **d**) when the form type is entered on the command line. The user is placed into that operation for that form, bypassing the form selection and database operation prompt. If the user is not allowed to make that operation, a message is printed telling the user that he/she will be placed into review mode. With this option the user can only execute that operation on the given form for that **de** session.

Database Operation Restrictions

In some cases update and delete operations may be restricted for a single form instance rather than for an entire form. These restrictions would most likely be applied for retrofit or off-line growth offices. The restrictions would probably be applied to data that has been dumped from an existing 5ESS-2000 Switch.

In addition to form and database type, the restrictions are based on a particular data field found on each form instance. It will be located in different areas on the form, but is generally on the last (or only) page in the top right corner. The legal values are:

E - data dumped from an existing 5ESS-2000 Switch.

C - data from an existing switch that has been changed.

N - new data that has been added to existing data.

The field may also be blank.

The user is not restricted from choosing the update or delete operation. However, before the actual update or delete is performed, a check is executed to determine if the operation is allowed. If the chosen operation is restricted, the user receives one of the following messages, depending on the operation chosen:

Deletes are not allowed on data of type _ on form type ____.

Updates are not allowed on data of type _ on form type ____.

The user is not allowed to perform the requested operation.

An exception to the update restriction is that certain forms may allow non-critical data fields to be updated, overriding the update restriction. On these forms, the user can only position their terminal cursor on those special fields to update. The rest of the fields are shown in a no-change display mode. Depending on the user's terminal type, the no-change fields are displayed at half screen intensity.

The **restrict** command reports on the forms that have database operation restrictions and the forms with special field update privileges.

Data Entry Session

If the user chooses the insert or update modes, he/she has the facility for changing data values via the change/substitute mode.

Change mode is entered by responding with a "c" to a form operation prompt. The field to be changed is identified by entering the field number in response to the Change field prompt. When the user enters the new data, it is subjected to new error checking. Entering **<return>**, back tab, or abort in response to the Change field prompt, serves to exit change mode and the cursor moves to the form operation prompt. If the user enters a field number that is not on the current screen (multi-screen forms), then the appropriate screen is displayed automatically and processing continues.

Substitute mode is a facility for changing data values in a form. Substitute mode differs from change mode in that it allows substitution of strings within a field rather than forcing the user to re-enter the entire data value when it is necessary to change a field. A field to be changed is identified by entering a field number in response to the Substitute field prompt. In addition to the field number, the operator must respond to the *From string:* and *To string:* prompts which identify the existing string and the replacement string within the field, respectively. Normal data checking is then performed on the new field. Care must be observed when using the substitute mode to uniquely identify the string of data within the field to be changed.

If the user enters a field number that is not on the current screen (multi-screen forms), then the appropriate screen is displayed automatically and processing continues. Entering **<return>**, backtab or abort in response to the Substitute field prompt serves to exit substitute mode and the cursor moves to the form operation prompt.

Once a database operation has been specified, a "blank" form (or the first screen of a multi-screen form) is displayed. If the backtab (<) control character is entered in the first field of a form, the system will terminate the current database operation and return the operator to the form type selection prompt. If the backup (^) control character is entered in the first field of the form, the system will terminate the current database operation and return the user to the database operation prompt. The screen is not cleared before displaying this prompt, making operation switches on the same form type a quick process. The operator may respond with a database operation code (i, r, u or d) or a control character as described above. (See Figure 2 at the back of this manual, or use the **manual** command to see the manual page for **navigate**.)

To exit from the **de** command, the user responds to the form selection prompt *Enter name of form:* with **<return>**.

The user is provided with a complete set of data entry control characters which conserve keystrokes and allow navigation through the form displayed on his CRT screen (see "Figure 2 : "5ODA Data Entry Control Characters"). Navigational control characters may also be attained by entering a "?" during data entry.

Once the user has entered **de**, depending on his database permissions, he can insert a new form instance; review, update or delete an existing form instance; or request that the current form instance be printed. The

listf command must be executed to receive a hard copy printout of the **de** command. (See Section 4.18 "The LISTF Command".)

4.9 The "DBSTATUS" Command

The **dbstatus** command is an informative command that tells the user the state of the forms database, either "frozen" (locked) or "thawed" (unlocked). When the crosscheck command is executed by the Lucent Technologies Line Engineer, the forms database is marked as "frozen". This means the database is locked and no data entry is allowed. In order to unlock the database, the Line Engineer must execute the **thaw** command.

The following format

dbstatus

tells the user whether data entry is allowed at this time.

4.10 The "RESTRICT" Command

The **restrict** command reports on forms that have database operation restrictions for particular database operations (insert, delete, update). Database operation restrictions are placed on data that has been dumped from an existing 5ESS-2000 Switch for Retrofit and Large Terminal Growth offices.

A report displays the form, the data type and the restrictions associated with that form's data type. Also, forms that allow special field updates on restricted data are indicated by an asterisk following the form name.

By using the following format

restrict

the user will be told what database forms have database operation restriction.

4.11 The "ALLFORMS" Command

The **allforms** command reads the database (see Figure 3) and produces all form instances of one, or more, or every form type present in the database in CRT screen image.

Using the following format

allforms *[form name(s) | user group | every]*

the user requests that the specified form(s) be processed.

form name(s) - individually or as a list of one or more valid form names separated by blanks (e.g., "mlhg" or "mlhg lcc ldit trunk").

user group - all the forms associated with a user group (e.g., "lines", "trunks" or "weco"), where "lines" is the group of all customer line forms, "trunks" is the group of all trunking and routing/charging forms, and "weco" is all equipment forms. Figure 9 lists examples of forms that are associated with each user group.

every = every or all forms.

When the **allforms** command is submitted, it is processed as a background process, and the user is notified via the **letter** command when it has finished. When **allforms** command has completed, the user must then

execute the **listf** command to produce a hard-copy **allforms** printout. (See Section 4.18 "The LISTF Command".)

The following are examples of valid **allforms** command lines:

allforms tkgrp

- generates all form instances of the tkgrp form.

allforms lcc rar tkgrp

- generates all form instances of the lcc, rar and tkgrp forms.

allforms weco

- generates all form instances of every form in the group "weco".

allforms deficient

- generates all form instances for forms defined as "deficient". (Deficient forms are those whose data may not be valid.)

allforms every

- generates all form instances of every form type.

▲ **CAUTION:** Executing **allforms every** takes extremely long to run and generates a lot of output. Use of this command is discouraged since the records command effectively gives the same output in a more condensed format, and is much faster. (See Section 4.14 "The RECORDS Command".)

allforms

- no forms are specified so the **allforms** command prompts the user with *Enter form type(s)*. The user must then respond with a form type or form type category as described above.

4.12 The "ERRFORMS" Command

The **errforms** command reads the database (see Figure 3) and produces in CRT screen image only those form instances of specified form types present in the database that contain errors and/or warnings.

Using the following format

errforms[*form names | user group | every*][-*nf*]

the user requests that the specified forms be processed.

form name(s) - an individual form name or as a list of one or more valid form names separated by blanks (e.g., "line lcc ldit").

user group - an entire user group of forms (e.g., lines, trunks or weco), where "lines" is the group of all customer line forms, "trunks" is the group of all trunking and routing/charging forms, and "weco" is all equipment forms. Figure 9 lists examples of some of the default forms associated with each user group.

every - all forms

-nf - no-forms option, **errforms** suppresses mask images, while displaying form key information along with Level 1 and Level 2 error and warning information. This option greatly reduces the output of the attached printer.

When the **errforms** command is submitted, it is processed as a background process and the user is notified

via the **letter** command when it has finished. When **errforms** command has completed, the user must then execute the **listf** command to produce a hard-copy **errforms** printout (see Section 4.18 "The LISTF Command").

Examples of a valid **errforms** command lines are:

errforms tkgrp

- generates those form instances of the tkgrp form that contain errors and/or warnings.

errforms lcc rar tkgrp

- generates those form instances of the lcc, rar, and tkgrp forms that contain errors and/or warnings.

errforms wecoR

- generates those form instances of every form in the user group "weco" that contain errors and/or warnings (see Figure 9).

errforms tkgrp -nf

- generates those form keys of the tkgrp form that contain errors and/or warnings.

errforms deficient

- generates those form instances of every form type that are defined as "deficient". (Deficient forms are those forms which may have invalid data).

errforms every

- generates those form instances of every form that contain errors and/or warnings.

errforms

- since no forms are specified, the **errforms** command prompts the user with *Enter form type(s)*. The user must then respond with a form name or a user group category as described above.

This command is very useful after bulk data has been loaded into the system.

4.13 The "SUMMARY" Command

The **summary** command reads the database (see Figure 3) to produce a hard-copy summary of the form types requested. **summary** produces a count of how many form instances are in the specific forms, the number of forms with errors, and the number of forms with warnings (see Figure 8). This command error checks every record and may take a considerable amount of time to process, so it should be run with this in mind. When **summary** is executed, it processes as a background process and the user is notified when it has completed via the **letter** command.

The **summary** has the following format:

summary [*form(s) | user group | every*]

It requests that the specified form(s) be processed.

form(s) - one or more valid form names separated by blanks (e.g., "mlhg" or "mlhg lcc ldit trunk").

user group - the forms associated with a user group (e.g., "lines", "trunks" or "weco"), where "lines" is the group of all customer line forms, "trunks" is the group of all trunking and routing/charging forms, and "weco" is all equipment forms Figure 9 lists examples of forms associated with each user group.

every - every or all forms.

Having executed the **summary** command, the user must then execute the **listf** command to produce the hard-copy **summary** printout (see Section 4.18 "The LISTF Command").

Examples of a valid **summary** command are:

summary tkgrp

- generates a summary of the tkgrp forms.

summary lcc rar tkgrp

- generates a summary of the lcc, rar and tkgrp forms.

summary weco

- generates a summary of all forms in the user group "weco" (see Figure 9).

summary deficient

- generates a summary of every form type that is defined as deficient (deficient forms are those whose data may not be valid).

summary every

- generates a summary of all forms.

summary

- This example has no form(s) specified, so the **summary** command prompts the user with *Enter form type(s)*. The user must then respond with a form(s) or user group category as described above.

4.14 The "RECORDS" Command

The **records** command reads the database to produce office records (see Figure 3). The output of a **records** command is a tabular printout that closely resembles the 5ESS-2000 switch office record formats.

Using the following format

records [*record(s) | user group | every*]

the user specifies which office records to generate.

record(s) - one or more valid records separated by blanks (e.g., "5101-1 5202 5303").

user group - records in a user group (e.g., "lines", "trunks", "weco" or "brcs") where "lines" is the group of all customer line office records and "trunks" is the group of all trunks and routing/charging office records and "weco" is the group of all equipment office records, and "brcs" is the group of Business and Residence Custom Services office records. Figure 10 lists examples of office records associated with each user group.

every - every or all office records.

Having executed the **records** command, the user must then execute the **listf** command to produce a hard-copy printout (see Section 4.18 "The LISTF Command"). When using the **listf** command, the user may print all of the output from the **records** command, or merely parts of it. For example, after executing **records lines** (which produces office records for all the line forms), the user can list all of that output by requesting **listf records**, or list only one office record (e.g., 5104) from the output by requesting **listf 5104**. The **listf** command with the "-changed" option can be used to display only those records which have changed since a given date and time.

For off-line growth processing, form instances that are deleted from existing data are saved in a special data area. When the **records** command is executed, the office records are automatically generated for the deleted form instances. The deleted records can be viewed via the "deletes" option on the **listf** command (see Section Section 4.18 "The LISTF command".)

Examples of a valid **records** command are:

records 5202

- generates the 5202 office record.

records 5100-1 5202 5203 5204 5209 5509 5511

- generates the 5100-1, 5202, 5203, 5204, 5209, 5509 and 5511 office records.

records lines

- generates all office records in the lines user group (see Figure 10).

records every

- generates all office records.

records

- the "records" command without any record numbers specified prompts the user with *Enter record type(s)*. The user must then respond with a record number or record user group category as described above.

The **records** command is submitted to the jobs queue and will be run when system resources will allow. The status of the job (either queued or running) may be checked via the **jobs** command. Upon completion the user who submitted the job is notified via the **letter** command.

4.15 The "SCAN" Command

scan is an interactive command which allows the user to examine an office's input form or base relation data. The files are viewed over consecutive screen images with one column per attribute. By executing

scan [*file_name*] [-d] [-old]

the user may view input form data.

file name - input forms should be specified in lower case letters. The base relation file name should be specified in all upper case letters. If the file name is not known, the user may enter **scan** followed by a <return> to display valid input form and/or base relation file names.

-d option provides review access for large terminal growth (non-hardware) delete databases exclusively. Simultaneous examination of input and base relation data is not permitted via the -d option.

-old - access the previous software release and/or ODA issue database, which includes input forms and base relation files. No other options can be specified with the "-old" option. The user is given review permission only.

The **scan** command also supports record substitution (global updates) to input forms for Initial offices, however, only the Lucent Technologies SEEs (System Equipment Engineers) can perform this feature. The Line and Trunk engineers are restricted from doing global updates to the data. The SEE sets "Selection Criteria" and global substitutions are made according to the selection criteria the SEE has set. Once the SEE is satisfied with the changes the file must be inserted (updated) back into the original file. Updates are only allowed during the data entry time frame on options available through the editor command.

Key attributes are underlined and repeated on each screen image. "Scan" assumes all attributes are to be viewed. When the screen size is too small then attributes are divided over multiple consecutive screens. For convenience the screen images can be reformatted and customized to view only attributes and data of interest. This is accomplished with the **cut** and **add** commands used interactively within the **scan** command. Records can be scanned in a forward or backward direction in a continuous or single page mode.

Screen width and length can also be modified using the **page size** commands within the **scan**.

Execute the **manual scan** command to obtain information on scan's interval commands to perform any of the features mentioned above.

To exit from the **scan** command, type in the letter "q" (for quit) in response to the prompt (:).

4.16 The "JOBS" Command

The **jobs** command is an informative command which tells the user what jobs are still in the jobs queue.

Four commands, the **records** command, the **crosscheck** command, the **mapping** command, and the **dbgen** command, take longer to run than most other 5ODA commands and could slow down the performance of the computer system if many were submitted at one time. Therefore, these commands are placed in a temporary area where they are executed when computer resources allow.

The format for the **jobs** command is

jobs [-all] [-f]

To find out the status of a command that you entered, execute

jobs

All jobs whose status is either "queued" or "running" will print on the CRT screen. When a job begins processing its status changes from "queued" to "running".

-all - gives the status of all commands in the jobs queue. All jobs for all users will print on the CRT screen.

-f - gives the disk file system for every job, as well as an approximate "percent done" calculation for each running job.

4.17 The "KILLJOB" Command

If a user wishes to cancel a job that is still in the jobs queue and has not yet started running, the **killjob** command can be used to remove that job. This command can be used to cancel **records**, **crosscheck**, **mapping** and **dbgen** commands whose status is "queued". By using the following format (where | indicates "or")

killjob *records | crosscheck | mapping | dbgen*

the user can cancel any one of these commands. However, selectively kill a job cannot be selectively killed if more than one of that type is in the queue. For example, if a user submitted 5 **records** jobs, and executed **killjob records**, all 5 jobs are removed from the queue.

To find out what jobs are still in the jobs queue, execute the **jobs** or the **jobs -all** command.

4.18 The "LISTF" Command

The **listf** command is a general purpose command used to print output previously produced by: **allforms**, **de**, **errforms**, **records**, **scan**, and **summary**. Refer to the appropriate section in this manual for each of these commands. (The output from **crosscheck** command is printed using the **listxk** described in the next section.)

The output of any 5ODA command is placed into a file when the command is executed. The output file name is generated using the name of the executed command with the user's initials (entered when the user logs in) appended as a suffix. For example, if a user logs into the system with initials "abc" and executes the command **errforms**, the output file is labeled "errforms.abc". This file "errforms.abc" remains in storage until the very next time the user with initials "abc" executes **errforms** again, in other words, the new output of **errforms** overwrites the old output, or until the user removes the file (see Section 4.21, "The REMOVE command").

A user may print the output of any command-name he has executed without specifying his initials as a suffix (e.g., **listf summary**) since the **listf** command searches for the output of the command with the user's initials first. If a user wants to print out only his own file(s), no initials are needed, e.g., **listf de**. But, if a user wants to print out a file generated by someone else, then that user's initials must be specified with the command name (e.g., **listf de.mlh**).

In listing the output of the **records** command, the user may request all of his/her output or individual records. For example, if after executing the command **records every** (which produces all office records), the user wanted to look at the output of one office record, 5104, he/she could specify **listf 5104**. In the case of off-line growth offices, all the deleted records may be listed using the *deletes* option. Also, any user can print the output of the records command, no matter who generated it.

The **listf** command has the following format:

```
listf [-u] [-s] [-cN] [-r] [-n] [-errors] [-summary]
[-number][command-name[.initials]][-changed]
```

The options can be specified in any order.

-u - prints the output created through the editor command.

-s - prints output on the user's CRT screen. If omitted, the output is printed on the user's attached hard-copy line printer.

-cN - requests multiple copies of the output where "N" is the number of copies desired. If omitted, one copy is printed.

-r - removes the requested file from the system immediately after printing, thus saving disk space and disk charges. The output of a command remains in storage until (1) the next time the file owner runs the command-name; (2) until the "listf" command is executed with "-r"; or (3) until the user removes the files using the remove command. Only the owner of a file (whose initials are the file suffix) can remove the file.

-n - numbers each line of output.

errors - prints only the crosscheck error messages, without the specific instances of the errors.

-summary - this option is to be used only when printing **errforms** output. This option prints **errforms** output in a summarized format. For example, if a given form had the same Level 1 error for every tuple in the form, the error is listed once with a count of the number of tuples in the form that had that error. Use of this option

greatly reduces the size of the **errforms** output.

-number - skips the first specified number of lines of output.

command-name - prints the desired output file(s). This may include deletes, which is data deleted during the offline growth process (specify **listf deletes**)

-changed - lists only those records which have changed since a given time. This option is only valid when used to obtain records output. The user is shown the list of time when the records every and prtoreg listf records commands were run for this office. The user may select any of those times.

Examples of a valid **listf** command are:

listf

- lists the names of all available files along with the dates they were created.

listf de errforms

- prints on the line printer the output of those **de** and **errforms** commands with the user's initials.

listf errforms.mlh

- prints on the line printer that output of **errforms** executed by user "mlh".

listf records

- prints all of the output of the records command.

listf 5505

- prints only office record 5505.

listf -c2 summary -s -r

- prints two copies of the user's **summary** output (since no initials are stated) on the CRT screen, and removes the file immediately after printing.

listf -u editfile

- prints the output of the file "editfile", which was previously created through the editor command.

listf -errors errform.xyz

- prints the output of **errforms** executed by user "xyz" without the warning and in a summarized format.

listf -n 5505

- prints only the office record 5505 with line number in the first column of each line of the output.

listf myfile.xyz

- prints the "myfile.xyz" file which was created by user "xyz" with the write option of scan.

listf -s records -changed

- displays a list of times and asks the user to select one. All records which have changed since the selected time are displayed on the user's terminal.

4.19 The "LISTXK" Command

The **listxk** command prints output previously produced by the **crosscheck** command. See the appropriate section for instructions on the execution of the **crosscheck** command.

Two types of listings can be generated. The first report prints any Level I, II and III checks found by the

crosscheck command. The user may use several options to tailor the output of the checks. The default is for all errors and warnings messages to be printed. The user may choose to print a reduced format of Level I and II checks or not print them at all.

The user can also specify Level III error or warning messages only and limit the number of data lines printed after each error or warning message found. The number of data lines skipped will be printed. The last option allows the user to select packages to run the report on. Packages are discussed in the next paragraph and the default is to report on all the packages.

The second listing option generates a summary of all Level III errors. The report consists of header and four fields separated by tabs. The first field, "Type", tells if the check was an E (Error) or W (Warning). The second field, "Count", gives the number of error conditions for that error. "Package" is the third field. It is the name of the package group where the error occurred. These names can be used in the first report to print only those errors or warnings associated with those packages. The last field, "Name and Number", is the name associated with the error.

The format for the **listxk** command is as follows:

```
listxk [-cN] [-number] [-s] [-summary][[[-nf | -r112]
[-llimit] [errors] [warnings] [package ... ]]
```

-cN - request multiple copies of the output, where N is the number of copies desired. The -c option may be omitted if only one copy is desired.

-number - skip the first specified *number* of lines of output.

-s - display output on user's CRT screen. If the -s option is omitted, the output is printed on the user's attached line printer.

-summary - print summary listing. The following options are ignored if this option appears on the command line.

-nf - (no forms) suppress CRT input form images, generate key field information along with errors and/or warnings for Level I and II checks.

-r112 - suppress the printing of Level I and II checks.

-lN - Option to limit the number of lines associated with an error or warning message. If this is omitted, all lines are printed. Level III messages only.

errors - print only the crosscheck error messages, level III messages only.

warnings - print only the crosscheck warning messages, level III messages only.

package - print only messages from the given package. More than one package can be specified, however, only level III messages are printed.

For convenience, options may be specified in any order except that package names must be at the end of the command line.

Examples of valid "listxk" command are:

listxk

- prints the output of the crosscheck command executed by the SEE (System Equipment Engineer).

listxk -summary

- prints a summary report on the number of errors and warnings messages and the number of instances for each message.

listxk -s -l10

- prints output of the crosscheck command to the screen limiting the number of output data lines per Level III checks to 10.

listxk -c2 errors RC TRUNK LINES

- prints 2 copies of the output from the crosscheck command to the line printer for Level III error messages from the "RC", "TRUNK" and "LINE" packages.

4.20 The "RUNXCHECK" Command

The runxcheck command is executed by telephone company users to submit a crosscheck job which the SEE has set up previously via the **crosscheck -sleep** command. For more details, see the crosscheck command under the section "Lucent Technologies Commands".

4.21 The "REMOVE" Command

For efficient utilization of the 5ODA computer, it is recommended that each user of the 5ODA system periodically check the 5ODA file storage area and remove unwanted files. By executing

remove

without any file names, the **remove** command lists all the files in storage which the user is allowed to delete along with the dates that they were created.

A file in storage is the output of a command. The name of this file is the command name with the user's initials appended to the end. For example, if a user with initials "abc" logged into the 5ODA system and executed the command **errforms**, the name of the output file would be "errforms.abc". This file remains in storage until:

- the same user executes **errforms** again (i.e., the new output overwrites the old output).
- the same user executes the **listf** command with the **-r** option, which will remove the file immediately after printing.
- the user executes the **remove** command. To remove a file, execute

remove filename

The Lucent Technologies Line Engineer can remove anyone's files, and only he can remove the output of the **crosscheck** command.

Examples of a valid **remove** command are:

remove

- print all files in storage the user is allowed to delete with the dates they were created.

remove errforms

- removes the output of **errforms**.

remove errforms.abc de.map summary.dje crosscheck

- this command can only be executed by the Lucent Technologies Line Engineer because it is removing the output of commands executed by different people and because it is removing the output of the **crosscheck** command.

4.22 The "TLOCK" Command

The command **tlock** gives a level of security to the restricted user so that he/she may leave a terminal unattended. This also saves the users from having to log off and on when they desire to leave the terminal.

After entering the command, the user is prompted with the office's password. The user can now leave the terminal unattended. To resume the session, enter the office password.

To execute **tlock**, enter:

tlock

The prompt will look like this:

Enter password for <office base and control>:

To resume the session, enter the password.

If the user does not know the office password, **tlock** should not be used because the user will be locked out of the session.

4.23 The "PRSPEED" Command

This command regulates the speed of output from a host machine to a terminal or PC. The command is useful when using a printer attached to a PC running DOS or similar operating system, which does not have flow control to regulate the output to the printer. The above setup sometimes generates garbled output when jobs are sent to the printer, especially when it is a flow printer.

The **prspeed** command slows down the output rate to a level that can be handled by the printer.

The format of the command is:

prspeed (*low* | *med* | *hi*)

The command has three settings for output rate, low, medium, and high. The *hi* setting corresponds to the normal speed. Any one of the options must be specified.

Users having difficulty with their printers may run this command with the *low* or *med* option before running any other command which sends output to the attached printer. The choice of low or medium depends on the performance of the individual printer. If medium does not suffice, then low should be used.

However, once the printing is done, if the user should return control to the screen, **prspeed** should be run again with the *hi* option to resume the output rate to normal. Otherwise, any subsequent interaction on the video screen may be sluggish. If the user wants to run more than one print command in succession, then the user needs to run **prspeed** only once before and once after the print jobs.

The following is an example showing how to use **prspeed** when running two print jobs in succession:

prspeed low

listf records
manual listxk
prspeed hi

The printing times may be slightly extended when **prspeed** to slow down the output rate.

5. THE LUCENT TECHNOLOGIES SYSTEMS EQUIPMENT ENGINEER

This section of the manual addresses the Lucent Technologies Line Engineers who have the overall responsibility for the correct generation of the base relations required by the 5ESS-2000 Switch. The 5ODA commands in this section can only be executed by the Lucent Technologies Line Engineer and are therefore referred to as restricted or WECO commands. The Line Engineer's responsibility in building an office's database can be described in these steps:

- Office registration (Section 5.1 "Office Registration")
- Equipment data entry (Section 4.8 "The DE Command")
- Database validation (Section 6.4 "The CROSSCHECK Command")
- Transmission of the equipment input related data for MMST (Multi-Module System Test) and SMST (Switching Module System Test) (Section 6.9 "The SENDIMST Command").
- Mapping the data into base relations (Section 6.6 "The MAPPING Command").
- Generation of the machine loadable Office Dependent Database (Section 6.7 "The DBGEN Command").

Each of these areas is discussed in detail in this section of the 5ODA User's Guide, except for data entry which is discussed in "Telephone Company Commands" (Section 4).

5.1 Office Registration

Before any processing can be done for a particular office, that office must first be registered by the Lucent Technologies Line Engineer. For this registration process, the Line Engineer must dial up a 1200 bps (bits per second) line or 2400 bps line on the toll free number:

5.1.1 1-800-551-5748

When the system prompts for class, the following must be entered:

lcutsa

The line engineer can also connect to the remote processor through the Datakit® address:

il/cu/lcutsa

The login name and password are:

Login name: 5odareg
password: XXXXXXXX

After entering the SEEs special login and password, the Lucent Technologies Line Engineer continues the log-on process as described in Section 3.1 , "Logging on to the 5ODA System". Once the SEE has completed

the log-on procedure, the system prompts him/her for the type of operation to be executed: register a new office or update an existing office (see next section "Office Updating"). If the register option is selected, the system prompts for the type of office to be registered: initial growth, retrofit, large terminal growth, or customer service, and then displays a blank registration form on the CRT screen. The engineer proceeds to enter all the requested information. When the form has been completed, the engineer should request the "insert operation" and this information is submitted for processing to the 5ODA Database Management Organization. After the form is finished and inserted, the engineer is asked if he/she would like to register another new office, update an existing office or exit from the system. Within a few days, the office should be registered, its database initialized and ready for input data entry.

5.2 Updating An Office In The PSS (Production Scheduling System)

Once an office has been registered by the SEE in PSS, it is possible that the data has changed from the time that it was registered it. To update registration data, the SEE should access the system exactly as is outlined in the previous section. The same login is used (5odareg) as well as the same password.

The SEE should select the update option when prompted and then select the type of office that needs updated. Again, exactly as above, the SEE is placed into update mode on a blank form. Once the base and control and weco order number for the office to be updated have been entered, the rest of the existing data is populated on the form. There is a subset of the fields on the form which the SEE may update at this time. Any of the information about the SEE for the specific office (name, phone number, department number), the remarks field and all of the modified date fields have update permission granted to the SEE.

If drastic changes are made to any of the dates, the SEE must be sure to notify the Database Managers either via the telephone (SDN or commercial 708-224-6269) or via a facsimile with the requested change. An example of the above condition would be, the FULLS data for an office is scheduled to be shipped at a time at least a week in the future and the SEE wants to change the PSS dates so that the data is to be shipped on the next day. The Database Management group must be contacted about the change in schedule. Database Management receives listings of the offices which have been modified during the past seven days once a week every Monday. For this reason, any time that the dates are modified so that events will now be occurring during the week in which the change was made, the Database Managers must be contacted via telephone to notify them of the change.

- **WARNING:** The other information which was entered during office registration is critical to the processing of the office. If any of this other information is found to be incorrect, the Database Management group should be contacted immediately to ensure the integrity of the ODD (Office Dependent Data).

When all the desired fields have been updated, the engineer should request the "update operation". Once the form has been updated, the engineer has the opportunity to either update another office, register a new office or exit the system.

6. LUCENT TECHNOLOGIES COMMANDS

6.1 The "HISTORY" Command

The **history** command is a privileged command that can be used only by the Lucent Technologies Line Engineer. When executed, the **history** command lists the date and time that successfully completed **crosscheck**, **mapping**, and **dbgen** commands were initiated for a particular office. The list is summarized with the total number of executions for each type of command.

This command may be helpful to the System Equipment Engineer if there are any questions on the offices

data processing. The history command can be used to obtain a complete processing history for a particular office/Lucent Technologies order number.

6.2 The "GROUPINGS" Command

One of the most important aspects of any data processing system is the method it uses to exercise control over its activities. The 5ODA system uses the **groupings** command to exercise control over who can access a given form and what database access permissions a user may have.

The **groupings** command is a restricted command that can only be executed by the Lucent Technologies Line Engineer.

Initial groups (lines, trunks and weco) are created when the 5ODA administrator initializes an office. See Figures Figure 9 and Figure 10 for examples of these default groups. The group a form or record is in, determine who has what Database permissions (insert, review, update or delete) for a form or record depend on the user group of which the form or record is a member. In other words, if the form "amact" is in the group "lines", then the line administration data entry people have insert, review, update and delete permissions on form "amact". The Lucent Technologies Line Engineer has all four permissions on all three groups (lines, trunks, weco). These permissions may be further restricted (see Section 4.8 "The DE Command").

Using the following format

groupings *forms / records*

the T Line Engineer specifies the type of group files to be modified, either forms or records. Once in the **groupings** command, the user is asked to *Enter form (or record) name and group(s):*. The user enters the name of the form or record to be moved and the group(s) into which it should be moved. Specify all groups in which a form or record is to be included. A form or record is removed from a group by not including it in the new specification. Forms or records which are not changed remain in their original groups.

To get the current status of the three groups, respond to the *Enter form (or record) and group(s):* prompt with **list lines** or **list trunks** or **list weco**.

A groupings session may be aborted at any time by pressing the break key. If no more changes are desired and the changes should be made permanent, enter <ctl-d> to exit from the **groupings** command.

6.3 The "DEFICIENT" Command

The **deficient** command is restricted, meaning only the Lucent Technologies Line Engineer may execute it.

When data is loaded into an office database via batch mode (e.g., COSMOS, VIRGOS, etc.) or when an office is evolved from one ODA issue to another, those forms that have errors are set to "deficient", indicating the data is not valid. Later, during the **crosscheck** run, if a deficient form passes all Level I (range and syntax) error checks and Level II (items within the same instance of a logical form) error checks, it is then marked as "valid". When a form is defined as "valid", it implies that the data in that form is good and that data with errors may not be entered into it. When a form is marked as "deficient" it implies that the data in that form may not be good, and bad or incomplete data may be entered into it by using the *ignore" option in the data entry command de*.

The **deficient** command is an informative command which tells the Lucent Technologies Line Engineer which forms are currently defined as "deficient". When the command is executed in the following format

deficient

a list of all deficient forms prints on the user's CRT screen.

6.4 The "CROSSCHECK" Command

The **crosscheck** command is restricted, therefore only the Lucent Technologies Line Engineer can execute it. **Crosscheck** reads the database (see Figure 3) and performs database validity and consistency error checks (also called "cross-form error checks") to verify that no crosscheck errors exist from interactive or bulk data entry on any form instances in the database. If any errors are found, the **crosscheck** command produces error/warning messages that inform the line engineer of this condition. These errors must be corrected prior to the execution of the **mapping** command to insure the correct generation of base relations. Mapping assumes good input. If the input is bad, **mapping** could silently generate incorrect base relations.

Although the **crosscheck** command is restricted, the output of the command (i.e., error/warning messages) is available to all users. The output file is generated without any initials appended. In order to receive a printout of the output, the **listxk** command or the **prtoreg** command can be used (see Section 4.19 "The LISTXK command" and Section 6.12 "The PRTOREG command"). The **prtoreg** command can only be executed by the SEE. Through the **prtoreg** command, the hard-copy printout can be sent to any of the 4 region's data centers (e.g., Eastern Region data center), Indian Hill or the NSC. To receive a copy of the output without calling **listxk** or **prtoreg** after crosscheck completes, submit crosscheck with the **-print** option. When this option is used, a hard-copy listing of the output of **listxk -summary** will be sent to the location specified by the user. The user will be prompted for this location when crosscheck is submitted. The available locations are the same as those listed above for the **prtoreg** command.

During the execution of the **crosscheck** command no data entry (**de**) is permitted. If data entry is in progress when **crosscheck** is executed, the **crosscheck** command terminates and indicates who is currently doing data entry. The only exception is if the "weco" option is being used. In such a case, if a telephone company user is in data entry, the person who submitted **crosscheck weco** is informed of the data entry user and asked if he/she wants to continue. If the SEE does not want to proceed, processing is terminated; otherwise, processing continues normally.

At this time, the database is locked to prevent any new personnel from entering data entry in update mode. However, the SEE must wait until any current data entry personnel have exited data entry before the **crosscheck** will run.

The **crosscheck** command locks the database to prevent any data entry. Both Level I data checks (range and syntax checks) and Level II data checks (items within the same instance of a logical form) are performed on deficient forms, i.e., those which allow for input of non-standard data. The **crosscheck** command will fail if Level 1 or 2 errors exist. If all data is valid, then **crosscheck** performs Level III data checks (checks for consistency between forms). Any deficient forms are set to valid if they are error free. The database remains locked when the **crosscheck** command is finished processing. If the line engineer wishes to allow more data entry or data corrections, he/she must execute the **thaw** command to unlock the database (Section 6.5, "The THAW Command"). The line engineer can avoid having to execute **thaw** after the **crosscheck** command has completed by using the **-thaw** option on the **crosscheck** command line.

Using the following format,

crosscheck

the Lucent Technologies Line Engineer initiates database verification. Level 1 and Level 2 error checks are performed on all forms defined as deficient.

Using the following format,

crosscheck weco

the Lucent Technologies Line Engineer initiates data verification on "weco" or equipment forms only. By using the "weco" option on the **crosscheck** command, level 1, level 2 and cross form checks (level 3) are only performed on equipment forms. Execution of **crosscheck weco** must be done in preparation for MMST and SMST processing. But, because this is not full database verification, mapping will not be allowed after a **crosscheck weco** run.

■ **NOTE:** Processing will not be terminated if a telephone company user is in data entry. In this case, the person who submitted **crosscheck weco** is informed of the data entry user and asked if he/she wants to continue. If the SEE does not want to continue, the processing will be terminated; otherwise, processing will continue normally.

If a particular form is defined as "deficient" and cannot pass the level 1 and level 2 error checks during a **crosscheck** run, and 5ODA development engineering determines that the level 1 or level 2 data checks should be bypassed on that particular form, and have marked that form as being an "exception" to the **crosscheck** process, the Lucent Technologies Line Engineer may execute

crosscheck anyway

which will not perform level 1 or level 2 checks on that form. This option can be used by the regional engineers on the first **crosscheck** run for each dump of a retrofit or the dump or merge side of a large terminal growth only. They may not use the *anyway* option for initial, hardware growth, new-side large terminal growth, or special service offices.

The **crosscheck** command produces both "error" and "warning ..." type message output. Because warning messages are often informational and require no further action, they may be optionally executed under certain circumstances.

Using the following format,

crosscheck -errors

only the **crosscheck** error messages will be produced. This option is valid for retrofit and initial orders for 5E6 and later. The *-errors* option may only be used if both error and warning messages have been executed on a previous run. If warning message are not executed, the warning message output from the previous run is retained and may be viewed via the **listxk** command.

Using the following format,

crosscheck -print

a hard-copy of Level 3 error checks will be sent to a specified location after **crosscheck** completes. The **crosscheck** command prompts the user for the location when the *-print* option is specified.

Using the following format,

crosscheck -thaw

the database is automatically thawed after **crosscheck** completes with data errors.

Using the *-sleep* option as follows,

crosscheck -sleep

an SEE can set up a "sleeping" crosscheck job. A sleeping crosscheck is one which is not submitted to the queue (i.e., it sleeps), until the telephone company user indicates that it should be queued. A sleeping crosscheck retains the options requested by the SEE, including all printing requests (e.g., the region to which printouts are to be sent, the bin, etc.)

This feature is particularly useful if the SEE wants to run **crosscheck** immediately after a telephone company user completes data entry. Instead of the telephone company user having to call the SEE when he/she is done, potentially late at night or during the weekend, the SEE can submit a sleeping crosscheck. When the telephone company user completes data entry, instead of calling the SEE, he/she can put the crosscheck job in the queue via the **runxcheck** command.

After a sleeping crosscheck has been set up, if anyone runs **crosscheck**, the sleeping crosscheck is removed. This prevents confusion about who should be submitting **crosscheck** and when it should be done. Similarly, once a sleeping job has been submitted to the queue via **runxcheck**, it is removed and cannot be resubmitted.

If the telephone company user enters **runxcheck** and the crosscheck job fails to go to the queue, all error messages are sent to the WECO login for this office. The telephone company user does not see the error messages, as they are not able to correct them. The only exception is if someone is in **de**. The telephone company user is told that someone is in **de** so that he/she can try again later when the person is out of data entry.

Using the following format,

crosscheck -status

the user can see if there is a sleeping crosscheck job for this office. If there is, **crosscheck** tells the user what options were requested for the crosscheck run and when it was submitted.

Using the following format,

crosscheck -remove

the SEE can remove a sleeping crosscheck job. If **crosscheck** is run with the **-remove** option, the user is shown the status of the sleeping crosscheck and asked to verify that he/she really wants to remove it.

The **crosscheck** command is submitted to the jobs queue and is run when system resources allow. Upon completion, the user is notified via the **letter** command. Its status (either queued or running) may be checked via the **jobs** command.

NOTE: If the database is **thawed**, **crosscheck** must be rerun before mapping is allowed to run.

6.5 The "THAW" Command

The **thaw** command unlocks the database (see Figure 3) once it has been locked by the **crosscheck** command. When the database is locked, all users have only review permission on all input forms. Once **thaw** has been executed, the user again has the same database privileges in the **de** command ("Insert", "Review", "Update" and "Delete") that were allowed prior to the database lock.

thaw, executed simply as

thaw

is a restricted command that can be executed only by the Lucent Technologies Line Engineer.

■ **NOTE:** *If the final crosscheck output or mapping output is good, do not thaw the database.*

6.6 The "MAPPING" Command

The **mapping** command creates the 5ESS-2000 Switch data structures (base relations) from the input forms database (see Figure 3). It is executed after all of the office data has been entered, using the **de** command, and verified using the **crosscheck** command.

mapping is a restricted command that can only be executed by the Lucent Technologies Line Engineer after a crosscheck run has been made. It is the responsibility of the line engineer to ensure that the database is complete and error-free before executing the **mapping** command.

The following progression of commands is recommended for the **mapping** procedure:

1. Enter "crosscheck" to error check the database and automatically lock the database.
2. If there are level 3 errors, then issue the **thaw** command, which unlocks the database and allows database updates. Correct errors, and re-execute the **crosscheck** command.

■ **NOTE:** If the database has been thawed, **crosscheck** must be re-run before mapping can be run.

1. Enter **mapping** to create the base relations.

The format of the **mapping** command is

mapping

If the line engineer wishes to produce the machine bootable database immediately following the mapping process, he may execute

mapping dbgen

which submits the **dbgen** command to the jobs queue. These two steps may also be done separately (see the "DBGEN" command).

Note that **mapping** does not error check the data. The **mapping** command presumes that all data in the database has been verified, i.e., the data is complete and error-free. Mapping from an incomplete or incorrect database may silently generate inconsistent or erroneous base relations.

The mapping command is submitted to the jobs queue and will be run when system resources allow. Its status (either queued or running) may be checked via the **jobs** command. Upon completion of the job, the user is notified via the **letter** command.

6.7 The "DBGEN" Command

The **dbgen** command is restricted, meaning only the Lucent Technologies Line Engineer may execute it.

The process of constructing a database for the 5ESS-2000 Switch is accomplished by ODA (Office Data Assembly). ODA Provides an on-line method of accepting data (**de**) and produces a set of relation source files (**mapping**). The **dbgen** command is the process that accepts these relation source files as input and

generates the machine readable database that can be pumped to the SMs or booted in the CP.

The line engineer must execute

dbgen

after all data has been entered (**de**), error checked (**crosscheck**), and successfully mapped (**mapping**) to generate a fully populated Office Dependent Database for the 5ESS-2000 Switch.

The **dbgen** command is submitted to the jobs queue and will be run when system resources allow. Its status (either queued or running) may be checked via the **jobs** command. When the job completes, the user is notified via the **letter** command.

6.8 The "EDITOR" Command

The **editor** command allows the Lucent Technologies Systems Equipment Engineer to create and edit free-format files. These files are not part of the ODA database. The primary purpose of the edit files is to communicate detailed data from the Lucent Technologies Systems Equipment Engineer to an ODA administrator. The ODA administrators should be notified by the Lucent Technologies Systems Equipment Engineer that they need to be aware of the information stored in an edit file created with the **editor**. This command can also be used to copy for editing and/or printing output files that were previously created by a 5ODA command (e.g., **crosscheck**). The SEEs can use **editor** to shorten the size of an output file so that they can view or print out a smaller section of the file instead of the whole file.

Several basic file editor functions are available, including the ability to save edit files, and then edit or review them at a later time. The name of the saved file can be specified on the command line,

editor *file-name*

If *file-name* is not specified, the user is placed in a menu displaying options that are available. Included in these options is the ability to edit and/or print a copy of the output of a previously run 5ODA command such as **crosscheck**, **errforms**, and **records**.

Execute the command, **manual editor**, to obtain more information on the options available through the **editor** command.

6.9 The "SENDIMST" Command

The SMST (Switching Module System Test) and MMST (Multi-Module System Test) processes at OCW (Oklahoma City Works) and Joint Venture factories require databases containing the equipment translations data for the respective Switching Modules and office configurations to be tested. The SMST database may contain data originating from many different offices and transmitted by different Lucent Technologies engineers. The MMST database will contain data for only one office.

The SEE handbook software schedule should be referenced to determine the date when the SMST/MMST processes need this data. It is critical that before the office data is sent to the factory via the **sendimst** command, that the System Equipment Engineer execute the **crosscheck weco** command to ensure that the data is error free. When the data is found to be error free, the Lucent Technologies line engineer should execute one of the following commands to transmit the equipment data to the factory for testing.

For U.S. Market offices:

sendimst [-n] [-s]

For international offices processed in the U.S.:

sendimst [-s]

For international offices not processed in the U.S.:

sendimst [[*mach1!...!*]*dest_mach*]

For DSN and toll offices only, the **sendimst** command generates the standard trunk and routing data to support site installation call traffic testing. Toll simulation data is dependent on stable and accurate office equipment information and is therefore generated at this time. Standard toll generation occurs only once per toll/DSN office. This type of toll generation only takes place for domestic software releases.

-n - the user does not want to generate standard trunk and routing data with this **sendimst** run. This option is only available for the domestic software releases. Normally, this is only done if the user planned to execute **sendimst** at a later date, and all of the equipment has not yet been entered into the database.

The standard trunk and routing data may also be generated separately by using the **tollsim5** command. See the next section for a detailed description of this command. This data can only be generated once, that is, once it has been inserted into the office database, additional attempts to add it will fail.

-s - used for offices processed in the U.S. to suppress the hard-copy notification that the factory has successfully received the equipment data. Normally, a printout is sent to the region via the **prtoreg** command when the data is loaded at the factory. The user is asked to verify the destination for the printout when **sendimst** is run. If the -s option is used, only electronic mail is sent.

dest_mach allows offices processed outside the U.S. to specify the target machine for their send. The destination machine defaults to *ocoda0* unless another machine is specified. If another machine or path of machines is specified, the necessary permissions must be in place to allow the electronic transfer of the data.

A log file is maintained containing the date of the last **sendimst** run, for each 5ODA office. This log file has the line engineer's initials appended to the file name (e.g. "imstlog.abc"). The logfile may be viewed by executing the **listf** command (e.g. **listf imstlog.abc**).

If the data is being resent, the user is prompted to enter the reason for the resend (the text detailing the reason should be entered followed by a line containing only a "."). The reason will be sent to the factory engineers along with the data.

If a Telephone company person is in data entry, the user is asked if he/she wishes to continue. If he/she does want to continue, the user is asked if the database should be thawed after **sendimst** completes. If yes, the database is thawed whether **sendimst** completes successfully or not.

6.10 The "GENTLINE" Command

The **gentline** command is used to generate test lines for SLATTS high volume call processing testing. The line data is generated according to requirements specified in the SLATTS Volume Test Lines section of the TG-5 (see Division 2, Section 2M).

The **gentline** command prompts the user for a starting TN. It then sequentially generates test lines beginning with the starting TN. Eight test lines are generated for each line unit defined on the EQLUP form (ten test lines for each 10:1 Concentration Ratio line unit). Upon completion, **gentline** prints a summary of the lines loaded into the office database.

6.11 The "TOLLSIM5" Command

The command **tollsim5** is used to generate standard trunk and routing data. Under normal office processing, this command will be called by **sendimst**.

If the **-n** option is specified when **sendimst** is executed, however, the standard trunk and routing data are not generated, therefore, **tollsim5** is not called. This may be desirable, if the System Equipment Engineer knows he/she will be adding more equipment after sending the database to Oklahoma City. In this case, the SEE may execute **tollsim5** separately from **sendimst**.

6.12 The "PRTOREG" Command

The **prtoreg** command is executed by the Systems Equipment Engineer to produce hard copy listings of previously generated **crosschecks**, **records**, **errforms** and **summary** outputs at the individual data centers. It can also be used to produce hard copy listings of files produced by the **editor** command and the output of the **manual** command.

This command creates the same output as **listf**, **listxk**, or **manual**, but the output is sent to the data center instead of to the attached local printer. The first option to the **prtoreg** command is always **listf**, **listxk**, or **manual**. When the first option is **listf**, the remaining options should be the same as the **listf** command options. Refer to the **listf** section in this manual for more information on the **listf** options, in paragraph Section 4.18, "The LISTF Command".

The usage of the **prtoreg** command with the **listf** option is as follows:

```
prtoreg listf[-u] [-cN] [-r] [-n] [-errors][-summary]
[-number][command-name[.initials]] [-changed]
```

If the first option is **listxk**, the remaining options should be **listxk** options. The usage of the **prtoreg** command with the **listxk** option is as follows:

```
prtoreg listxk[-cN] [-number] [-summary |
[-llimit] [-nf | -r112] [-errors]
[warnings] [package ... ]]
```

If the first option is **manual**, the remaining options should be **manual** options. The usage of the **prtoreg** command with the **manual** option is as follows:

```
prtoreg manual [manual-page(s)] [every]
```

The **-s** option normally associated with the **listxk**, **listf**, and **manual** should not be used with the **prtoreg** command because it does not apply to **prtoreg**.

If the size of the output exceeds 5,000,000 bytes, it is divided into multiple print jobs to avoid network congestion problems. The name of each job includes a sequence number so the output can be reassembled in the proper order.

The **prtoreg** command gives the user an option to redirect the output to a region other than the one determined from the order number. For example:

```
Central Region "CE"
Eastern Region "EA"
Southwest Region "SW"
```


Southern Region "SO"
Indian Hill Main "IH"
Indian Hill South "IX"
Indian Hill Park "IHP"
Indian Hill West "IW"
Network Software Center "OPR"

6.13 The "OFFLOC" Command

The **offloc** command prints information on offices located on production machines.

offloc [*base_and_control* | *all*]

base and control - reports the office's order number, order type, and the production machine on which it resides.

all returns a complete list of all production offices on the current machine; they are presented in column format, sorted by base and control. This command may be helpful to the user working on several offices located on different 5ODA production machines.

7. SERVICE PROVIDER COMMANDS

Service Provider data engineers are responsible for ensuring the accuracy of the line and trunk data for the switch office. The SEE (Lucent System Equipment Engineer) will work with the Service Provider data engineer to resolve any data conflicts blocking the completion of the ODD (Office Dependent Data) build.

To simplify the process interface for the Service Provider data engineer, users are greeted with a menu-based interface that displays the valid operations that may be performed at a given time. Depending on what other activities are taking place, the contents of this menu may expand or contract.

A complete list of the operations includes the following:

Available steps for dangd0(daginittest):

1. List error forms output
2. List crosscheck output
3. List records output
4. List contents of datasets
5. Data Entry (REVIEW) forms
6. Data Entry (EDIT) forms
7. Scan (5ed REVIEW) forms
8. Run crosschecks
9. View email
10. Change login password

Select a step to run (or "q" to quit):

The office Base_and_control appears in the heading of the menu and the order number appears in parentheses next to it. The user may enter the number associated with the operation to be performed to run that particular application. Note that the index values for each operation may change, depending on whether the preceding operations are available to be run.

Each of these operations are detailed below.

7.1 List error forms output

This step provides access to view output from one or more runs of the intra-form checks processing. If output from multiple runs exists, the user is prompted to select one for viewing:

Available errorforms output:

1. 5e17,1.p11.0 Errors/Summary run #001 by life (May 21 16:20, 9125 bytes)
2. 5e18,1.g14.0 Errors/Summary run #002 by life (Aug 30 15:22, 12011 bytes)
3. 5e18,1.g14.0 Allforms/Summary run #003 by life (Sep 3 11:48, 2157402 bytes)

Select L1/L2 output to view/print ("q" to quit):

The list is arranged from the oldest to the newest. The description provides information on the 5ESS Software Release used, what kind of run was requested, the login ID of the user who requested it, when it completed, and how large is the output.

When the user selects some output to view, the user will see another menu list to determine how the user would like to view the output. Suppose the user selected menu item number 3 in the previous list. Next, the user would see the following:

Available options for 5e18,1.g14.0 L1/L2 output #003 by life:

1. Display summary and allforms
2. Display summary only
3. Display allforms only
4. Send allforms output to printer
5. Remove allforms output for this run

Select an option ("q" to quit):

This menu allows the user to select the type of information to view. Please note that option 4 in the above menu is only available for those sites supporting the UNISON network printing. Other sites may only view the information at the terminal screen. Selecting an item allows users to display the output to the screen for viewing in a paged format.

Note that the last menu item allows the users to attempt to remove the output for the selected run, provided they have permissions to do so. The user may exit each screen by entering a "q" to quit. The system will

return the user to the previous menu until the user quits out of the initial menu to exit the step.

7.2 List crosscheck output

Similar to the previous step, this step provides access to view output from one or more run of the inter-form checks processing. If output from multiple runs exists, the user will be prompted to select one for viewing:

Available crosscheck output to list includes:

1. save_xk.001 (5e17,1.p11.0/1 May 22 15:30)
2. current (5e18,1.g14.0/1 Sep 3 14:52)

Select a crosscheck run to list ("q" to quit) [current]:

The list is arranged from oldest to newest runs. Previous runs are stored as "save_xk.###". In parentheses, the 5ESS Software Release information and the time that the crosscheck run was completed is stored. The user may select output to view by entering the index number or, in this instance, you may view output from the most recent run merely by hitting the carriage return. The "[current]" string at the end of the selection prompt means that, if an empty new line is entered, the command will assume that you want the most current output and will display that for you.

7.3 List records output

This step allows you to view ODA office records output. Due to the size of these products, only output from the latest run is retained and available for viewing. If output exists, the user is prompted to select a records file to view via the following:

The user may enter regular expressions or multiple space-separated names:

Enter "*" to view all of the files under records_recs

Enter "ls" for a listing of the files under records_recs

Enter "q" when finished

Enter file name(s):

As indicated by the instructions, entering a "*" results in the display of all of the records generated when the SEE submitted the last records request. Entering "ls" displays a listing of each of the files found under the records output directory. When the user wishes to exit this step, the user needs to enter a "q".

Suppose the user entered, "5000", at the "Enter file name(s):" prompt. The user then sees another prompt requesting where the user would like the output directed:

Available options for records_recs listings:

1. Display listings to terminal
2. Send listings to printer

Select an option ("q" to quit):

Please note that, as in the previous steps, the printing mechanism is only supported for those sites using the UNISON network printing package. If UNISON is not available at your location, then the user may only display the records output to the terminal screen.

Once the user has completed viewing the records output, the user is returned to the first prompt above, allowing selection of other records-related operations. A "q" is entered to complete the desired transactions

7.4 List contents of datasets

This step is very similar to the records listing step from an interface standpoint. In addition to the records output, however, this step allows the user to select from a list of other directories to view their contents as well.

If this step is selected, the following menu is displayed:

1. crosscheck_xk
2. errorforms_xk
3. records_rec
4. prntfiles_dir
5. dbgstds_rpts
6. mddlog_dir
7. sm2disk_rpt
8. tmp

Select a directory to view ("q" to quit):

Entering the index value of the directory whose contents the user wishes to view yields the next prompt. Suppose the user selects menu item 1. The user sees the following prompt:

The user may enter regular expressions or multiple space-separated names.

Enter "*" to view all of the files under crosscheck_xk

Enter "s" for a listing of the files under crosscheck_xk

Enter "q" when finished

Enter file name(s):

The user may enter a "*" to select all of the files, "ls" to generate a listing of the contents of the selected directory, "q" to quit, or the name(s) of the file(s) to view. If file names or "*" is entered, another prompt requestd how to direct the output:

Available options for crosscheck_xk listings:

Display listings to terminal

Send listings to printer

Select an option ("q" to quit):

Please note that, as in the previous steps, the printing mechanism is only supported for those sites using the UNISON network printing package. If UNISON is not available at your location, then the user may only display the records output to the terminal screen.

Once the user has completed viewing the output, the user is returned to the first prompt above, allowing selection of other data to view. Enter a "q" when the desired transactions are completed.

7.5 Data Entry (REVIEW) forms

This step allows the user to view ODA forms when no edits are needed or desired. It also makes access to the forms possible when other operations have seized control of the ODA forms database in such a manner as to prevent edits. See the next step for details on the available operations and how to use this command interface.

7.6 Data Entry (EDIT) forms

The interactive data entry command allows the user to enter, change, review or delete data in the database. The 5ODA system uses the general purpose ODIN system to perform these interactive data entry capabilities. In the data entry step, select a form and then enter or change the data associated with a single form instance on the specified form (e.g., customer telephone number 5551313). Figure 9 is a list of examples of the forms associated with a User Group (line, trunk, or weco). In the example above, customer TN (Telephone Number) 555-1313 is a form instance on the line form.

Information is error checked as it is entered with error messages displayed at the bottom of the user's CRT screen. The data entry step performs two levels of data checking:

Level 1 checks are range and syntax checks of a single field and

Level 2 checks are error checks performed between items within the same instance of a logical form.

While in the data entry step, the user can request that the current form instance displayed on the CRT screen be saved in a file for later access in the list contents of a dataset step. Screen images will be stored under the `prntfiles_dir` directory. Any number of form instances can be saved by responding to Enter Review, Change-insert or Print with a "p".

The step prompts for form name and database operation unless these parameters are passed in from the command line. The next section explains the prompts in detail.

Form selection

When the data entry step displays the form selection prompt "Enter name of form:", the user can make one of three valid responses:

- a valid form name followed by **<return>** (e.g., `mlhg`)

- enter **<help>** followed by **<return>** to produce a list of all the forms and database operation permissions that the user is allowed to access (see Figure 4)

■ **NOTE:** This "help" command must be entered with angle brackets on either side: **<help>**

- or press **<return>** to exit the data entry step.

If the user specifies a valid form name, the data entry step verifies that the user is allowed access to that form type (line, trunk, or weco) and proceeds to the database operation prompt. If access to the specified form type is denied, the step displays

The user is not allowed access to this form. Enter name of form:

The user must then use one of the three options described above. If the user incorrectly enters a form name, the step displays

Invalid form specified: lne. Try again. Enter name of form:

If the user responds with **<help>**, the step displays all the form names the user is allowed to access, along with the database operation permissions that he has been granted for each form. Figure 4 shows a sample of **<help>** message in the data entry step. In that example, the user is allowed to access 11 different forms, and "review" (read only) seven of the forms (indicated by the "r" preceding the form type), but the user can "insert", "review", "update" and "delete" only four of the forms (indicated by the "irud" preceding the form name). Using this **<help>** list, the user can then choose a valid form name. When the user includes the form name on the command line, the user bypasses the form selection prompt and is given the database operation selection prompt. With this option the user can only operate on that form during the session.

Please note that Service Provider data engineers may only edit non-equipment related forms. The equipment forms may be accessed, but no edits are allowed.

Database Operation Selection

After the user has selected a form, a database operation must be specified. When the data entry step displays the database operation prompt "Enter Data Base Operation Code:", the user enters one of the following four valid database operations-**i**, **r**, **u** or **d** - followed by **<return>**.

i

- to insert a new form instance in the database.

r

- to review without changing an existing form instance in the database.

u

- to update an existing form instance in the database.

d

- to delete an existing form instance from the database.

The database operation prompt displays only those database operations that the user is permitted to use for the selected form (see Figure 5). If the user is allowed only one of the four operations (usually "review"), de does not display the prompt since the user has no choice, but moves directly to a full-screen display of a "blank" form instance of the selected form (see Figure 6 and Figure 7).

The command line also accepts an operation (**r**, **i**, **u**, **d**) when the form type is entered on the command line. The user is placed into that operation for that form, bypassing the form selection and database operation

prompt. If the user is not allowed to make that operation, a message is printed telling the user that he/she will be placed into review mode. With this option the user can only execute that operation on the given form for that session.

Database Operation Restrictions

In some cases update and delete operations may be restricted for a single form instance rather than for an entire form. These restrictions would most likely be applied for retrofit or off-line growth offices. The restrictions would probably be applied to data that has been dumped from an existing 5ESS-2000 Switch.

In addition to form and database type, the restrictions are based on a particular data field found on each form instance. It will be located in different areas on the form, but is generally on the last (or only) page in the top right corner. The legal values are:

E - data dumped from an existing 5ESS-2000 Switch.

C - data from an existing switch that has been changed.

N - new data that has been added to existing data.

The field may also be blank.

The user is not restricted from choosing the update or delete operation. However, before the actual update or delete is performed, a check is executed to determine if the operation is allowed. If the chosen operation is restricted, the user receives one of the following messages, depending on the operation chosen:

Deletes are not allowed on data of type _ on form type _____.

Updates are not allowed on data of type _ on form type _____.

The user is not allowed to perform the requested operation. An exception to the update restriction is that certain forms may allow non-critical data fields to be updated, overriding the update restriction. On these forms, the user can only position their terminal cursor on those special fields to update. The rest of the fields are shown in a no-change display mode. Depending on the user's terminal type, the no-change fields are displayed at half screen intensity.

Data Entry Session

If the user chooses the insert or update modes, he/she has the facility for changing data values via the change/substitute mode.

Change mode is entered by responding with a "c" to a form operation prompt. The field to be changed is identified by entering the field number in response to the Change field prompt. When the user enters the new data, it is subjected to new error checking. Entering <return>, back tab, or abort in response to the Change field prompt, serves to exit change mode and the cursor moves to the form operation prompt. If the user enters a field number that is not on the current screen (multi-screen forms), then the appropriate screen is displayed automatically and processing continues.

Substitute mode is a facility for changing data values in a form. Substitute mode differs from change mode in that it allows substitution of strings within a field rather than forcing the user to re-enter the entire data value when it is necessary to change a field. A field to be changed is identified by entering a field number in response to the Substitute field prompt. In addition to the field number, the operator must respond to the From string: and To string: prompts which identify the existing string and the replacement string within the field, respectively. Normal data checking is then performed on the new field. Care must be observed when using the

substitute mode to uniquely identify the string of data within the field to be changed.

If the user enters a field number that is not on the current screen (multi-screen forms), then the appropriate screen is displayed automatically and processing continues. Entering **<return>**, backtab or abort in response to the Substitute field prompt serves to exit substitute mode and the cursor moves to the form operation prompt.

Once a database operation has been specified, a "blank" form (or the first screen of a multi-screen form) is displayed. If the backtab (<) control character is entered in the first field of a form, the system terminates the current database operation and returns the operator to the form type selection prompt. If the backup (^) control character is entered in the first field of the form, the system terminates the current database operation and returns the user to the database operation prompt. The screen is not cleared before displaying this prompt, making operation switches on the same form type a quick process. The operator may respond with a database operation code (i, r, u or d) or a control character as described above. (See Figure 2 at the back of this manual.)

To exit from the data entry step, the user responds to the form selection prompt Enter name of form: with **<return>**.

The user is provided with a complete set of data entry control characters which conserve keystrokes and allow navigation through the form displayed on his CRT screen (see "Figure 2 : "5ODA Data Entry Control Characters"). Navigational control characters may also be attained by entering a "?" during data entry.

Once the user has entered the data entry step, depending on the database permissions, he/she can insert a new form instance; review, update or delete an existing form instance; or request that the current form instance be printed.

7.7 Scan (5ed REVIEW) forms

The scan step is an interactive command that allows the user to examine an office's input form or base relation data. The files are viewed over consecutive screen images with one column per attribute. When executed, you will see the following prompt:

Enter (input form name | base relation name | /expr | **<return>** | "q"):

Enter (input form name | base relation name | /expr | **<return>** | "q"):

Once a form name has been entered, the scan step provides help, by typing "h" followed by **<return>**. Suppose the **eqim** form was requested. We do the following to enter the help section:

eqim: h

Help Menu:

0 DISPLAY ALL HELP SECTIONS

1) SCREEN FORMATTING

2) RECORD SCANNING

3) RECORD SELECTION

- 4) FIELD INFORMATION
- 5) WRITING RECORDS TO A FILE
- 6) MULTIPLE FILES
- 7) HELP
- 8) QUIT

Enter help section number(s) [1 or 1,3,4]:

To view a particular item, type the index number followed by **<return>**. Next is what is contained in each help section:

1) SCREEN FORMATTING:

- (c|a) - display fields that can be cut/added.
- (c|a)n - cut/add field n.
- (c|a)1,2,...n - cut/add fields 1,2...n..
- (c|a)n- - cut/add all fields starting from field n.
- (c|a)n-m - cut/add fields in range n to m.
- (c|a)* - cut/add all fields.
- (c|a)/expr - cut/add fields by name using this regular expression.
- p[(l|w|f)] - display current page settings.
- p(l|w)n - change page length/width to size n.
- p# - toggle field number headers printing on and off.

2) RECORD SCANNING:

- (f|b) - forward/backward.
- (f|b)n - forward/backward from record n.
- (f|b)+n - forward/backward from +n records.
- (f|b)-n - forward/backward from -n records.
- (f|b)p - forward/backward one page.
- return-key - one page. (forward or backward mode).

3) RECORD SELECTION:

Setting Selection Criteria:

#/expr - field_number/selection_expression.
 n fld/expr - field_name/selection_expression.
 N[p] fexpr/expr - field_name expression/selection_expression.
 m fexpr/expr - match field_name expression /selection_expression.
 e/expr - every field/selection_expression.

To select forms that do not match an expr replace the "/" with an "!".

Executing Selection Criteria:

r - current record, or number of matching records.
 r# - set current record position at record #.
 + - next record from current record.
 - - previous record from current record.
 [g]/ - [global] record selection.
 ? - display current selection criteria.
 * - CANCEL current selection criteria.

4) FIELD INFORMATION:

- display field name and selection criteria for this field number.
 n fld - display field number and selection criteria for this field name.

5) WRITING RECORDS TO A FILE:

w [file] - write screen image to file. File name has user's initials appended to it. Program will generate a name if not specified.

6) MULTIPLE FILES:

lf [/expr] - list current form names [optional /expr].
 lr [/expr] - list current relation names [optional /expr].
 ^ - current editable files.
 ^ file_name [sort] - edit file_name [option to sort].
 ^ /expr - list forms or relation name that match expr

7) HELP:

h [0,1,...,n] - displays a help menu for the different commands. If the optional section number(s) are include those section are displayed.

8) QUIT:

q - quit the session.

Key attributes are underlined and repeated on each screen image. The step assumes all attributes are to be viewed. When the screen size is too small then attributes are divided over multiple consecutive screens. For convenience the screen images can be reformatted and customized to view only attributes and data of interest. This is accomplished using the **cut** and **add** commands interactively within the step. Records can be scanned in a forward or backward direction in a continuous or single page mode.

To exit from the step, type in the letter "q" (for quit) in response to the prompt (:).

7.8 Run crosschecks

When activated by the Systems Equipment Engineer (SEE), this step will appear in your menu list. It allows the Service Provider Engineer to execute both the errorforms (intra-form checks) and crosschecks (inter-form checks) to validate any changes that were made. Once the command completes, if any errors occurred, you will be notified by email. The errorforms output may be viewed by running the **List error forms output** step above and the crosscheck output may be viewed by running the **List crosscheck output** step above.

7.9 View email

Any step failures or interaction from steps the user runs may be reported to the user in his/her office's mailbox. Each 5ESS Switch office has a mailbox set up on the ODA system. The user's email may be accessed using this step.

7.10 Change login password

The 5ODA system allows the user to change his/her password at any time using this step. When invoked, the system prompts the user for both the existing password and a new password. Since neither the old password nor the new password appears on the screen as the user types it in, the user is asked to type in the new password twice to insure that it is not mistyped.

The new password must be at least six alphanumeric characters. The password must contain at least one non-alpha character. The user must use the new password the next time he/she logs on.

CAUTION: Because there is no way for the system administrator to determine a user's password, the user is responsible for remembering his/her own password and recording the password in a secure place.

5ODA USER COMMAND SUMMARY	
COMMAND	FORMAT AND DESCRIPTION
The following is a list of the valid 5ODA Telephone Company and Lucent Technologies commands that can be entered whenever the 5ODA command level prompt ("ENTER COMMAND:") is displayed at the user's CRT terminal. In all cases the command must be followed by the <return>.	
TELCO and WECO Commands	

allforms	allforms <i>[form-type(s)] [lines] [trunks] [weco] [every] [deficient]</i> Produces all form instances of one or more specified form types present in the database in CRT screen image format.
dbstatus	dbstatus Prints whether the database is frozen (locked) or thawed (unlocked).
de	de <i>[form-type [operation]]</i> Interactive entry of office data into the database via forms displayed on the user's CRT screen.
errforms	errforms <i>[form-type(s)] [lines] [trunks] [weco] [every] [deficient] [-nf]</i> Produces the requested form instances of a form-type(s) that contains errors and/or warnings in CRT screen format.
helpenv	helpenv <i>[commands office forms records offloc]</i> Displays useful 5ODA information.
jobs	jobs <i>[-all -f]</i> Prints jobs that are still in the jobs queue.
killjob	killjob <i>[records crosscheck mapping dbgen]</i> Cancel a job still in the jobs queue that you have submitted.
letter	letter <i>[line trunk weco]</i> Prints or sends messages.
listf	listf <i>[-u] [-s] [-cN] [-r] [-n] [-errors] [-summary] [-number] [command-name[.initials]] [-changed]</i> Lists the output of the indicated command name at the user's hard-copy line printer or at the user's CRT screen.
listxk	listxk <i>[-cN] [-number] [-s] [-summary] [[-nf -l1l2] [-llimit] [errors] [warnings] [package. . .]]</i> Lists the output of the "crosscheck" command at the user's line printer or at the user's CRT screen.
manual	manual <i>[command-name(s)] [every] [-s]</i> Prints manual page(s) of 5ODA user commands.
news	news <i>[item . . .]</i> Prints computer system news.
online	online Lists other users with the same base and control currently on the system.
password	password Changes a password.
prspeed	prspeed <i>(low med hi)</i> Decrease or increase printing speed.
records	records <i>[record-type(s)] [lines] [trunks] [weco] [every]</i> Produces office records.
remove	remove <i>[filename]</i> Removes a file from storage.
restrict	restrict Reports on forms that have database operation restrictions.
runxcheck	runxcheck Submits a sleeping crosscheck job to the queue.
scan	scan Interactively examine input form or base relation data.
suggest	suggest <i>[status]</i> Suggest an enhancement to the 5ODA tools.
summary	summary <i>[form-type(s)] [lines] [trunks] [weco] [deficient]</i> Generates a summary of one or more specified form types present in the database.
tlock	tlock Secures unattended terminals.
WECO Only Commands	
crosscheck	crosscheck <i>[[anyway weco] [-print] [-thaw] [-sleep]] [-status] [-remove]</i> Verifies the database.
dbgen	dbgen Generate the machine loadable database for the 5ESS Switch.
deficient	deficient Lists all forms currently defined as "deficient".
editor	editor <i>[file-name] [manual] [list]</i> Edit files other than ODA database files.
gentline	gentline

	Generate test lines for SLATTS volume call processing testing.
groupings	groupings <i>forms records</i> Change the groupings of forms or records.
history	history Lists processing history for a particular office/AT&T order number.
mapping	mapping <i>[dbgen]</i> Generates the base relation data structure.
offloc	offloc <i>[base_and_control all]</i> List office location for production machines.
prtoreg	prtoreg (see listf , listxk , or manual command line) Produce hard copy listings of output from the listf , listxk , or manual commands at the regional data centers.
sendimst	sendimst <i>[-n] [-s] or sendimst [[mach1!...!]</i> <i>dest_mach]</i> Send equipment translations input data to MMST and SMST to the factory.
thaw	thaw Unlocks the database.
tollsim5	tollsim5 - generates standard trunk and routing test data.

Figure 1 5ODA USER COMMAND SUMMARY

5ODA DATA ENTRY CONTROL CHARACTERS

Certain data entry control characters are available during the interactive form entry process of the "de" command to provide the user with a means of conserving keystrokes as well as allowing navigation through the form instance displayed on his CRT screen. There are also commands which are informational in nature, such as turning on/off the display of help messages in a session. A few control characters (abort, return and back tab) are recognized as responses to system prompts.

Note that the control characters listed below work on most terminals, but may not work on unusual or unsupported terminal types.

The following control characters are single, printable characters. These characters serve as control characters when they are entered as the first and only character into a field, otherwise they are part of a field value. For example, if the end of form command is invoked by the "\$" character, entering a single "\$" invokes the command; entering "\$\$" is not recognized as a command, but as a value and field data checking will occur.

Some terminals are equipped with cursor movement ("arrow") keys and these can be used to quickly move about a form. Cursor movement keys are recognized only at the beginning of a data field; the return key should not be pressed since they are acted upon immediately. Cursor movement keys can be used only for movement between data fields, they cannot be used to back out of the first data field or in response to a system prompt on the command line. The four cursor movement keys and corresponding commands are:

- up arrow invokes back up,
- down arrow invokes return,
- left arrow invokes back tab,
- right arrow invokes forward tab.

If the terminal keyboard has program function keys, pressing PF2 will cause the re-display of the current screen. The key sequence escape Q will have the same effect on most terminal types. If any characters had been entered into a field prior to the re-display sequence, they will be discarded.

If a control character is not meaningful, either in an input field or as a response to a system prompt, then it is ignored and the

cursor returns to its original position.

The following is a list of the control characters, along with their default control characters in parentheses. (For a condensed version of this text, execute the "manual" command specifying "navigate" as the manual page.)

VALUE COMMANDS	
123return	Enter a value into a field. To enter a value into an atomic field, type the value followed by "return".
return	No value or response; skip this field or prompt. Pressing the return key only (no characters entered) serves to keep the current value of an input field and go on. In the case of some system prompts, this signifies no response and results in the display of the next or preceding prompt.
null item (')	Set this atomic field to the null (empty or missing) value. In the case of a non-required field, the current field is set to null and is displayed as a string of underscore (_) characters. If the field is required, the message "Required Field!" is flashed in the acknowledgement area and the cursor returns to the beginning of the field.
default value (:))	Set this atomic field to its default value. If a default value exists, it is assigned to the current field. If no default value exists, processing continues as if null item had been entered (see above).
NAVIGATIONAL COMMANDS	
Back up (^)	Back up to the previous field. The current field remains unchanged and the cursor moves to the previous field. If the previous field is a structure or list, the cursor moves to the beginning of the field; if the previous field is on another screen (multi-screen forms), then that screen is automatically displayed. If used repeatedly within a list, the cursor backs up to the beginning of the current row and then backs up within the first column to the beginning of the list.
forward tab (>>)	Skip forward to the next "tab stop". When this command is invoked, the current field remains unchanged and the cursor moves to the next tab stop. If no tab stop exists between the current field and the end of the form, the cursor moves to the form operation prompt on the command line. If the next tab stop is on another screen (multi-screen forms), then that screen is automatically displayed. If a required field that is empty is encountered en route, then the message "Required Field!" is flashed in the acknowledgement area and the cursor moves to that field. If entered when the cursor is positioned at the beginning of a row of a list, the cursor moves to the next tab stop as described above. If the cursor is within a row, but not at the beginning, it is positioned at the beginning of the next row.
back tab (<<)	Back up to the previous "tab stop" or prompt. The current field remains unchanged and the cursor moves to the previous tab stop. If the previous tab stop is on another screen (multi-screen forms), then that screen is automatically displayed. If no previous tab stop exists, the cursor is positioned at the first data field. If entered when the cursor is positioned at the beginning of a row of a list, the cursor moves to the previous tab stop as described above (the first row if the list is tabbed). If the cursor is within a row, but not at the beginning, it is positioned at the beginning of the current row.
next form ())	Retrieve next form.

	If entered into the first keyfield of a form and in a retrieval mode (review, update, delete), the "next" form in the database is retrieved (see "Sequential Retrieval").
previous form (()	Retrieve previous form.
	If entered into the first key field of a form and in a retrieval mode (review, update, delete), the "previous" form in the database is retrieved (see "Sequential Retrieval").
end of form (\$)	Skip to the end of form.
	The current field remains unchanged and the cursor moves to the form operation prompt on the command line. If a required field that is empty is encountered en route, the effect is the same as if forward tab had been entered (see above).
execute (*)	Skip forward to the end of form and perform the form operation.
	Processing continues as if end of form (above) had been entered, followed by the appropriate form operation code (see Database Operations in Section 4.8). This command can also be entered in response to a form operation prompt and will match the current operation code.
abort (!)	Abort this operation.
	If entered into a data field, the active form is discarded, an "aborted" message is flashed in the acknowledgement area, and the cursor moves to the first key field.
	If entered in response to a command line prompt, this command serves to abort the active form. (See "Database Operations" in Section 4.8).
	If entered while in change or substitute modes, this command aborts the change attempt and the cursor returns to the form operation prompt. (See "Database Operations" in Section 4.8).

LIST VALUE COMMANDS

These commands are recognized only when at the first atomic field in a row of a list.

null row (")	Set the current row to null values.
	Each atomic field in the current row is set to the null value. The cursor returns to the beginning of the current row.
default row (:)	Set the current row to default values.
	Each atomic field in the current row is set to its default value. The cursor returns to the beginning of the current row.
insert row (})	Insert a new row at the current location.
	This command is recognized only for compressed type lists. Each row, from the current row to the end of the list, is "pushed down" and a null row is inserted at the current row location. The cursor returns to the current (null) row. If the list is "full" (no null rows), then the message "List is FULL!" is flashed in the acknowledgement area and the cursor returns to the current row.
delete row (!)	Delete the current row.
	This command is recognized only for compressed type lists. The current row is discarded and each row, from the next to the last, is "pushed up" one row position. The last row is set to null values. The cursor returns to the current row location.
copy row (=)	Copy previous row.
	The previous row is copied to the current row. The cursor returns to the current row.

LIST NAVIGATIONAL COMMANDS

These commands are recognized only when at the first atomic field in a row of a list.

previous row (!)	Back up one row.
	The cursor moves "up" to the beginning of the previous row in the list. If the current row is the

next row (j)	first row, processing continues as if back up had been entered. Skip to next row. The cursor moves "down" to the beginning of the next row in the list. If the current row is the last row, the cursor moves to the next field.
end of list (#)	Skip to end of list. The cursor moves to the next field following the current list.
INFORMATIONAL COMMANDS These commands are recognized in all database operation modes when entered into a field, but not in response to a system prompt.	
help messages (?)	Turn on/off help message display. If help messages are currently being displayed, entering this command will turn off this display starting with the next atomic field. If they are not currently being displayed, and a help message exists for the current field, then it will be displayed on the help line. If no help message exists, then the message "No help available." will be flashed in the acknowledgement area. In all cases the cursor returns to the current field.
current mode (.)	Display current database operation mode. The current database operation mode is flashed as a message in the acknowledgement area (e.g., "Insert mode") and the cursor returns to the current field.

Figure 2 5ODA DATA ENTRY CONTROL CHARACTERS

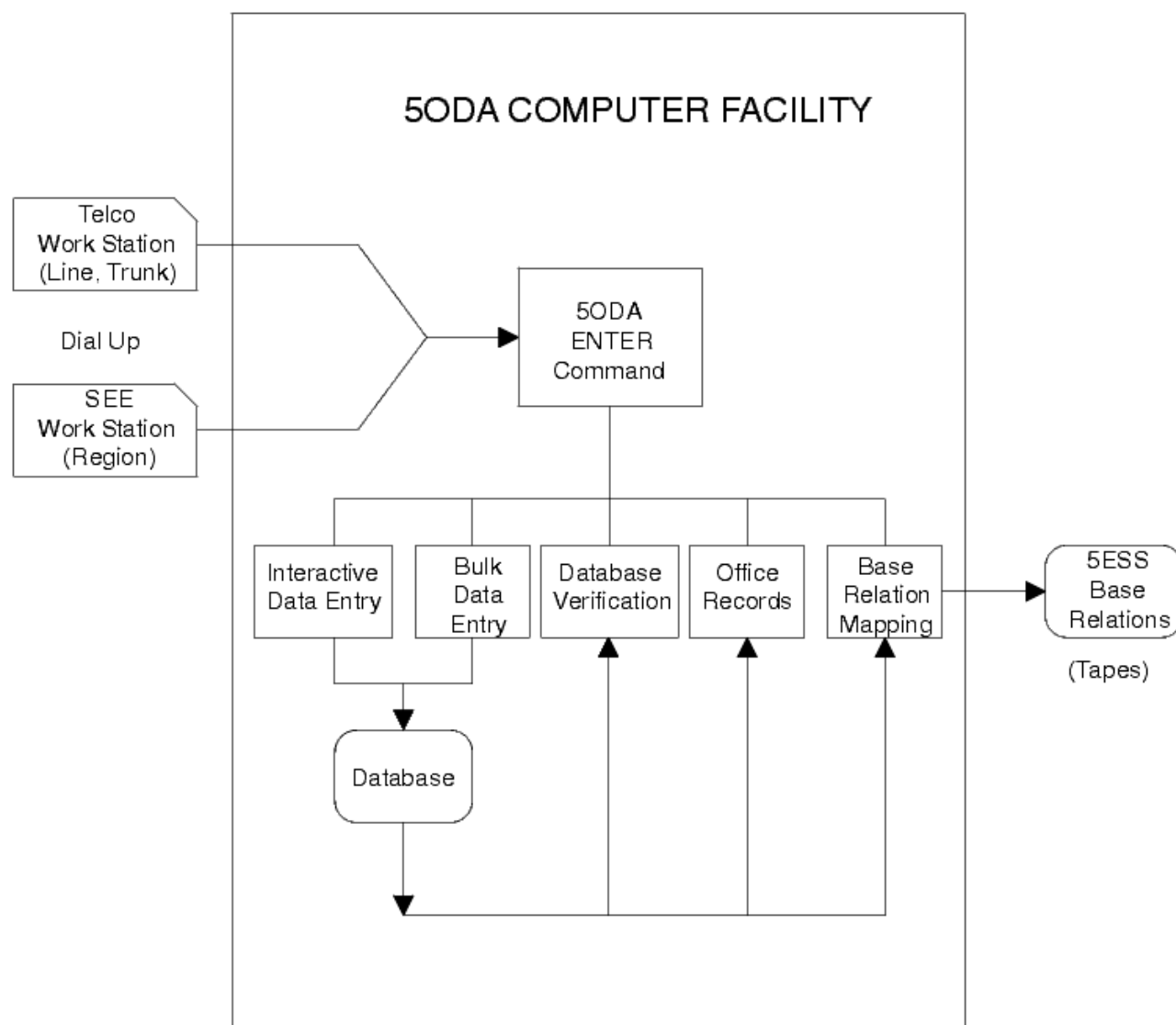


Figure 3 50DA PROCESS

```

system:      "ENTER COMMAND"
user:        "de"
system:      "Enter name of form:"
user:        "help"
system:      r: conv
              r: das
              irud: lcc
              irud: line
              irud: mlhg
              irud: mlhln
              r: rate
              r: rtidx
              r: scrn
              r: tkgrp
              r: trunk

```

Figure 4 EXAMPLE OF <HELP> IN de COMMAND

```

system:      "ENTER COMMAND"
user:        "de"
system:      "Enter name of form"
user:        "tkgrp"
system:      "Enter Data Base Operation Code"
              "I=Insert R=Review U=Update D=Delete"

```

Figure 5 EXAMPLE OF DATABASE OPERATION PROMPT IN de COMMAND

```

SCREEN 1 OF 3
line          5ESS Switch
(5109-1/2/3/4) OFFICE DATA ADMINISTRATION
                  TELEPHONE NUMBER

                                EQUIPMENT
*  1. TN          _____  17. FLS          N    29. COIN          N
    NEW TN
#  3. RAX         ____  18. SUSO          N    30. GST           N
#  4. LCC         ____  19. DNY ROH       N    31. TSTLINE        N
    5. OE TYPE    _    20. PALIT         N    32. GNDREF         N
    NUMBER        _____  21. COMPL        N    33. RANGEX         N
    8. RTI        _____  22. SLUS         N    34. LNEQ           N
    9. PTY        I          23. DTLBILL      N
10. MFRI         N          24. TRAFFIC      N
11. CIDIAL       _____
12. PIC         ____
    ORIG FEATURES
13. TTC          N          25. SUST         N
14. BRCS         N          26. ICP          N
15. EL           N          27. DNY BV        N
16. FGA          N          28. TRC          N
                                43. RBV TGN         ____

                                MISC FEATURES
35. SERHLN       _____
    BCK LNK
37. ALT BILL TN  _____
38. NO DIAL      N
39. HOT LINE TN  _____
40. TEST CODE    _____
41. BUSY MONITOR N
42. ATT MLHG     _____

```

```

SCREEN 2 OF 3
line          5ESS Switch
(5109-1/2/3/4) OFFICE DATA ADMINISTRATION
                  TELEPHONE NUMBER

44. ANI7         N          55. SHARED        N
45. TR303 NAILUP N          56. PRIVACY       N
46. RMK          _____
47. SA TST ROUTE N
    BASIC 911 ESB
48. RINGBACK     N          57. AC ALW         _
49. STATMON      N          58. AR ALW         _
50. TONDET       N          59. COT ALW         _
                                60. PCP ALW         _
                                61. SCA GA ALW        _
                                62. SCF GA ALW        _
                                63. SCR GA ALW        _
                                64. SDA GA ALW        _
                                65. UCR           N
    SCAN & DIST. POINTS
51. MESG REGISTER _____
52. SLEEVE LEAD CKT _____
53. MAKE BUSY KEY _____
54. CARRIER GRP ALM _____

```

```

SCREEN 3 OF 3
line
(5109-1/2/3/4)
                                5ESS Switch
                                OFFICE DATA ADMINISTRATION
                                TELEPHONE NUMBER
                                _

        LTSB
66. ASSOC OE TYPE  _
        NUMBER      _____
69. LEAD PORT      N
70. MAN EXCL       N

        4-WIRE SPECIFICATIONS
71. ROUTING RINGING _____
72. PRIORITY RINGING _____
73. AUDIBLE RINGING  _
74. INC. START SIGNAL _____
75. CONFERENCE BRIDGE _

        76. ASP ALW      N
        SCD SCREENING
78. CLSS             N
79. MCLD DEACT       N
80. BLK 1PLUS        NONE
81. LONG DST DR      N

```

Figure 6 DISPLAY OF LINE FORM IN de COMMAND 5E8 SOFTWARE RELEASE

```

SCREEN 1 OF 5
trunk
(5204-1/2/3/4,5271-1/2/3/4)
                                5ESS Switch
                                OFFICE DATA ADMINISTRATION
                                TRUNK

*1. TGN      _____
*2. MEMB     _____
 3. QTY       01
 4. TEN       _____
 5. DEN       _____
 6. SLEN      _____
 7. TRKOE     _ _____
10. LTP       _____
11. RAF EN    _____
12. TRANS CLASS _____
13. SUPV      _____
14. IDLE STATE ON
15. IN START DIAL _____

        16. OUT START DIAL _____
        17. CGASPN      _____
        18. OTODPN1     _____
        19. OTODPN2     _____
        20. SLC OTODPN3  _____
        21. SLC OTODPN4  _____
        22. CLCI TRK ID  _____
        23. BRCS         N
        24. SLVLD SPN    _____
        25. REMOVE TRUNK N
        26. ISCN         _____
        27. PSCLI        _____

```

```

SCREEN 2 OF 5
trunk
(5204-1/2/3/4,5271-1/2/3/4)
                                5ESS Switch
                                OFFICE DATA ADMINISTRATION
                                TRUNK

        CAMA OPERATOR TRUNKS
28. TRAF SAMPLED  _
29. KEYING TRUNK TGN _____
30. KEYING TRUNK MBR NO _____
31. TALKING TRUNK TGN _____
32. TALKING TRUNK MBR NO _____

        CCIS6 TRUNK SIGNALING
37. BAND _____

        PRIMARY LINK      MATE LINK
38. SL GROUP  _  41. SL GROUP  _
39. SL MEMB   _  42. SL MEMB   _

```

		40. SL VLINK _	43. SL VLINK _
EDSL/PRI TRUNKS			
33. Q921 PROC	NETWORK	DSN FEATURES	
34. Q931 PROC	NETWORK	44. EXT. GUARD TIMING _	
		45. ANSWER DELAY TIMING N	
ANNC TRUNKS			
35. MUSIC SOURCE	N	TSPS TRUNKS	
36. MAXCALLS	___	46. NO EXSIGN N	

SCREEN 3 OF 5
trunk
(5204-1/2/3/4,5271-1/2/3/4)

5ESS Switch
OFFICE DATA ADMINISTRATION
TRUNK

PACKET SWITCHING		X.75'/X.75 TRUNK ONLY	
47. OCU LOOPBACK _	54. LINK ID _____	61. HIGH PVC LCN _____	
48. CSU LOOPBACK _	55. SEND THRUPUT CLASS 9600	62. LCN HI TO LOW _____	
49. LAPB ADDR _	56. RCV THRUPUT CLASS 9600	63. LOW INCOMING LCN _____	
50. WINDOW SIZE _	57. SEND PKT SIZE 128	64. HI INCOMING LCN _____	
51. RETRANS N2 _____	58. RCV PKT SIZE 128	65. LOW 2 WAY LCN _____	
52. ACK TIME T1 _____	59. SEND PKT WINDOW SIZE 2	66. HI 2 WAY LCN _____	
53. IDLE TIME T3 _____	60. RCV PKT WINDOW SIZE 2	67. LOW OUTGOING LCN _____	
		68. HI OUTGOING LCN _____	

SCREEN 4 OF 5
trunk
(5204-1/2/3/4,5271-1/2/3/4)

5ESS Switch
OFFICE DATA ADMINISTRATION
TRUNK

PACKET SWITCHING X.75'/X.75 UTILITY INDICATORS			
69. CALL ID	—	74. CUG	—
70. THRUPUT CLASS	—	75. CUG OUTGOING	—
71. WND SZ	—	76. REVERSE CHARGE	—
72. PACKET SIZE	—	77. ADDR MOD NOTIFY	—
73. FAST SELECT	—	78. CLR NETWORK ID	—
		79. TNIC INDICATOR	—
		80. UTILITY MARKER	—
		81. UTILITY FLD SIZE	—
		82. NUI BEFORE	—
		83. NUI AFTER	—

PACKET SWITCHING X.75' ONLY UTILITY INDICATORS

84. TARIFF UTILITY	—	87. RPOA UTILITY	—	90. CLEAR SUB NET ID	—
85. TRANSIT DELAY IND	—	88. ACCESS CHAR	—	91. PROTOCOL CONV	—
86. TRANSIT DELAY SEL	—	89. TRANS SUB NET CNT	—	92. X75 ID UTILITY	—

SCREEN 5 OF 5
trunk
(5204-1/2/3/4,5271-1/2/3/4)

5ESS Switch
OFFICE DATA ADMINISTRATION
TRUNK

PACKET SWITCHING X.75 ONLY UTILITY INDICATORS					
93. TDI BEFORE	—	99. IN RPOA BEFORE	—	105. TNIC CONFIG	_____
94. TDI AFTER	—	100. IN RPOA AFTER	—	106. X75 ID	_____

```

95. TDS BEFORE      _    101. OUT RPOA BEFORE _    107. IC PRESELECT _
96. TDS AFTER       _    102. OUT RPOA AFTER  _
97. TARIFF BEFORE   _    103. RPOA DEL SEND   _
98. TARIFF AFTER    _    104. RPOA DEL RCV    _

```

```

MISCELLANEOUS
108. MF LOSS 0

```

Figure 7 DISPLAY OF TRUNK FORM IN de COMMAND 5E8 SOFTWARE RELEASE

SAMPLE OUTPUT FROM A "summary" COMMAND			
FORM TYPE	NUMBER OF FORMS	NUMBER WITH ERRORS	NUMBER WITH WARNINGS
line	1490	20	10
fixrt	29	0	0
lcc	22	7	0
trunk	120	0	15
eqtup	1	0	0

Figure 8 SAMPLE OUTPUT FROM A summary COMMAND

EXAMPLES OF FORMS ASSOCIATED WITH THE USER GROUPS

The following is a list of form types by user group. This grouping of form names, "lines", "trunks" and "weco", is defined during office registration and is dependent upon the particular ODA release and/or the specific requirements of a particular office. To receive the current list of form types, execute the "helpenv forms" command (see Section 4.1, "The HELPENV Command").

USER GROUP	EXAMPLES OF ASSOCIATED FORMS						
lines	iminfo	line	mlhg	mlhn	octa	slcca	
trunks	amact	auto	cgasp	cgidx	cnchg	conv	das
	fixrt	iddd	indit	lcc	ldit	mreg	noc
	ofcopt	pdit	rar	rate	rotl	rtidx	tkgrp
weco	tlws	tntyp	trfsep	trkcl	trunk		
	eqcore	eqds	eqdpn	eqdsp	eqdu	eqdup	
	eqim	eqlu	eqlup	eqmsp	eqmsu	eqncref	eqpc
	eqtu	eqtup					

Figure 9 EXAMPLES OF FORMS ASSOCIATED WITH USER GROUPS

EXAMPLES OF RECORD TYPE BY USER GROUP

The following is a list of office record numbers by user group. This grouping of office records into "lines", "trunks", "weco" and "brcs" is defined during office registration and is dependent upon the particular ODA release and/or the specific requirements of a particular office. To receive a current listing of these groups, execute the "helpenv records" command (see Section 4.1 "The HELPENV Command").

USER GROUP	EXAMPLES OF ASSOCIATED RECORDS							
lines	5104	5106	5107	5108	5109	5109-1		
	5109-2	5109-3	5110-1	5110-2	5110-3	5111-1	5111-2	
	5113	5114	5115	5115-A	5171-1a	lcclen		
trunks	5202-1	5202-2	5202-3	5202-4	5203	5204-1		
	5204-2	5209	5271-1	5271-2	5271-3	5300-1	5300-2	
	5300-3	5300-4	5300-5	5301	5301-1	5302-1		
	5302-2	5302-3	5303	5306	5307	5308		
weco	5501	5505-1	5505-2	5507	5509	5510	5511	5517
	5700-1	5700-2	5701	5702	5703	5705		
	5710	5720	5730	5740	5750	5810		
	5811	5820	5821	5840	5840-1	5840-A	5841	

	5842	5843						
brcs	5117	5608-1A	5617-3	5629-3	5600	5608-1B	5617-4	5629-4
	5601	5608-2	5618-1A	5713-1	5601-1	5608-3	5618-1B	5713-2
* 5100 produces an office record of just the telephone numbers that have been assigned for that office. It must be requested specifically, i.e., it is not included in the group defined as "lines", (e.g., records 5100).								

Figure 10 EXAMPLES OF RECORD TYPES BY USER GROUP

SEC. 8: 5001,5002,5003,5004 ESTABLISH OFFICE DATABASES FOR INITIAL, GROWTH, RETROFIT, AND LARGE TERMINAL GROWTH OFFICES

1. GENERAL

Identification, accounting, and tracking information is needed to set up a database in a computer for each new 5ESS office. The 5001, 5002, 5003, and 5004 Forms are furnished to standardize the presentation of this information.

Send one copy of the appropriate completed 5001, 5002, 5003, or 5004 Form to the address shown on the form one month prior to the date upon which it is intended to insert data into the database which will be established.

Billing is directly dependent on the job type of the office, and it is therefore very important that the correct form indicating the job type is sent to NSC. Read the definitions of each job type carefully prior to completing the form.

2. COMMON LETTER ENTRIES

2.1 Date

The date that the letter is mailed is to be inserted into the space available in the letter.

2.2 Order Number

The Order Number is to be inserted into the space available in the letter. This Order Number is to conform to the instructions found in CI 42.177-21. The Order Number for EACH job type MUST BE unique.

2.3 Base and Control

The Base and Control Number for the office from the Equipment Specification is to be inserted into the space available in the letter. This Base and Control Number is to conform to the instructions found in CI 97.100, Section 18.

2.4 Office Name

The Office Name established by the customer for this 5ESS Switch is to be inserted into the second space available in the letter along with the state in which the office is located.

2.5 Number Of Lines

Enter the number of lines associated with the office, into the space available in the letter. Please note that this count should reflect the totals expected upon job completion, regardless of job type.

2.6 Number Of Trunks

Enter the number of trunks associated with the office, into the space available in the letter. Please note that this count should reflect the totals expected upon job completion, regardless of job type.

2.7 Number Of SMs

Enter the number of SMs (Switching Modules), associated with the office, into the space available in the letter. Please note that this count should reflect the totals expected upon job completion, regardless of job type.

2.8 Office Type

Indicate whether the office is a Local, Toll, or DSN (Defense Switched Network) office.

2.9 Software Release and Issue

Indicate the FINAL cutover Software Release into the space available in the letter.

2.10 Date Telephone Company Order Received

Indicate the date that the order was received in the region into the space available in the letter.

2.11 Responsible Engineer

Enter the name of the Systems Equipment Engineer responsible for the office database and its contents into the space available in the letter. The entry should be in the form of First Name, Middle Initial, Last Name.

2.12 Telephone Number

Enter the Telephone Number of the Systems Equipment Engineer responsible for the database and its contents into the space available in the letter. The entry should be in the form 630-224-7196.

2.13 Signature

The letter must be signed by the Department Chief to whom the engineer responsible for the database reports, or his/her designated representative.

2.14 Department

The final entry on the letter must be the Department Number of the organization having responsibility for the database. The entry should be in the form 11NW526160.

3. ENTRIES FOR INITIAL OFFICES (5001)

3.1 Definition

An Initial office is an installing 5ESS Switch, that is capable of processing phone calls and IS NOT an RSM (Remote Switching Module) associated with a Host office. An Initial office is considered to be a Host if RSMs associated with it are turning over on the same date.

3.2 Hardware Ship Date

Enter the date on which the hardware is to be shipped, into the space available in the letter. The entry should be in the form 07/10/84 or 07-10-84.

3.3 Current Turnover Date

Enter the date on which Network Systems is to turn the office over to the customer, into the space available in the letter. The entry should be in the form 07/10/84 or 07-10-84.

3.4 Non-Standard Dates

The Hardware Ship date and the Current Turnover date are the key dates which determine the software schedule in accordance with CI 97.100 Section 5, Part 5. If this office will NOT be following the standard schedule, indicate the schedule that the office WILL be following, in the space available under the Modified column in the letter.

3.5 Virgos Tape

Indicate whether or not a Virgos tape is to be expected at NSC, and the date that the tape should be expected if one is used, in the space available in the letter.

3.6 5ECONV Office

Indicate whether or not this office will be performing a conversion from 1A ESS Switch or 2B ESS Switch to 5ESS Switch. If the office is a conversion office, indicate the date that the tape(s) should be expected, in the space available in the letter.

3.7 Remote Switching Modules

If there are RSMs that are to be included in the Initial database, list the RSM Names, base and controls, and order numbers, and indicate whether a Virgos tape should be expected for each RSM. Please note that in order for the RSM to be included in the Initial office database, the turnover date of the RSM must match the turnover date of the Initial office.

4. ENTRIES FOR GROWTH OFFICES (5002)

4.1 Definition

A Growth office is an addition of hardware to an existing 5ESS Switch, OR a RSM that is associated with an Initial office, but has a turnover date later than that of the Host. Please note that if the turnover date of the RSM is the same as that of the Host, it is to be included in the Initial database.

4.2 Hardware Ship Date

Enter the date on which the hardware is to be shipped, into the space available in the letter. The entry should be in the form 07/10/84 or 07-10-84.

4.3 Current Turnover Date

Enter the date on which Network Systems is to turn the office over to the customer, into the space available in the letter. The entry should be in the form 07/10/84 or 07-10-84.

4.4 Non-Standard Dates

The Hardware Ship date and the Current Turnover date are the key dates which determine the software schedule in accordance with CI 97.100 Section 5, Part 5. If this office will NOT be following the standard schedule, indicate the schedule that the office WILL be following, in the space available under the Modified column in the letter.

4.5 Is This Office a Remote Switching Module?

Indicate whether or not this office is an RSM. If it is, identify the Host office name and base and control. If this office is NOT an RSM, ignore this question.

4.6 Virgos Tape

Indicate whether or not a Virgos tape is to be expected at NSC, and the date that the tape should be expected if one is used, in the space available in the letter.

5. ENTRIES FOR RETROFIT OFFICES (5003)

5.1 Definition

A Retrofit office is an existing 5ESS Switch that is upgrading from one Generic and ODA issue, to a greater Generic and ODA issue.

5.2 Retrofit Date

Indicate the onsite Retrofit Load Date in the space available in the letter. The entry should be in the form 07/10/84 or 07-10-84. The Retrofit Date is the only date needed to populate the remainder of the software schedule in the Production Scheduling System.

6. ENTRIES FOR LARGE TERMINAL GROWTH (LTG) OFFICES (5004)

6.1 Definition

A Large Terminal Growth office is an existing 5ESS Switch that is growing a large number of additional lines or trunks to be done through ODA, and then merged with the existing office dump, instead of through Recent Change. The Large Terminal Growth process requires that a Retrofit slot be obtained, and during the final interval, follows much the same schedule as a retrofit.

6.2 5ECONV Office

Indicate whether or not this office will be performing a conversion from 1A ESS Switch or 2B ESS Switch to 5ESS Switch. If the office is a conversion office, indicate the date that the tape(s) should be expected, in the space available in the letter.

6.3 Large Terminal Growth Date

Indicate the onsite Large Terminal Growth Date in the space available in the letter. The entry should be in the form 07/10/84 or 07-10-84. The Large Terminal Growth Date is the only date needed to populate the remainder of the software schedule in the Production Scheduling System.

5001(06) TG-5

Network Systems
5ODA Software Database Management
2600 Warrenville Road - Room 33B1
Lisle, IL 60532

DATE: _____

This letter authorizes the establishment of an account for order number _____ and base and control _____, for the _____ INITIAL Office. There are _____ lines, _____ trunks, and _____ SMs associated with this office. This office is a _____ (Local, Toll, or DSN) office. The final cutover Software Release and Issue for this office will be _____. The Telco order number for this office was received on _____. The Engineer responsible for this job is _____ whose telephone number is _____. There (will/will not) be a Virgos tape for this office, and the tape will arrive at NSC on _____. This office (is/is not) a 5E Conversion office. Conversion tapes will arrive at NSC on _____.

The following RSMs are turning over with this Host office, and should be included in the Host database:

RSM Name	Base & Control	Order #, Virgos Tape(y or n)	Standard	Modified
Registration Date				/ /
Office Initialization; Virgos Due				/ /
FITTS data entry start				/ /
FITTS freeze; Execute sendimst;				/ /
Trunk tape due				/ /
STR data entry start				/ /
STR data entry freeze				/ /
STR ship				/ /
STR due on site				/ /
FTR data entry start; Line tape due				/ /
FTR data entry freeze				/ /
FTR ship				/ /
FTR due on site;				/ /
MAIN HARDWARE SHIP DATE	/ /			/ /
TURNOVER DATE	/ /			/ /
Cutover Date				/ /

SEE Department Chief
Dept # _____

Figure 1 SAMPLE INITIAL LETTER

5001(06) TG-5

DATE: _____

Network Systems
5ODA Software Database Management
2600 Warrenville Road - Room 33B1
Lisle, IL 60532

This letter authorizes the establishment of an account for order number _____ and base and control _____, for the _____ GROWTH Office. There are _____ lines, _____ trunks, and _____ SMs associated with this office. This office is a _____ (Local, Toll, or DSN) office. The final cutover Software Release and Issue for this office will be _____. The Telco order number for this office was received on _____. The Engineer responsible for this job is _____ whose telephone number is _____. Conversion office. Conversion tapes will arrive at NSC on _____. There (will/will not) be a Virgos tape for this office, and the tape will arrive at NSC on _____. The Host office name is _____, and the Host base control is _____.

Event Description	Standard	Modified
Registration Date		/ /
Office Initialization; Virgos Due		/ /
FITTS data entry start		/ /
FITTS freeze; Execute sendimst;		/ /
MAIN HARDWARE SHIP DATE	/ /	/ /
TURNOVER DATE	/ /	/ /
Cutover Date		/ /

SEE Department Chief
Dept # _____

Figure 2 SAMPLE GROWTH LETTER

5001(06) TG-5

DATE: _____

Network Systems
5ODA Software Database Management
2600 Warrenville Road - Room 33B1
Lisle, IL 60532

This letter authorizes the establishment of an account for order number _____ and base and control _____, for the _____ RETROFIT Office. There are _____ lines, _____ trunks, and _____ SMs associated with this office. This office is a _____ (Local, Toll, or DSN) office. The final cutover Software Release and Issue for this office will be _____. The Telco order number for this office was received on _____. The Engineer responsible for this job is _____ whose telephone number is _____. The onsite Retrofit date for this office is _____.

SEE Department Chief
Dept # _____

Figure 3 SAMPLE RETROFIT LETTER

5001(06) TG-5

DATE: _____

Network Systems
5ODA Software Database Management
2600 Warrenville Road - Room 33B1
Lisle, IL 60532

This letter authorizes the establishment of an account for order number _____ and base and control _____, for the _____ LARGE TERMINAL GROWTH Office. There are _____ lines, _____ trunks, and _____ SMs associated with this office. This office is a _____ (Local, Toll, or DSN) office. The final cutover Software Release and Issue for this office will be _____. The Telco order number for this office was received on _____. The Engineer responsible for this job is _____ whose telephone number is _____. The onsite Large Terminal Growth date for this office is _____. This office (is/is not) a 5E Conversion office. Conversion tapes will arrive at NSC on _____.

SEE Department Chief
Dept # _____

Figure 4 SAMPLE LARGE TERMINAL GROWTH LETTER

SEC. 9: 5ODA BATCH LOAD INTERFACE

1. GENERAL

To accommodate data supplied from existing mechanized systems (e.g. equipment, line or trunk data), the ODA 5ODA provides an interface to merge batch data with the appropriate ODA 5ODA database. The magnetic tape containing batch data must be self-defined, meaning, there is information on the tape which defines the contents of the data records. This allows the customer to add, delete or change a field, when they wish, without coordinating the change with Lucent Technologies, requiring them to only change the tape definition.

2. TAPE FORMAT

The ODA system will process magnetic tapes that meet the following requirements:

1. The tape must be 1600 bpi. The format must be ASCII and produced on 9-track drives only.
2. The magnetic tape itself may be a labeled (e.g. IBM Standard Label) or a non-labeled tape. However, every tape should be marked with a paper label identifying which file is the ODA data file on the tape. If there is no such indicator on the tape, the ODA assumes the data as the first file. The end of a file on a tape is indicated by a tape mark. The ODA system will only process the ODA data file.
3. If one tape volume cannot hold all the data the user wants to send to the ODA, then the user can send multiple tapes. The ODA input tapes do not have to be processed in the same order in which they were produced. This procedure should not cause any problems provided the user never splits a "logical record" (see section on Basic Definitions) over two tapes and each tape begins with a header record and ends with a trailer record (see section on Header and Trailer forms). If the tapes should be processed in a sequential manner they must be marked as such on the tape labels.

3. FILE FORMAT

3.1 Physical Format

The block size of data on the tape should be no more than 2048 bytes. All blocks must be the same size except the last block which can be less than 2048 bytes.

3.2 Logical Format-basic Definitions

The 5ODA system interprets the data on the tape as a stream of characters. The characters are grouped into name-value pairs. Each name must be terminated by a colon (i.e. :). Each name-value pair must be terminated by a semi-colon (i.e. ;). Leading and trailing blanks around the name and the value will be ignored. Any blanks within a value (e.g. "his name is Joe") will be kept. Therefore, the stream of data could look as follows:

DN: 1234567 ; TTC : Y ; CFW : N;

Name-value pairs are grouped together into logical records. In order to identify the beginning of a logical record (and thus the end of the previous logical record), and to know what type of record it is, the 5ODA selected "FORM NAME" as the logical record initiator name of a name-value pair. The name "FORMNAME'S" associated value identifies the record type. The above example could be preceded by the following name-value pair:

FORMNAME: Line;

The definition of each Directory Number would begin with the above name-value pair.

3.3 Logical Format-Structure Definitions

A form may use the same name more than once. This will normally happen within a structure definition (e.g., DATE1 AND DATE2 are structures each containing fields month, day and year). In order to distinguish between them, a fully qualified name must be specified. The qualified name would be composed of structure name, "DOT", element name (e.g., DATE1 .DAY). A form's definition will identify when and where a qualified name is necessary.

3.4 Header and Trailer Forms

Forms can be intermixed. A LINE form may be followed by a MLHG form, which in turn is followed by another LINE form. However, the first form on any tape must be the header form. The header form contains office identification information. The definition of the header form is the first page of the attachment to this memorandum. The last form on every tape must be the trailer form. This form has a count of each form passed since the last header form.

Most information on the header record is self-explanatory. The SENDERS field is unique to each system sending batch data to the ODA system. The sender is free to select any eight character name desired that will identify the system sending the data. However, once selected it should never be changed. The SENDER_ISSUE is meant for the senders use. If the ODA has any problems processing the batch data, then the ODA production personnel will contact the sender and let the sender know which issue of the system is causing the problem. We recommend the sender change this value every time a change is made to that system. The BATCH_ISSUE field will change each time the definition memorandum is re-issued. If the sender modifies their system to match the new definition, then they should specify the new BATCH_ISSUE value. The BATCH_ISSUE identifies, to the ODA, what type of data it is to expect.

3.5 Multiple Offices

The administration and generation of ODD (Office Dependant Data) for 5ESS Switch offices requires multiple hardware configurations. Therefore, more than one set of office data per tape is not permitted. Each individual tape must contain data for one office only to expedite the ODA process.

4. DEFINITIONS

The TG-5 (5ESS Switch Translation Guide) defines all the valid ODA form names. Since the form's field names described in the TG-5 may change for aesthetic reasons, it is necessary to establish field names that change less often. A composite listing is available containing these valid attribute names and cross reference for form names. In addition, the TG-5 contains "name" valid values. Refer to *INQUIRIES* in this section for information regarding the procedure to obtain the attribute names and cross reference lists for form names.

Each logical form definition appears on a separate page (some forms such as the LINE form need multiple pages). As stated earlier, the first two pages define the HEADER and the TRAILER forms. The rest of the pages define ODA input forms. At the top of each page is the name of the form defined on that page. Beside the name is the list of 5ESS Switch Software Release issues supported by this form. After the form name is the list of attribute names that make up this form. Beside the attribute name is a brief description of what the field is. The attribute is applicable to all the previously indicated Software Release issues unless another list of Software Release issues appears on a line after the attribute name. In this case, the attribute is only applicable to the Software Release issues specified. If the ODA receives an attribute that is not applicable to the Software

Release currently being installed in the office, then the ODA just ignores that attribute. This allows the user to generate an output that is suitable for any number of different Software Releases.

5. LIST DEFINITIONS

Some of the 5ESS Switch input forms contain lists. Informally, a list is a shorthand way to define a repeating group of attributes (i.e. 5ESS Switch Translations Guide TG-5 Volume 1: LINEFA form). However, for batch loading purposes, data must be sent corresponding to form definitions that do not contain lists. To batch populate a form that contains a list the corresponding form definitions in this document must be used. These forms basically contain the key fields, non-key fields, and one instance of the list fields (i.e. LINEFA form in this document). Multiple instances of these forms with key and non-key fields repeated should be generated for each set of list fields. The non-list forms will be combined per unique key into one form when the data is loaded into the database.

6. INQUIRIES

All inquiries or requests for information referred to in this section should be sent to the following:

5ESS Software Database Manager

Lucent Technologies

2600 Warrenville Road

Lisle, Illinois 60532

SEC. 10: ROUTING AND CHARGING

1. GENERAL

The purpose of Routing and Charging is to determine, based on source and destination information, how a call should be routed and charged.

This is normally accomplished in two steps. The first is called screening and the second is routing.

The purpose of screening is to translate the Prefix Index, Screening Index, and Code Index into Routing and Charging Indices. The purpose of routing is to derive the expanded routing data from the database using the Route Index obtained from screening. Figure 1 provides a block diagram of the flow of Routing and Charging Translations.

2. DEFINITIONS OF TERMS

Listed below are abbreviated definitions for each of the components of routing and charging.

2.1 DIGIT ANALYSIS SELECTOR

DAS (Digit Analysis Selector) is a general purpose table that is used to specify the set of tables (Local Digit Interpreter, Incoming Trunk Digit Interpreter and Preliminary Digit Interpreter) that are to be used for digit analysis.

2.2 LOCAL DIGIT INTERPRETER TABLE

LDIT (Local Digit Interpreter Table) is a table that is used to define all dialable codes (NPA, NXX, NPANXX, X11) in a 5ESS Switch office.

2.3 INCOMING DIGIT INTERPRETER TABLE

INDIT (Incoming Digit Interpreter Table) is a table that is used for incoming, two-way, or tandem Trunk Group routing.

2.4 PREFIX\FEATURE DIGIT INTERPRETER TABLE

PDIT (Prefix/Feature Digit Interpreter Table) is a table that is used to define operator codes (0- and 010) and standard feature codes (72, 73, 2-9, 20-49, etc.).

2.5 CODE INDEX

Code Index is an output from the LDIT, INC DIT, IDDD, or PDIT that is used as an input to the Rate and Route Tables.

2.6 SCREENING INDEX

Screening index is an output from a Line Class Code or a Trunk Group that is used as an input to the Rate and Route Tables.

2.7 ROUTE INDEX

Route Index is an output from the Rate and Route Tables or a Telephone Number that defines the routing, (i.e., Trunk Group Number, digits to be deleted or prefixed, etc.) of a call.

2.8 CHARGE INDEX

Charge index is an output from the Rate and Route Tables that defines the charging, (i.e., MBI (Message Billing Index), time, charge, etc.) of a call.

3. RATE AND ROUTE TABLE

The Screening Index and Code Index form a matrix known as a Rate and Route Table. The Rate and Route Table provides a Charge Index and a Route Index based on the prefix dialed (no prefix, 1+, or 0+).

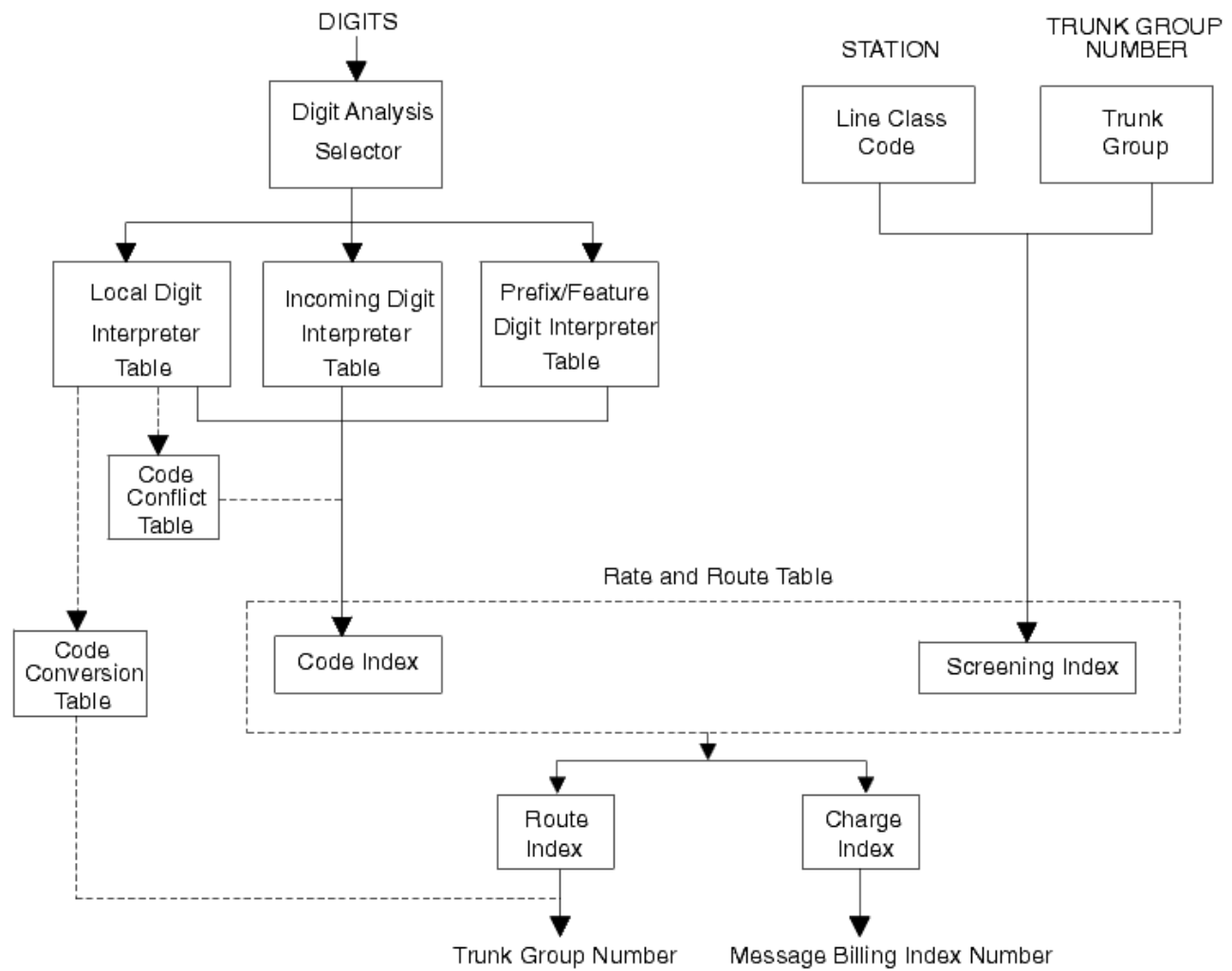
4. CODE CONFLICT

When NPA (Numbering Plan Area) codes and Central Office codes are the same, the routing and charging is resolved by one of two methods.

- Conflict resolved by timing
 - Using this method, the 5ESS Switch will time after receiving seven digits to determine if the call attempt is a seven or ten digit call.
- Conflict resolved by prefixing
 - Using this method, the 5ESS Switch will treat 1+ calls as ten digit attempts and no prefix calls as seven digit attempts. 0+ calls are resolved by the timing method.

5. CODE CONVERSION

Any three digit code may be converted to a seven or ten digit Telephone Number through code conversion. Code conversion is primarily used for X11 (411, 611, etc.) services. However, any three digit code may be converted if it is defined with an appropriate Call Type (i.e., LOCDA, REPAIR, BUSOFC, or EMER).

**Figure 1 BLOCK DIAGRAM - ROUTING AND CHARGING**

SEC. 11: LDMAP SYSTEM DESCRIPTION

1. GENERAL DESCRIPTION

The 1/1A ESS Switch to 5ESS Switch LDMAP (Line Data Mapping) System will extract line related data from a dump of the 1/1A ESS Switch Translations and will map the line data into a format that will be used as input to the 5ODA process. An LDMAP questionnaire is completed by the switch owner is used to define how the Line Data Mapping is to be performed.

The output of the LDMAP system may be used for either the Initial 5ODA process or the LTG (Large Terminal Growth) process.

The LDMAP system provides the following capabilities for the mapping of line data from the 1/1A ESS Switch to a 5ESS Switch.

1. Feature Mapping
2. Feature Substitution
3. Feature Addition
4. Feature Clustering
5. Selection BFG Name Addition
6. Customized IDP Group Names
7. Terminal Group Station Restriction Feature Assignment
8. Multi-Line Hunt Group Renumbering
9. Call Pickup Group Renumbering
10. Partial Office Mapping
11. CAT Code to DPAT Code Mapping for IDP Lines
12. Group Speed Call Listname Mapping
13. Operator Intercept Line Mapping
14. Route Index Line Mapping
15. CENTREX Intercept TN Mapping
16. LINE/MLHLN form Updates

Details for each of the LDMAP capabilities are described later.

The LDMAP system does not do the following:

1. Assignment of 5ESS Switch Line Equipment Numbers
2. Assignment of 5ESS Switch Scan Points

3. Completion of Equipment, Trunking, Routing and Charging Forms
4. Completion of Feature Definition Forms
5. Completion of Group Definition and Group Dialing Forms

2. FEATURE MAPPING

The LDMAP system uses the 1/1A ESS Switch features that are indicated on the 1107 form to map 1/1A ESS Switch features to 5ESS Switch preconstructed features. Supporting information from the 1109 form is used for the mapping of features on lines that belong to CENTREX Groups.

Refer to Figure 1 for details on how and what features are mapped by the LDMAP system.

If a feature indicated on the 1107 form cannot be mapped to a 5ESS Switch preconstructed feature then the telephone number or Multi-Line Hunt Group and member number along with the 1/1A ESS Switch feature acronym is written to the NO5E report.

Refer to Figure 2 for a list of features indicated on the 1107 TYPE 00 record that are not mapped by the LDMAP system.

Refer to Figure 3 for a list of features indicated on the 1107 form that are not mapped by the LDMAP system.

3. FEATURE SUBSTITUTION

The LDMAP system allows the switch owner to substitute features for the preconstructed features that are assigned by LDMAP.

The new feature may be either a constructed feature or another preconstructed feature. The switch owner is responsible for the completion of Feature Definition forms for any constructed feature that is used for feature substitution.

The feature substitution may be applied in one of the following three methods.

1. All lines in a specified IDP Group.
2. All POTS lines.
3. All lines in the office.

LDMAP will apply feature substitutions to specified IDP groups and POTS lines prior to applying feature substitutions to the entire office.

4. FEATURE ADDITION

The LDMAP system will allow the switch owner to add either preconstructed or constructed features to a specified group of lines. Examples of features added are ARS (Automatic Route Selection) or PFA (Private Facilities Access) features.

A feature may be added to the following:

1. All lines in a specified IDP Group.

2. Lines in a specified IDP Group which meet a DPAT Code requirement.
3. All POT lines.

The completion of Feature Definition Forms for constructed features being added is the responsibility of the switch owner.

The LDMAP system will only complete LINEFA and MLHLNFA forms for the features being added. Parameter forms are not completed by LDMAP for features being added.

5. FEATURE CLUSTERING

The LDMAP system allows the switch owner to specify clusters that are to be assigned to the lines. The switch owner specifies the cluster name, the features in the cluster and how the cluster is to be applied to the lines.

The cluster may be applied in one of the following three ways:

1. The cluster is applied to a specified IDP Group.
2. The cluster is applied to POT lines.
3. The cluster is applied to the entire office.

The features in the cluster may be preconstructed features assigned by LDMAP, features assigned as a result of feature substitution or features added to the lines as a result of feature addition.

The completion of the cluster definition form (5600 Record) is the responsibility of the switch owner.

6. SELECTION BFG NAME ADDITION

The LDMAP system will allow for the addition of a Selection BFG (BRCS Feature Group) Name to be added to lines in a specified IDP Group. The switch owner will provide the Selection BFG Name that is to be added for each IDP Group. The LDMAP system will then place the Selection BFG Name on the LINEFA or MLHLNFA form for the line.

The completion of the BFG Construction Form (5625 Record) is the responsibility of the switch owner. The 5ODA process will assign the Selection BFG Suffix based on the BFG Construction Form that has been completed.

7. CUSTOMIZED IDP GROUP NAMES

The LDMAP system builds the IDP Group Names in two portions. The first portion of the IDP Group Name is a PREFIX. The second portion of the IDP Group Name is the NUMBER.

The switch owner may specify a PREFIX to be used for all IDP Group Names, a PREFIX for each IDP Group Name or that the IDP Group Name will not contain a PREFIX. The PREFIX may contain any quantity of alpha-numeric characters.

The LDMAP system default is to set the NUMBER portion of the IDP Group Name to a 4-digit number that is the 1/1A ESS Switch CENTREX Group Number.

The switch owner may select to renumber the 1/1A ESS Switch CENTREX Group number to derive the NUMBER portion of the IDP Group Name. Two renumbering methods are available for the renumbering of 1/1A ESS Switch CENTREX Group Numbers.

The first method is called sequential renumbering. Sequential renumbering takes a starting CENTREX Group number provided by the switch owner and will renumber the lowest numbered CENTREX Group in the 1/1A ESS Switch to that CENTREX Group number provided. The next lowest CENTREX Group number in the 1/1A ESS Switch will be renumbered to the CENTREX Group number provided plus one. The sequential renumbering method will renumber all CENTREX Groups in the 1/1A ESS Switch.

The second method is for the renumbering of CENTREX Groups is to provide a mapping table. The mapping table will show each 1/1A ESS Switch CENTREX Group number that is to be renumbered with its 5ESS Switch CENTREX Group number. Only 1/1A ESS Switch CENTREX Group numbers that appear in the mapping table will be renumbered. If a 1/1A ESS Switch CENTREX Group number is not in the mapping table, then the CENTREX Group number will not be renumbered.

The switch owner must consider CENTREX Group renumbering if the 1/1A ESS Switch is being mapped to a already working 5ESS Switch or if more than one switch is being mapped to the 5ESS Switch.

The switch owner may also specify the quantity of digits that are to be used in the NUMBER portion of the IDP Group Name.

NOTE: The IDP Group Name may be only 8 characters in length.

The IDP Group Name must be shown on a IDP Group Definition Form (5601-4) which has been completed by the switch owner.

8. TERMINAL GROUP STATION RESTRICTION FEATURE ASSIGNMENT

The LDMAP system will assign a TGSR (Terminal Group Station Restriction) feature to each line in a 1/1A ESS Switch CENTREX group. The TGSR feature assigned is based on the OMAJ (Originating Major) Class and the TMAJ (Terminating Major) Class of the line. The following table shows the TGSR feature that will be assigned based on the OMAJ and TMAJ of the line.

OMAJ	TMAJ	FEATURE
16	16	/TGFFx
16	30	/TGFSx
16	18	/TGUFx
17	16	/TGSFx
17	30	/TGSSx
17	18	/TGSUx
18	16	/TGUFx
18	17	/TGUSx
18	18	/TGUUx

If the line has a OMAJ and TMAJ combination that is not in the above table, then a TGSR feature is not assigned to the line and the TN or MLHG and Member Number is written to the NOTGSR Report.

The "x" at the end of the TGSR feature name is replaced by a "T" or an "A" depending on if the TGSR Feature is to be a TONE or ANNOUNCEMENT feature.

The TGSR Feature Type, Tone or Announcement, may be specified to be the same for all 1/1A ESS Switch CENTREX Groups or may be specified for each CENTREX Group individually.

If the ANNOUNCEMENT feature type is specified, then a 5ESS Switch Route Index for the Originating Error Announcement and a 5ESS Switch Route Index for the Terminating Error Announcement must be specified.

The LDMAP system will assign the Terminal Group ID depending on the method selected. The three methods for assigning the Terminal Group ID are

1. The Terminal Group ID will equal the NUMBER portion of the IDP Group Name.
2. The Terminal Group ID will equal the 1/1A ESS Switch CENTREX Group Number.
3. The Terminal Group ID will be determined from a mapping table of 1/1A ESS Switch CENTREX Group Numbers to Terminal Group IDs. If the 1/1A ESS Switch CENTREX Group Number is not in the mapping table, then the 1/1A ESS Switch CENTREX Group Number will be used as the Terminal Group ID.

9. MULTI-LINE HUNT GROUP RENUMBERING

The LDMAP system will set the 5ESS Switch MLHG (Multi-Line Hunt Group) number to be equal to the 1/1A ESS Switch MLHG number, unless a MLHG Renumbering Method is selected.

If the renumbering of MLHGs is desired, then two methods for renumbering of MLHGs are provided by LDMAP.

The first method is called sequential renumbering. Sequential renumbering takes a starting MLHG number provided by the switch owner and will renumber the lowest numbered MLHG in the 1/1A ESS Switch to that MLHG number provided. The next lowest MLHG number in the 1/1A ESS Switch will be renumbered to the MLHG number provided plus one. The sequential renumbering method will renumber all MLHGs in the 1/1A ESS Switch.

The second method is for the renumbering of MLHGs is to provide a mapping table. The mapping table will show each 1/1A ESS Switch MLHG number that is to be renumbered with its 5ESS Switch MLHG number. Only 1/1A ESS Switch MLHG numbers that appear in the mapping table will be renumbered. If a 1/1A ESS Switch MLHG number is not in the mapping table, then the MLHG number will not be renumbered in the mapping of the MLHG from the 1/1A ESS Switch to the 5ESS Switch.

The switch owner must consider MLHG renumbering if the 1/1A ESS Switch is being mapped to a already working 5ESS Switch which has MLHGs or if more than one switch is being mapped to the 5ESS Switch.

10. CALL PICKUP GROUP RENUMBERING

The LDMAP system will set the 5ESS Switch CPUG (Call Pickup Group) number to be equal to the 1/1A ESS Switch CPUG number unless a renumbering of CPUG numbers is selected.

If the renumbering of CPUGs is desired, then two methods for renumbering of CPUGs are provided by LDMAP.

The first method is called sequential renumbering. Sequential renumbering takes a starting CPUG number provided by the switch owner and will renumber the lowest numbered CPUG in the 1/1A ESS Switch to that CPUG number provided. The next lowest CPUG number in the 1/1A ESS Switch will be renumbered to the CPUG number provided plus one. The sequential renumbering method will renumber all CPUGs in the 1/1A ESS Switch.

1/1A ESS Switch CPUG number that is to be renumbered with its 5ESS Switch CPUG number. Only 1/1A ESS Switch CPUG numbers that appear in the mapping table will be renumbered. If a 1/1A ESS Switch CPUG number is not in the mapping table then the CPUG number will not be renumbered in the mapping of

the CPUG from the 1/1A ESS Switch to the 5ESS Switch.

The switch owner must consider the renumbering of CPUGs if the 1/1A ESS Switch is being mapped into an already working 5ESS Switch or if more than one switch is being mapped into the 5ESS Switch.

- **NOTE:** If Call Pickup Group 1 exists in the 1/1A ESS Switch, then Call Pickup Group 1 must be renumbered.

11. PARTIAL OFFICE MAPPING

An office is classified as a Partial Office if only a portion of the TNs (Telephone Numbers) in the 1/1A ESS Switch are to be mapped to the 5ESS Switch.

The switch owner will provide the TN ranges that are to be mapped from the 1/1A ESS Switch to the 5ESS Switch. The LDMAP system will then extract the lines in the TN ranges provided and map only this set of lines to the 5ESS Switch.

MLHGs (Multi-Line Hunt Groups) in a Partial Office are mapped based on the LDN (Listed Directory Number) of the MLHG. If the LDN of the MLHG is in the TN ranges to be mapped, then all terminals in MLHG will be mapped to the 5ESS Switch. If the LDN is not in the TN ranges to be mapped, then the terminals in the MLHG are not mapped to the 5ESS Switch.

Two error reports are produced when extracting the TNs to be mapped. Both error reports are related to the mapping of MLHGs.

The first error report will indicate MLHG Terminals that have a Hunt TN or Nonhunt TN that is not in the TN ranges to be mapped but the Listed Directory Number is in the TN ranges to be mapped.

The second error report will indicate MLHG Terminals that have a HUNT TN or Nonhunt TN that is in the TN ranges being mapped but the Listed Directory Number is not in the TN ranges being mapped.

12. CAT CODE to DPAT CODE MAPPING

The LDMAP system will map the CAT (CENTREX Access Treatment) code associated with a CENTREX line in the 1/1A ESS Switch to a DPAT (Dialing Plan Access Treatment) code in the 5ESS Switch.

The LDMAP system uses the following default CAT Code to DPAT Code mapping table.

CAT Code	DPAT Code
0	8
1	1
2	2
3	3
4	4
5	5
6	6
7	7

The switch owner must specify a CAT Code to DPAT Code mapping table if the default mapping table is not desired.

13. GROUP SPEED CALL LISTNAME MAPPING

The LDMAP system will assign the first TN to access a 1/1A ESS Switch CENTREX Group Speed Call List as the 5ESS Switch Speed Call Listname for the Group Speed Call List.

The LDMAP system allows the switch owner to change the LDMAP assigned Listname for the Group Speed Call List by associating a new listname to the LDMAP assigned listname.

14. OPERATOR INTERCEPT LINE MAPPING

The LDMAP system has the option to map TNs (Telephone Numbers) in the 1/1A ESS Switch that terminate to Route Index 0084 to 5ODA line forms. These TNs are referred to as Operator Intercept lines.

Operator Intercept lines can be mapped to line forms in one of two methods.

1. The switch owner provides a 5ESS Switch Route Index for the Operator Intercept lines that will complete the RTI field of the line form.
2. The switch owner selects to use Regular Intercept for the Operator Intercept lines which will set the ICP field of the LINE form to "Y".

The switch owner must also provide a 5ESS Switch LCC (Line Class Code) for Operator Intercept lines so that the line form may be completed correctly.

15. ROUTE INDEX LINE MAPPING

The LDMAP system can map TNs in the 1/1A ESS Switch that terminate to a Route Index greater than 0199. These TNs are generally used for DID lines and are called Route Index Lines. The LDMAP system will map Route Index Lines to 5ODA LINE or HGRPAS forms.

The switch owner may specify that only line forms be used for the mapping of Route Index Lines. If this mapping option is chosen, then the LDMAP system will construct one 5ODA line form for each Route Index Line.

The other method available for the mapping of Route Index Lines is to use a combination of 5ODA LINE forms and HGRPAS forms.

If a hundreds group of TNs, the 5 leftmost digits of the TNs being the same, all terminate to the same route index then a HGRPAS form will be constructed for those 100 TNs. All other TNs will be mapped to a LINE form.

The 5EE Route Index may either equal the 1/1A ESS Switch Route Index or a mapping table for Route Indexes may be provided.

The mapping table will show the 1/1A ESS Switch Route Index and its equivalent 5ESS Switch Route Index. If a 1/1A ESS Switch Route Index does not appear in the Route Index mapping table, then the 5ESS Switch Route Index will equal the 1/1A ESS Switch Route Index.

A 5ESS Switch Line Class Code is required to complete the LINE forms correctly.

The LDMAP system will process only TNs that terminate to Route Indexes greater than 0199. Route Index 0084 is the only other Route Index processed by LDMAP, refer to the Operator Intercept section for details on the processing of TNs terminating to Route Index 0084.

The switch owner is responsible for the construction of the Route Index Form (5303) for any Route Index used.

16. CENTREX INTERCEPT TN MAPPING

A CENTREX Intercept TN is defined as a TN in the 1/1A ESS Switch that does not have a LEN (Line Equipment Number) but is assigned to a 1/1A ESS Switch CENTREX Group.

The LDMAP system has an option to map CENTREX Intercept TNs to 5ODA LINE forms. The LDMAP system will create a LINE form for each CENTREX Intercept TN. The LINE form has the TN, RTI, and LCC fields completed.

The RTI field is completed with the Base Route Index (BRI) found in the 1/1A ESS Switch CENTREX Common Block or with a switch owner provided Route Index.

The switch owner specifies for each 1/1A ESS Switch CENTREX Group if the BRI is to be used or if a switch owner provided Route Index is to be provided. The switch owner also specifies the LCC to be used to complete the LCC field of the LINE form.

17. LINE/MLHLN FORM UPDATES

The LDMAP can optionally update fields of the LINE or MLHLN forms that have been previously submitted to the 5ODA database. The update data is taken from the 1/1A ESS Switch and owner supplied data.

The LINE and MLHLN fields that will be updated are the following:

1. PIC - Primary Interexchange Carrier
2. TTC - Touchtone Calling
3. ALT BILL TN - Alternate Billing TN
4. SERHLN - Series Complete TN
5. GST - Ground Start
6. EL - Essential Line Service
7. BRCS - Business and Residence Custom Services
8. PRIVACY - Per Line Privacy
9. LCC - Line Class Code
10. SUSO - Suspend Origination
11. SUST - Suspend Termination
12. TN - MLHG Terminal TN (MLHLN form only)
13. FGA - Feature Group A
14. SLUS - Subscriber Line Usage
15. ANI7 - Automatic Number Identification 7
16. TRC - Call Trace
17. PALIT - Prohibit ALIT

18. FLS - Free Number

The selection of the PIC field will also update the CIDIAL field.

The LCC field can be updated with either the LCC value recovered from the 1/1A ESS Switch or by a LCC mapping table provided by the switch owner.

The SUSO field will be set to "Y", if the Originating Major Class of the Line is equal to 03 or 07.

The SUST field will be set to "Y", if the Terminating Major Class of the Line is equal to 22 or 24.

The selection of the TN field will also update the NONHUNT field and complete a MULTITN form if the MLHG terminal has both a hunt and nonhunt TN.

The FGA field is updated based on the 1/1A ESS Switch Chart Column. The switch owner provides a list of Chart Columns that FGA is to be set to "Y". Lines that have a Chart Column in the list will have FGA set equal to "Y", otherwise FGA will be set to "N".

The SLUS field is updated based on the 1/1A ESS Switch Chart Column. The switch owner provides a list of Chart Columns that SLUS is to be set to "Y". Lines that have a Chart Column in the list will have SLUS set equal to "Y", otherwise SLUS will be set to "N".

The ANI7 field is updated based on the 1/1A ESS Switch Chart Column. The switch owner provides a list of Chart Columns that ANI7 is to be set to "Y". Lines that have a Chart Column in the list will have ANI7 set equal to "Y", otherwise ANI7 will be set to "N".

The above list of LINE and MLHLN form fields are the only fields updated by LDMAP. Additional LINE and MLHLN form fields can be updated by arrangement with the AT&T NSEC engineer.

18. LDMAP OUTPUT REPORTS

This section details the possible reports that are generated from the LDMAP system. The actual reports that are generated depends on the LDMAP options that were selected in the LDMAP questionnaire.

If a report is selected to be printed and the file that creates the report is empty or does not exist then the report will be printed with the phrase "Empty Report".

18.1 1/1A ESS SWITCH FORMS

The 1101, 1107, 1109, 1115 and the 1306 forms from the 1/1A ESS switch can be printed from LDMAP only if the Partial Office Step of LDMAP is run.

It is recommended that the 1/1A ESS Switch forms not be printed from LDMAP as a full set of forms is printed from the TDD system.

18.2 TN Report

This report gives the TN Ranges that were used for a Partial Office Conversion. Only TNs in these ranges were converted.

18.3 MLHG MAP

This report shows the mapping of the 1/1A ESS Switch Multi-Line Hunt Group Numbers to 5ESS Switch

Multi-Line Hunt Group Numbers.

18.4 CPU MAP

This report shows the mapping of the 1/1A ESS Switch Call Pickup Group Numbers to 5ESS Switch Call Pickup Group Numbers.

18.5 LCC MAP

This report shows the mapping of 1/1A ESS Switch LCC (Line Class Codes) to the 5ESS Switch Line Class Codes.

18.6 RI MAP

This report shows the mapping of 1/1A ESS Switch Route Indexes to 5ESS Switch Route Indexes.

18.7 DPAT MAP

This report shows the CAT Code to DPAT Mapping Table that was used by LDMAP.

18.8 IDP PREFIX

This report shows the PREFIX that was used for each 1/1A ESS Switch CENTREX Group to construct the IDP Group Name.

18.9 CTX MAP

This report shows the mapping of the 1/1A ESS Switch CENTREX Group Numbers to the NUMBER portion of the IDP Group Names.

18.10 TGSR MAP

This report shows the mapping of 1/1A ESS Switch CENTREX Group Numbers to 5ESS Switch Terminal Group IDs.

18.11 FT MAP

This report gives the FT (Feature Type) that was used for the the TGSR (Terminal Group Station Restriction) Feature assigned to each 1/1A ESS Switch CENTREX Group. The Feature Type is either Announcement (A) or Tone (T).

18.12 ORI MAP

This report gives the RI (Route Index) that was used for the the TGSR (Terminal Group Station Restriction) Feature Originating Error Announcement for each 1/1A ESS Switch CENTREX Group.

18.13 TRI MAP

This report gives the RI (Route Index) that was used for the the TGSR (Terminal Group Station Restriction) Feature Terminating Error Announcement for each 1/1A ESS Switch CENTREX Group.

18.14 BFG Addition

This report provides the input that was used to add a Selection BFG Name to lines in an IDP group.

18.15 Change Listname

This report shows the 5ESS Switch Speed Call Listname assigned by LDMAP for a 1/1A ESS Switch CENTREX Group Speed Call List and the Speed Call Listname that was substituted for the LDMAP assigned name.

18.16 Feature Addition

This report gives the input that was used for the Feature Addition Step of the LDMAP process.

18.17 Feature Substitution

This report shows the Feature Substitution data that was used for the office.

18.18 Feature Clustering

This report shows the Feature Clustering data that was used for the office.

18.19 LASS CSI

This report contains the 1A ESS Switch Chart Columns that are restricted from having a LASS Feature Assigned.

18.20 LASS ACRG

This report contains the LASS Features and the ACRG values that restrict the LASS Feature from access to the Usage Sensitive version of the feature.

18.21 FGA

This report contains the list of 1/1A ESS Switch Chart Columns for which the FGA field on the LINE form will be set to "Y".

18.22 SLUS

This report contains the list of 1/1A ESS Switch Chart Columns for which the SLUS field on the LINE form will be set to "Y".

18.23 ANI7

This report contains the list of 1/1A ESS Switch Chart Columns for which the ANI7 field on the LINE form will be set to "Y".

18.24 CENTREX Intercept - Base Route Index

This report shows the Base Route Index and Line Class Code that was used for each 1/1A ESS Switch CENTREX Group to construct 5ODA LINE forms for CENTREX Intercept TNs.

18.25 Partial Office Error Report 1

This report gives MLHG MEMBERS that have a HUNT TN or NONHUNT TN that is not in the range of TNs to

be converted but the LDN (Listed Directory Number) of the MLHG is in range. The MLHG MEMBERS listed in this report are converted.

18.26 Partial Office Error Report 2

This report gives MLHG MEMBERS that have a HUNT TN or NONHUNT TN that is in the range of TNs to be converted but the Listed Directory Number of the MLHG is not in range. The MLHG MEMBERS listed in this report are not converted.

18.27 Error File

This report provides a listing of error messages that are generated by the Feature Conversion step of LDMAP.

18.28 NO5E

This report lists the TN or MLHG MEMBERS that have a 1/1A ESS Switch feature that can not be converted to a 5ESS Switch feature. The 1/1A ESS Switch features for this report comes from the 1107A form.

18.29 NOTGSR

This report gives TNs and MLHG MEMBERS that are in a 5ESS Switch Terminal Group but which no TGSR Feature has been assigned. The 1/1A ESS Switch OMAJ (Originating Major Class) and the TMAJ (Terminating Major Class) for the line is also given.

18.30 GSC No Owner

This report provides a list of 1/1A ESS Switch CENTREX Group Speed Call Lists that do not have an owner or a user of the Group Speed Call List. These 1/1A ESS Switch CENTREX Group Speed Call Lists will NOT be mapped to a 5ESS Switch Speed Call List.

18.31 GSC Listname

This report gives the Speed Call Listname that was assigned by LDMAP to the 1/1A ESS Switch CENTREX Group Speed Call Lists that are being mapped to 5ESS Switch Speed Call Lists.

18.32 GSC Changers

This report gives the 1/1A ESS Switch CENTREX Group Number, the Group Speed Call List Number and either the Telephone Number or Multiline Hunt Group Number and Terminal that have change capability to the Group Speed Call List. These TNs and MLHG Terminals have been assigned a 5ESS Switch Speed Call Feature with change capability for a 2-Digit Speed Call List.

18.33 GSC Users

This report gives the 1/1A ESS Switch CENTREX Group Number, the Group Speed Call List Number and either a Telephone Number or Multiline Hunt Group and Terminal Number that have access to the Group Speed Cca List but do not have change capability to the Group Speed Call List. These TNs or MLHG Terminals have been assigned a 5ESS Switch Speed Call Feature without change capability for a 2-Digit Speed Call List.

18.34 TN_CLUS

This report gives the TNs that have had a cluster assigned. The TN is followed by the name of the cluster that was assigned. If more than one cluster has been assigned to a TN, the TN will appear in the report once for each cluster assigned.

18.35 MLHG_CLUS

This report gives the MLHG MEMBERS that have had a cluster assigned. The MLHG number and MEMBER number are followed by the name of the cluster that was assigned. If more than one cluster has been assigned to a MLHG MEMBER, the MLHG MEMBER will appear in the report once for each cluster assigned.

18.36 Feature Summary Report

This report provides a count of lines with unique sets of features for each IDP Group in the office. Lines not in an IDP Group are grouped together under the Group Name "POT". Features that have the character "%" prefixed to the feature name are features that have been included in a cluster. These features will not appear on a LINEFA or MLHLNFA form.

18.37 Feature Map Report

This report provides the mapping of features that was used for this office. The feature mapping is given for each IDP group and for POT lines.

18.38 UPDATE

This report gives the Batch Interface records that were submitted to the 5ODA to update LINE and MLHLN forms.

18.39 NEWFORMS

This report gives the Batch Interface records that were submitted to the 5ODA to add new forms to the 5ODA database.

Automatic Call Back

1107 Form:

Type 00 record, weighted value of 1 in column 60

1109 Form:

None

5ESS Switch Feature:

/ACBC

Parameter Forms Completed:

None

Call Wait - Terminating

1107 Form:

Type 00 record, weighted value of 2 in column 50

1109 Form:

CWI (Call Wait Intragroup) indicated by a weighted value of 2 in column 52 of Descriptive Line.

5ESS Switch Feature:

/CWT - POTS lines

/CWT - CENTREX lines with CWI

/CWIO - CENTREX Lines without CWI

Parameter Forms Completed:

None

Call Wait - Originating

1107 Form:

Type 00 record, weighted value of 2 in column 49
1109 Form:

None

5ESS Switch Feature:

/CWO

Parameter Forms Completed:

None

Dialed Call Waiting

1107 Form:

Type 00 record, weighted value of 1 in column 56
1109 Form:

None

5ESS Switch Feature:

/CWD

Parameter Forms Completed:

None

Call Forward - Variable

1107 Form:

Type 00 record, weighted value of 4 in column 51

Type 00 record, weighted value of 2 in column 60

Type 00 record, weighted value of 2 in column 72

1109 Form:

CFO (Call Forward Outside) indicated by a weighted value of 1 in column 54 of Descriptive Line.

RGR (Ring Reminder) indicated by a weighted value of 2 in column 50 of Descriptive Line.

5ESS Switch Feature:

/CFV1A - for POTS Lines

/CFV1A - for CENTREX Lines with CFO

/CFIAG - for CENTREX Lines without CFO

Parameter Forms Completed:

cfwlp, cfwmpa

Call Forward - Don't Answer

1107 Form:

Type 38 record

Type 52 record

Type 1R record

CFUS (Call Forward Unrestricted Source) indicated in column 44 of the above record types.

Column 45 of the above record types is used to complete the TIMEOUT field.

1109 Form:

Type 02 records for determining the quantity of digits for the Forward To TN.

5ESS Switch Feature:

/CFDAAC - for POTS Lines

/CFDAAC - for CENTREX Lines with CFUS

/CFDAIO - for CENTREX Lines without CFUS

Parameter Forms Completed:

cfwlp, cfwmpa

Call Forward - Busy Line

1107 Form:

Type 26 record

Type 51 record

Type 1R record

CFUS (Call Forward Unrestricted Source) indicated in column 44 of the above record types.

1109 Form:

Type 02 records for determining the quantity of digits for the Forward To TN.

5ESS Switch Feature:

/CFBLAC - for POTS Lines

/CFBLAC - for CENTREX Lines with CFUS

/CFBLIO - for CENTREX Lines without CFUS
Parameter Forms Completed:

cfwlp, cfwmpa

Remote Call Forward

1107 Form:

Type 23 record

1109 Form:

None

5ESS Switch Feature:

/CFR

Parameter Forms Completed:

cfwlp

Call Forward Night Service

1107 Form:

Type 41 record

1109 Form:

None

5ESS Switch Feature:

/CFNS

Parameter Forms Completed:

cfwlp

Call Hold

1107 Form:

Type 00 record, weighted value of 4 in column 48

1109 Form:

None

5ESS Switch Feature:

/MWCH1 - if line also has Call Transfer or Call Wait Terminating.

/MWCH2 - if line does not have Call Transfer and Call Wait Terminating.

Parameter Forms Completed:

None

Conference Calling (6-way Calling)

1107 Form:

Type 00 record, weighted value of 1 in column 49

1109 Form:

None

5ESS Switch Feature:

/MW6WC

Parameter Forms Completed:

none

Call Transfer (3-way Calling)

1107 Form:

Type 00 record, weighted value of 4 in column 49

1109 Form:

CTD (Call Transfer DID) to DOD indicated by a weighted value of 4 in column 51 of the Descriptive Line.

CTU (Call Transfer Unlimited) indicated by a weighted value of 1 in column 53 of the Descriptive Line.

CTO (Call Transfer Outside) indicated by a weighted value of 4 in column 53 of the Descriptive Line.

CTI (Call Transfer Individual) indicated by a weighted value of 4 in column 54 of the Descriptive Line.

5ESS Switch Feature:

/MW3WC - for POTS Lines

The following table is used for CENTREX Lines.

Call CTU CTO CTI CTD FEATURE

Hold

dc yes yes yes yes /MWCTIA1

dc yes yes yes no /MWCTIA2

yes no yes yes yes /MWCTII1

no no yes yes yes /MWCTII2

yes no no yes no /MWCTII3

no no no yes no /MWCTII4

yes no no no no /MWCTA1

no no no no no /MWCTA2

Parameter Forms Completed:

None

Call Pickup

1107 Form:

Type 61 record for Regular CPU

1109 Form:

TAS (Trunk Answer Any Station) indicated by a weight of 1 in column 46.

5ESS Switch Feature:

/CPUO, /CPUT -

if Regular CPU and without TAS or TAS control station

/CPUO2 /CPUT -

if Regular CPU and TAS

/CPUO - if TAS only

Parameter Forms Completed:

pulpa, pumpa

If Regular CPU and TAS then SELQ1 is the TAS Pickup Group Number and SELQ2 is the Regular Pickup Group Number.

Directed Call Pickup - Barge In

1107 Form:

Type 00 record, weighted value of 2 in column 52

1109 Form:

none

5ESS Switch Feature:

/CPUDT - for line with above record

/CPUDO - for all other lines in CENTREX Group

Parameter Forms Completed:

None

Directed Call Pickup - Non-Barge In

1107 Form:

Type 00 record, weighted value of 2 in column 56

1109 Form:

None

5ESS Switch Feature:

/CPDNO - for line with above record

/CPDNT - for all other lines in CENTREX group with

Regular CPU

Parameter Forms Completed:

None

Multiple DN

1107 Form:

Type 00 record, weighted value of 1 in column 72

Type 00 record, weighted value of 2 in column 72

Type 1S record

1109 Form:

None

5ESS Switch Feature:

A mtnr form is completed for each Type 1S record.

Parameter Forms Completed:

cfwipa

The FORWARD MULTIPLE TN field is completed based on the weighted values in column 72.

Distinctive Ringing

1107 Form:

Type 00 record, weighted value of 1 in column 61

Type 00 record, weighted value of 2 in column 61

1109 Form:

DRR (Distinctive Ringing and Call Waiting Tone) indicated by a weighted value of 1 in column 48.

5ESS Switch Feature:

/DRIC - if the line has a weighted value of 1 in column 61.

/DRCWO - if DRR is indicated and no weighted value of 2 in column 61.

/DRDCW - if DRR is indicated and no weighted value of 2 in column 61.

Parameter Forms Completed:

None

Speed Call

1107 Form:

Types 05, 06, 15, 16, 18 19, 45, 64 and 76 records

1109 Form:

None

5ESS Switch Feature:

Use the following table to determine the speed call feature used for 5E6 and later generics.

1 Digit List

changeable /SC1C

nonchangeable /SC1

2 Digit List

changeable /SC2C

nonchangeable /SC2

Parameter Forms Completed: sclpa, scmpa, sclist

IDP

5ESS Switch Feature -

For generics 5E6 and later all lines in a 1/1A ESS Switch CENTREX Group will be assigned the Individual Dialing Plan Feature

/IDP.

Parameter Forms Completed: idplpa, idmpa

ICLID

1107 Form:

Type 1T

1109 Form:

None

5ESS Switch Feature:

/LICNDP - if flat rate billing

/LIDADP - if usage sensitive billing

Parameter Forms Completed:

None

Automatic Recall

1107 Form:

Type 1H record

1109 Form:

Automatic Recall Access Codes from Data Type 05 Subtype 31 records.

5ESS Switch Feature:

/LAR1 - if subscription access AR ALW field of LINE form equals Y if Usage Sensitive access.

Parameter Forms Completed:

None

Automatic Callback

1107 Form:

Type 1H record

1109 Form:

Automatic Callback Access Codes from Data Type 05 Subtype 31 records.

5ESS Switch Feature:

/LAC1 - if subscription access AC ALW field of LINE form equals Y if Usage Sensitive access.

Parameter Forms Completed:

None

Customer Originated Trace

1107 Form:

Type 1H record

1109 Form:

Customer Originated Trace Access Codes from Data Type 05 Subtype 31 records.

5ESS Switch Feature:

/COT1 - if subscription access COT ALW field of LINE form equals "Y" if Usage Sensitive access.

Parameter Forms Completed:

None

Per Call Privacy

1107 Form:

None

1109 Form:

Per Call Privacy Access Codes from Data Type 05 Subtype 31 records.

5ESS Switch Feature:

/DIDNP - if subscription access PCP ALW field of LINE form equals "Y" if Usage Sensitive access.

Parameter Forms Completed:

None

Figure 1 LDMAP SYSTEM DESCRIPTION FEATURE MAPPING TABLE

COLUMN	WEIGHT	FEATURE ACRONYM	FEATURE NAME
44	1	OP	Originating Priority
44	2	TP	Terminating Priority
44	4	TST	Test Line
45	4	OSI	Open Switch Interval
46	4	SLL	Sleeve Lead
47	2	AMA	Automatic Message Accounting
47	4	HOM	Hotel-Motel Service
48	1	STB	Special Trunk Billing
50	1	AID	Automatic Identified Outward Dialing
53	1	IMB	Call Forward - Inhibit Make Busy
53	2	ILB	Call Forward - Inhibit Line Busy
53	4	OV	Overflow
54	1	DLY	Delay
54	2	CDA	Customer Data Accumulator
54	4	PDT	Prohibit Terminating Disconnect Timing
55	1	FCA	Flash for City of Origin Announcement
55	2	60A	60A CPS Console
56	4	MBL	Mobile
57	1	MSG	Message Detail
57	2	ITQ	Inhibit Trunk Queuing
57	4	INF	Inflow
58	4	IDB	INWATS Data Base DN Indicator
59	1	IWD	INWATS Directory Number
59	2	TLI	Transmission Loss Insertion
59	4	BIS	Busy Idle Status
60	4	ARQ	Permit Access to Restricted Queue
61	2	DDT	Distinctive Ringing and Call Waiting Tone
64	1	CSR	Customer Station

			Rearrangement
64	2	IAS	Inactive Line Feature
64	4	AGLI	Agent Login
65	1	UTD	Usage Sensitive Three-Way Calling
65	2	TIC	Test Interexchange Carrier
66	1	MWI	Message Waiting Indicator
66	2	TLDN	Temporary Local Directory Number
66	4	SDN	Second Local Directory Number
67	4	HMI	Home Intercom
68	1	CEK	Centrex Electronic Key
68	2	CCPIC	Customer Changeable PIC
68	4	CWC1	City Wide Centrex
69	1	PAS	Project Accounting Service
69	4	SAN	Special Access Number Indicator
70	1	VDP	Voice Data Protection
70	2	RDF	Residential Data Facility Pooling
70	4	SVP	Single Line Variety Package
71	1	MSC	Message Service Center
71	2	VMW	Visual Message Waiting

Figure 2 LDMAP SYSTEM DESCRIPTION 1107 TYPE 0 NO5E

1107 TYPE	FEATURE ACRONYM	FEATURE NAME
02	MSN	Master Scan Point Number
03	SDN	Signal Distributor Number
04	PBX-MBK	PBX Make-Busy Keys
07	CTS	Cellular Telephone Service
10	OSI	Open Switching Interval
11	AIOD	AIOD Index
12	CGA	Carrier Group Alarm
13	GSAN	Ground Start Applique Number
14	EBN	External Billing Number
17	PNBDN	Public Network Billing Directory Number
20	PMBKEYS	Position Make-Busy Key
21	PREF-MLH	Preferential Multi-Line Hunting Lists
22	SFG-POTS	Simulated Facilities Group - POTS
24	TLG	Traffic Line Group
25	DALTNN	Direct Access Line - Trunk Network Number
27	AGT-MBK	Agent Make-Busy Key
28	INH-INTR	Inhibit Intraflow Key - AQTL Queue
29	NITE-KEY	Local Night Transfer Key
30	SDA	Signal Digit Analysis
31	INTER-Q	Interflow Queue
32	VDC	Visual Display Code
33	IJK	Inhibit Inflow Key
34	60B	60B CPS Console
35	CLDI	Calling Line Display Index
39	CSDC	Circuit Switching Digital Capability
40	CONS-CI	Console Call Indicator Lamp
42	CILA	Call Indicator Lamp - Attendant Intercept
43	CILN	Call Indicator Lamp - No Answer Transfer
44	CILP	Call Indicator Lamp - Incoming Priority
47	STDN	Satellite Transfer Directory Number
48	CCIL	Call Indicator Lamp - Attendant Conference
50	ACOF	Attendant Control of Facilities
53	CIBP	Call Indicator Lamp - Busy Line Incoming

54	CIBD	Call Indicator Lamp - DID/CCSA Busy Line
55	CIBT	Call Indicator Lamp - Tie Line
56	CIDD	Call Indicator Lamp - Don't Answer
57	CIAP	Call Indicator Lamp - Direct Dial
58	CIDP	Call Indicator Lamp - Priority AUTOVON
59	SFG-CTX	Simulated Facilities Group - CTX
60	RLS	Release Link Satellite
63	TGN-LPS	Trunk Group Busy Lamps
65	DAG	Data Accumulation Group
66	CSDD	Call Store Data Display
67	CDAR	Customer Dialed Account Recording
68	QNS	Queue Number - Split
69	NORG	Split/Reporting Group Size
70	SUR	Surcharge for Hotel/Motel
71	ACMOS	ACMOS for Selected Intercom Calls
72	DLG	Data Link Groups
73	SCRAF-AC	CSRAF Security Authorization Code
74	VML	CSRAF Variable Message Length Channel
75	CSRAF-IV	CSRAF In-Service Verify
77	OTQ1	Outgoing Trunk Queuing
79	CFG	Customer Facility Groups
80	STAR	Silence - Tone - Audible Ringing
81	APCF	AUTOVON Priority Call Forwarding
82	ACS-MDR	Authorization Code Screening
83	DNCI	Dedicated Network Customer Number
84	CFFP-A	Call Forwarding Private Facilities
85	CPUG	Centrex Group to Call Pickup
86	CFFP	Call Forwarding Private Facilities
87	CFFP	Call Forwarding Private Facilities
88	CTX-CI	Centrex Carrier Interconnect
89	CWC1	City Wide Centrex
90	LASS-SL	LASS - Screen List
91	BCLID	Bulk Calling Line Identification
92	BCLID	Bulk Calling Line Identification
93	SCF	LASS- Selective Call Forward
1A	MDS	Message Desk Service
1B	APX-CF	Autoplex 100 Call Forward
1C	TLDN-MIN	TLDN to Mobile Identification Number
1D	ICLID	Individual Calling Line Identification
1G	LSA	Limited Service Area
1J	SCR	Selective Call Reject
1K	SCF	Selective Call Forward
1L	DA	Distinctive Alert
1M	BCLID	Bulk Calling Line Identification
1N	RA	Remote Access Service
1P	APX-PCD	Paging Code Data
1Q	VDP	Voice Data Protection
1U	DN-CTX	DN-CTX Extension Digit Replacement
1V	SCD	Selective Carrier Denial
1W	SCF	Separation of Selective Call Forward

Figure 3 LDMAP SYSTEM DESCRIPTION 1107 TYPE NO5E

SEC. 12: ODA OFF-LINE LARGE TERMINAL GROWTH PLAN

1. GENERAL

This section describes the LTG (Large Terminal Growth) software schedule and the software tools provided by the 5ODA system to grow the ODD (Office Dependent Data). Growth data (non-equipment data) will be added to the existing (dumped) data on an off-line processor at the ODA production facility at either the Network Software Center or Lisle Center 5ESS Switch ODA Production Facility. The ODA off-line process merges the growth and existing data and the complete input forms database processed through mapping and **dbgen**, and delivered to the office site.

This section describes the responsibilities of the Lucent Technologies SEE (System Equipment Engineer) for the large terminal growth procedure. The following steps are necessary to perform the ODD growth:

1. decompile the ODD from binary to ascii base relations,
2. reverse map the dumped data to the existing compatible software release to the ODA input view database,
3. merge the dumped data with the new growth (non-equipment) data,
4. perform the database validity checks, and
5. map the input data into a new machine loadable database.

For 5E6 and later LTGs, an additional optional off-site procedure can be added. Seventeen days of recent changes can be reapplied after the data has been mapped to the final machine loadable format.

The OSDM (Office Software Database Management) organization at NSC monitors the general progress of each office. The success of this off-site processing depends on the timely completion of the LTG schedule requirements. The *final* interval outlined for the off-site processing is a very tight schedule. However, the schedule can be met if each day's objectives are met.

2. LARGE TERMINAL GROWTH REGISTRATION

Before any office can begin off-line growth procedures, the office must be registered in the 5ODA registration system at least 6 weeks prior to the date the preliminary off-site processing is scheduled to begin. The procedure to register a large terminal growth office is the same procedure used to register initial orders. This procedure is described in detail in Division 1, Section 7, *5ODA User's Guide*. After the registration form has been completed and inserted into the registration database, the OSDM organization is automatically notified of the registration and begins initialization procedures. Four logins are set up for each large terminal growth office. One login is provided for the Lucent Technologies SEE. This login is the six character alphanumeric base and control number preceded by *we* (e.g. we1234d0). Two logins are set up for customer use, one is for line (li) error correction (e.g. li1234d0) and the other is for trunk (tr) error correction (e.g. tr1234d0). The support organizations are provided a login which is the office's base and control number preceded by *re* (e.g. re1234d0). This last login is a read-only login to review the office input data. Login procedures are described in Division 1, Section 7, the *5ODA User's Guide*.

3. LARGE TERMINAL GROWTH TAPE REQUIREMENTS

The customer must provide three sets of tapes for LTG,

1. the new bulk data tape,
2. the *Preliminary Dump* tape, and
3. the *Final Dump* tape.

Only one set of tapes is required for the preliminary dump. The final dump requires two sets of tapes of the ODD and ECD. All the tapes are required to be 2400 foot 9-track magnetic tapes. All of the tapes must be labeled with the following information:

- the office name.
- the office base and control number.
- the content of the tape; whether ODD or ECD, and if it is the preliminary dump, the final dump, or the new bulk data.
- the date that the dump occurred (if dump tape).
- the Software Release issue and release of the dump (if dump tape).
- the tape series number of the total number of tapes (e.g. 1 of 5, 2 of 5, etc.).

The new bulk data tapes are sent to the OSDM group located at the Network Software Center. The actual dump of the ODD and ECD from the 5ESS Switch is performed by the customer or Lucent Technologies. The tapes for both the preliminary and final dumps are shipped air express (overnight carrier only) to the OSDM group at the following address:

Send ODD/ECD tapes to:	Send new bulk data tapes to:
Lucent Technologies Network Software Center 2600 Warrenville Rd. Lisle, Illinois 60532	Lucent Technologies Network Software Center 2600 Warrenville Rd. Lisle, Illinois 60532
Attn: 5ESS Switch ODD/ECD	Attn: ODA Tape Processing

The ECD, ODD, and new bulk data tapes are read into the appropriate directory structure on the production computer.

The following sections will detail the processing required for both the preliminary and final office dumps.

4. LARGE TERMINAL GROWTH SCHEDULES

The standard interval for off-line large terminal growth of the ODD and ECD is 5 weeks. This includes the preliminary dump and the final dump of the ODD and ECD.

The time interval for the preliminary dump processing is 3 weeks. The SEE processes the preliminary dump, using manual data entry to remove all Level 1, 2, and 3 errors from the dumped database. The purpose of the preliminary dump is to analyze any database inconsistencies, and to anticipate the amount of error correction required in the final dump.

For 5E5, the final dump is processed within a 12 day interval. For 5E6 and later, the final dump interval is 17 days. The SEE ensures that the daily goals of the software schedule, outlined in the following section, are met.

The following schedule outlines the preliminary and final dump processes showing the time line in weeks and days ending with the Friday night of the on-site large terminal growth.

4.1 Registration, Initialization, Load New Data

An office must first be registered and initialized before any processing of the data.

4.1.1 Week - 13

The SEE registers the office.

4.1.2 Week - 7

1. OSDM initializes the office and the logins on the appropriate 5ODA production machine.
2. A new database is initialized containing only standard non-equipment data. Therefore, all form types are accessible, except those that start with **eq**.
3. When the bulk data tape arrives, the OSDM group loads the tape into the new database using the **readbatch** and **batchload** commands. The **batchload** command ensures that all the data records are marked internally as new data. All data that is manually inserted is also marked as new data.
4. The SEE and the customer then correct any existing errors. The SEE executes the **crosscheck** command to identify any cross check errors in the database, which then must be corrected. All Level 1, 2, and 3 errors are removed from the new database before it is merged with the preliminary dump data.

4.2 Preliminary Dump

A detailed LTG schedule can be viewed on the 5ODA PSS (Production Scheduling System). This schedule is automatically generated in PSS based on the on-site LTG date. The OSDM will provide instructions on how to access the PSS data if needed. All preliminary dump processing is the responsibility of the SEE. The time interval for the preliminary dump processing is 18 days and should be concluded 2 weeks prior to the on-site large terminal growth date.

4.2.1 Week - 5

1. The customer dumps the ODD and ECD on separate tapes and duplicates them. (The ECD dump is needed to determine the office VTOC (Volume Table of Contents)). The tapes are sent to the OSDM group which is located at the Lisle 5ESS Switch Production Facility.
2. OSDM loads the tapes onto the appropriate 5ODA production machine.
3. The **readdump** command reads the dump tapes onto the processing machine.
4. Following a successful **readdump**, the **revdbgen revmapping** process is automatically submitted to decompile the ODD and recover the dumped data to existing compatible software release version of the 5ODA input forms. This process automatically generates a file of base relation cross checks (**basecheck**).
5. The SEE uses the **crosscheck** command and manual data entry to remove all errors from the preliminary dump database. The data must be free of all Level 1, 2, and 3 errors prior to merging with the new growth data.

6. The SEE then contacts OSDM to have the new growth data added to the preliminary office dump. OSDM uses the **merge** command to merge the new data with the data from the preliminary dump to create the preliminary merged database.
7. During the merge, duplicate records may be produced. These records will not be inserted into the merged database. The duplicate records are saved in the **prntfiles** directory where the SEE and the 5ODA Customer Technical Support can review them.
8. The SEE uses the **crosscheck** command and manual data entry to remove all errors from the preliminary merged database.
9. Base relation cross checks (**basechecks**) are analyzed by the 5ODA Customer Technical Support, and they determine if the update should be applied on-site before the final dump is made.
10. The SEE reviews the analysis report, which is automatically generated during the preliminary data dump processing, to ensure that the office has enough memory.
11. OSDM prepares the preliminary dump database for the final office dump using the command **finalgrow**. The office records in the **prntfiles** directory are saved in the **preprntfiles** directory. All other data from the preliminary dump is removed.
12. This completes the preliminary processing.

4.3 Final Dump

The following steps occur in the 12 day (5E5) or 17 day (5E6 and later) interval prior to the on-site LTG. Any differences between schedules for 5E5 and 5E6 and later are noted for the specific step.

4.3.1 Week - 2 Tuesday (5E5)

Week - 3 Friday (5E6 and later)

1. The final office dump, which was performed on the preceding Monday for 5E5 or the preceding Wednesday for 5E6 and later, must arrive at the Lisle 5ESS Switch Production Facility by 9AM Tuesday (5E5) or Friday (5E6 and later). The OSDM group loads the final dump tapes using the **readdump** command. The reverse process, **revdbgen** and **revmapping**, is then executed. The process decompiles the dumped ODD, automatically performs base relation crosschecks, and automatically runs Level 1 and Level 2 error checks.

4.3.2 Week - 2 Wednesday (5E5)

Thursday (5E6 and later)

1. When these processes have completed successfully, the final dump database is opened up to the SEE for error correction. The SEE uses the **crosscheck** command and manual data entry to remove all Level 1, 2, and 3 errors from the database.
2. The SEE uses the **crosscheck** command and manual data entry to remove all Level 1, 2, and 3 errors from the new growth data. The new data must be free of all Level 1, 2, and 3 errors prior to merging with the final dump database.
3. The SEE contacts 5ODA Customer Technical Support to have the new growth data added to the final

office dump. Both the final dump database and the database containing the new data must be free of Level 1, 2, and 3 errors. OSDM use the **merge** command to merge the new data with the data from the final dump to create the merged database.

4. During the merge, duplicate records may be produced. These records are not inserted into the merged database. The duplicate records are saved in the **prntfiles** directory where they can be viewed by the SEE and the 5ODA Customer Technical Support.

4.3.3 Week - 2 Friday (5E5)

Saturday (5E6 and later)

1. The SEE uses the **crosscheck** command and manual data entry to remove all errors from the merged database.
2. The merged database must be error free by noon Saturday when it will be frozen. Once the database is frozen, the SEE executes the **mapping** and **dbgen** commands which map the data into 5ESS Switch base relations and generates the new ODD. This large processing routine requires the weekend to process so that the large terminal growth schedule can be met.
3. The office records are generated.

4.3.4 Week - 1 Monday

1. The **mapping** and/or **dbgen** problems are resolved by Monday morning. 5ODA Customer Technical Support reviews the results of the **dbgen** command.

For 5E6 or later, the customer can apply the last 17 days of recent changes to the ODDs. The Recent Change log file is electronically transferred from the 5ESS Switch site to the Lisle Center 5ESS Switch ODA Production Facility via SCANS (Software Change Administration and Notification System). The RC log file is first transferred from the switch to a SCANS machine by Lucent Technologies SUMS (Software Update Management System) personnel. It is then automatically transferred to the 5ODA production machine for **offrcr** command processing. If the **dbgen** command has completed successfully, the **moverscan** process automatically submits **offrcr**.

2. The OSDM group executes the **maketape ldft** command to generate the new ODD tapes. They also produce the hard copy listings of the office records and the functional listings. One copy of each is mailed to the site along with the ODD tape(s). A tape of the office records and functional listings is sent to the SEE responsible for the office.

4.3.5 Week - 1 Tuesday

1. After tape verification, the ODD tape(s) are transferred from Lisle Center 5ESS Switch ODA Production Facility to the Network Software Center for packaging and shipping preparation.
2. For offices that have run **offrcr**, the OSDM generates a hard copy listing of the recent changes which were *not* reapplied to the ODD. The OSDM also generates a hard copy listing of the recent changes which were successfully reapplied to the ODD. Both of the above items are mailed back to the site along with the ODD tape(s), office records, and functional listings.

4.3.6 Week - 1 Wednesday:

1. OSDM packages and ships 2 copies of the merged ODD tape(s), 1 copy of office records, and 1 copy of the functional listing to the site. In addition to the above items, for 5E6 and later LTGs, OSDM packages and ships 2 copies of the failed recent change listing and 1 copy of the successfully reapplied recent change listing.

4.3.7 Week - 1 Friday:

1. On-site large terminal growth occurs.

5. SPECIAL NOTES

The above schedule is critical to the success of each large terminal growth. It is the System Equipment Engineer's responsibility to ensure that these dates are met. The dates listed above for data entry, database evolution, input form crosschecks, **mapping** and **dbgen**, and **offrcr** for 5E6 and later are the *latest* dates possible to guarantee a timely ODD delivery. If these benchmarks are met earlier, this helps to ensure the timely delivery of the ODD and the merged database to the site.

SUMMARY OF LTG PROCEDURE (5E6 and Later)		
Week From LTG Date	Day	Action
Week - 13		SEE registers office.
Week - 7		1) Initialize offices on production machine; 2) load new bulk data; 3) analyze level 1, 2, and 3 errors on the new data.
Preliminary Dump		
Weeks - 5 & - 4		1) Read in preliminary dump tapes; 2) decompile ODDs to input forms; 3) analyze and clean level 1, 2, and 3 errors from dumped data; 4) merge new growth data to dumped data; 5) analyze duplicate records; 6) analyze and clean level 1, 2, and 3 errors from merged data; 7) review "analysis" report for memory size; 8) OSDM prepare for final dump.
Final Dump		
Week - 3	Fri	1) Read in final dump tapes; 2) decompile ODDs to input forms.
Week - 2	Wed-Thur	1) Clean level 1, 2, and 3 errors on dumped data; 2) clean level 1, 2, and 3 errors on the new data; 3) merge the new growth data to the dumped data.
Week - 2	Fri-Sat	1) Clean level 3 errors on merged data; 2) map error free input forms to new base relations; 3) submit dbgen to build new ODDs; 4) generate office records.
Week - 1	Mon	1) Receive RC log file; 2) apply log file to new ODDs; 3) generate new ODD tape.
Week - 1	Tue-Wed	1) Generate new ODD tapes; 2) generate RC reports, office record, and functional listing.
Week - 1	Wed-Thur	1) Tape verification; 2) ship tapes and listings.
Week - 1	Fri	On-site large terminal growth.

Figure 1 SUMMARY OF LARGE TERMINAL GROWTH SCHEDULE (5E6 AND LATER)

SEC. 13: ODA OFF-LINE RETROFIT PLAN

1. GENERAL

This document presents the scheduling plans and procedures necessary to successfully perform an off-line retrofit of a 5ESS Switch ODD and ECD. It is written for the Lucent Technologies Systems Equipment Engineer and explains the software tools provided by the 5ODA system to perform the ODD and ECD retrofit.

The success or failure of a scheduled 5ESS Switch office retrofit and a subsequent office growth, depends on the delivery of the ODD and ECD at the time dictated by the procedures enclosed. The SEE (Systems Equipment Engineer) is responsible for execution of the retrofit data generation procedures. The SEE must insure that data error corrections are valid and applied to the database within the time constraints.

This document describes the current retrofit software schedule and software tools provided by the 5ODA system to retrofit the ODD (Office Dependent Data) and the ECD (Equipment Configuration Data) from one version of the 5ESS Switch Software Release to another. These databases are retrofitted on an off-line processor at the 5ODA production facility located at the Lisle Center 5ESS Switch ODA Production Facility or the Network Software Center in Lisle, Illinois.

The goal of these retrofit procedures is to upgrade office databases (ODD and ECD) to a new software release load. To retrofit an office to a new software release, the ODD and ECD must be reformatted. The physical structure of ODD and ECD is typically not upward compatible with the new release of the software.

1.1 Command Steps For ODD Retrofit

The following are the command steps necessary to perform the ODD retrofit:

- decompile the ODD from binary to ASCII base relations,
- cross check the decompiled base relations,
- reverse map the dumped data to the compatible existing software release of the ODA input view data base,
- evolve the ODD and ECD to the new software release compatible format,
- correct any inconsistency in the input database,
- perform the input view database validity checks, and
- map the input data into a new machine loadable database.
- In addition, seventeen days of recent changes will be reapplied after the data has been mapped to machine loadable format.

The OSDM (Office Software Database Management) organization at NSC monitors the general progress of each retrofit. The OSDM is responsible for filing a formal "jeopardy" report if a retrofit postponement is possible because processing is behind schedule. A postponed retrofit effort may cause a slip of several months and will require the entire retrofit process to begin again. This includes re-negotiation with the customer, scheduling of a new retrofit date, re-dumping the ODD/ECD, re-analysis of the new dumps by 5ODA Customer Technical Support, the re-application of error correction by the Systems Equipment Engineer and computer processing. Therefore, every effort must be made to keep a retrofit on schedule.

The "final" 17 day interval for retrofits outlined for the off-site processing is a very tight schedule. Experience has shown that this schedule can be met, if the Systems Equipment Engineer responsible for the retrofit strictly adheres to each day's objectives.

2. RETROFIT REGISTRATION

Before any office can begin retrofit procedures, the office must be "registered" in the 5ODA registration system at least 4 weeks prior to the date the off-site processing at NSC is scheduled to begin processing. The procedure to register a retrofit office is the same procedure used to register initial orders. This procedure is described in detail in Division 1, Section 7, "The 5ODA User's Guide". After the registration form has been completed and inserted into the registration database, the 5ESS Switch Software Production Organization is automatically notified of the new registration and begins initialization procedures. Four logins are set up for each retrofit office. One login is provided for the Lucent Technologies System Equipment Engineer. This login consists of a six alphanumeric base and control number preceded by 'we' (e.g. we1234d0). Two logins are set up for customer use for line and trunk error correction (e.g. li1234d0 and tr1234d0). The fourth login consisting of the office's base and control preceded by 're' (e.g. re1234d0) is a read-only login for the support organization to review the office input data. Login procedures are described in the Division 1, Section 7.

3. RETROFIT TAPE REQUIREMENTS

The customer dumps the ODD and ECD onto a tape five weeks prior to the retrofit and again 17 days before the actual retrofit. The first data dump is the "Preliminary Dump" and the second data dump is the "Final Dump". The preliminary dump requires one set of dump tapes, while the final dump requires two sets of dump tapes. The dump tape for the ODD and ECD must be a 2400 foot 9-track magnetic tape. Tapes must be labeled with the following information:

- the office name,
- the office base and control,
- the content, whether ODD or ECD, preliminary or final dump,
- the date dump occurred,
- the Software Release type, issues, and release of the dump, and
- the tape series number (e.g. 1 of 5, 2 of 5, etc.).

The actual dump of the ODD and ECD from the 5ESS Switch is performed either by the customer or Lucent Technologies. Tapes for preliminary and final dumps are shipped air express (overnight carrier only) to the Office Software Database Management group at the following address:

Lucent Technologies
Network Software Center
2600 Warrenville Rd.
Lisle, Illinois 60532

Attn: ODA Tape Processing

The ECD/ODD tapes are read into the appropriate 5ODA production machine. The Systems Equipment Engineer responsible for the retrofit is notified by the Office Software Database Management group on which production machine the retrofit will be processed.

4. RETROFIT SCHEDULES

The standard interval for off-line retrofit of the ODD and ECD is 5 weeks. This includes the preliminary dump and the final dump of the ODD and ECD.

The time interval allowed for the preliminary dump processing is 3 weeks. The Systems Equipment Engineer is responsible for the processing of the preliminary dump. After the ODD is decompiled, base relation inconsistencies are identified and analyzed by 5ODA Customer Technical Support. Most problems are corrected by the SEE and customer at the input form level. Recent Change updates and/or overwrites to the live switch will be determined if absolutely necessary, on a case-by-case basis, by the 5ODA Customer Technical Support group. The purpose of the preliminary dump is to analyze any database inconsistencies, identify data to be corrected on switch before final dump, and to anticipate the amount of error correction required in the final dump.

The time allowed for the final dump is 17 days. The Systems Equipment Engineer assigned to the retrofit is responsible for insuring that the schedule outlined in this section is met. The final dump period is a tight schedule. Experience has shown that the schedule can be met if the daily goals are met.

Note that non-standard database configurations are not supported. 5ODA only rebuilds to standard data conditions.

The following schedule shows the time line in weeks and days prior to the Friday night retrofit date.

Week -10:

The SEE registers the office.

Week -7:

OSDM initializes the logins and office on the appropriate 5ODA production machine. A report is sent electronically to the SPOC (Single Point of Contact) at the region identifying the production machine on which the office will be processed.

4.1 The Preliminary Dump

After the registration, a detailed day-by-day retrofit schedule may be viewed on the 5ODA PSS (Production Scheduling System). The daily benchmark dates are automatically generated in PSS based on the date of the on-site retrofit. Contact the Office Software Database Management organization at NSC for instructions on how to access the PSS database. All preliminary dump processing is the responsibility of the Systems Equipment Engineer.

The following procedures begin 5 weeks prior to the actual on-site retrofit and complete 2 weeks before the on-site retrofit.

Week -5:

1. The customer dumps the ODD and ECD to tape(s). The tapes are sent to the OSDM located at the Lisle 5ESS Switch Production Facility.
2. OSDM loads the tapes onto the appropriate 5ODA production machine.
3. Following a successful **readdump**, the **revdbgen revmapping** process is submitted automatically to decompile the ODD and recover the dumped data to the existing compatible software release version

of 5ODA input forms. This process automatically generates a file of base relation cross checks via the **basecheck** command.

4. The base relation checks, **basecheck** are analyzed by 5ODA Customer Technical Support. The Customer Technical Support determines whether or not the Recent Change update will be applied on-site before the final dump is made. This listing may be viewed by executing **listf basecheck**.

The SEE should analyze all Level 1, Level 2, and Level 3 errors that exist in the new target software release input view database. The commands used are **errforms**, **de**, and **crosscheck**.

1. Review "analysis" to insure the office has enough memory.

This completes the "preliminary" processing.

4.2 The Final Dump

The following steps occur within the 17 day interval before the on-site retrofit is to occur. All command execution and data correction is performed by the SEE. The steps are broken down by day.

- **NOTE:** The objective for each day must be strictly adhered to or the retrofit date may be jeopardized.

Week -3 Friday:

1. The final dump of the ODD and ECD, which was performed the preceding Wednesday, must arrive at the Lisle 5ESS Production Facility by 9AM on Friday, Week -3. The customer must send two sets of final dump tapes.
2. OSDM loads the tapes on the appropriate 5ODA production machine.
3. Following a successful **readdump** the **revdbgen revmapping** is automatically submitted to decompile the ODD and recover the dumped data to existing software release compatible version of 5ODA input forms. This process automatically generates base relation cross checks (**basecheck**).
4. 5ODA Customer Technical Support analyzes the base relation crosscheck errors generated as part of the reverse mapping process. These errors are then analyzed against the error listing from the preliminary dump. If there are differences, the SEE and/or the customer will be contacted if needed.
5. Following a successful reverse mapping the office is automatically evolved to the new software release input database. The process automatically runs Level 1 and Level 2 error checks. The output of the error check run may be viewed by executing **listf errforms.EVL**

Week -2 Monday:

1. The new software release ODA input database is open and available for Level 1, Level 2, and Level 3 error correction. Both the SEE and the customer use
 - the **de** command to perform data entry,
 - the **errforms** command to generate Level 1 and Level 2 error listings, and

— the **crosscheck** command to generate listings of Level 3 errors and to freeze the database.

1. The **thaw** command is used if more data entry is needed. At this time some input forms may be locked due to the sensitivity of the data.

NOTE: Only error correction may be done. **NO GROWTH DATA IS ALLOWED.**

This data entry window is available Wednesday through Friday and must be strictly adhered to, or the retrofit date may be in jeopardy.

Week -2 Saturday:

1. By Saturday morning, the input database must be totally error free and frozen.
2. The SEE executes the **mapping** command before 5 P.M. on Friday. The **mapping** command maps the input data into 5ESS Switch base relations to generate the new ODD.
3. The ECD is evolved by the **evolecd** command that is automatically called from the **mapping** command.
4. The SEE executes the **records every** command to generate a complete list of office records.

Week -1 Sunday:

1. 5ODA Customer Technical Support reviews the mapping output and submits **dbgen**.

Week -1 Monday:

1. **Mapping** and/or **dbgen** problems are resolved by Monday morning. 5ODA Customer Technical Support reviews **dbgen** results.
2. The customer can apply the last 17 days of recent changes to the new ODDs. The Recent Change log file is electronically transferred from the 5ESS Switch site to Lisle Center 5ESS ODA Production Facility via SCANS (the Software Change Administration and Notification System). The RC log file is first transferred from the switch to a SCANS machine by Lucent Technologies SUMS (Software Update Management System) personnel. It is then automatically transferred to the 5ODA production machine for **offrcr** processing. If **dbgen** has completed successfully, the **moverscan** process will automatically submit **offrcr**.

Week -1 Tuesday:

1. OSDM generates the merged ODD and ECD tape.
2. If an office has run the **offrcr** process, OSDM generates a hard copy listing of successful and non-successful Recent Changes applied to the ODD. The Recent Changes that were not successful are placed on the ODD/ECD tape to be used on site in the post-**offrcr** process the night of the retrofit.
3. OSDM generates hard copy listings of the office records, functional listing, and **offrcr** reports. One copy of each is mailed to the site along with the ODD/ECD tape(s).

Week -1 Wednesday:

1. After tape verification, the ODD/ECD tape(s) are transferred from the Lisle Center 5ESS Switch ODA Production Facility to the Network Software Center for packaging and shipping preparation.
2. OSDM packages and ships 2 copies of the merged ODD/ECD tape(s), 1 copy of office records, 1 copy of the functional listing to the site. For offices that used the **offrcr** process, OSDM packages and ships 2 copies of the failed recent change listing and 1 copy of the successfully reapplied recent change listing.

Week -1 Friday:

1. On-site retrofit occurs.

5. SPECIAL NOTES

It is important to note that the above dates are critical to the success of each retrofit. It is the Systems Equipment Engineer's responsibility to ensure that these dates are met. The dates listed above for data entry, database evolution, input form crosschecks, **mapping** and **dbgen**, and **offrcr** are the *latest* dates possible to guarantee ODD delivery. These benchmarks, *if met earlier*, will help ensure the timely delivery of the ODD/ECD to site.

If there is a data problem that cannot be resolved, the entire retrofit process will be postponed until a correction is found and implemented. All parties involved in each off-line retrofit of ODD/ECD (Software Production, SEE, 5ODA Customer Technical Support, and customer) must provide off-hours support, if needed.

The following table summarizes the retrofit schedule.

SUMMARY OF RETROFIT SCHEDULE		
Week From Retrofit Date	Day	Action
Week -10		SEE registers office.
Week -7		Initialize offices on production machine.
Preliminary Dump		
Weeks -5 & -4		1) Read in preliminary dump tapes; 2) Decompile ODDs to input forms; 3) Evolve input forms to new software release; 4) Analyze level 1
Final Dump		
Week -3	Fri	1) Read in final dump tapes; 2) Decompile ODDs to input forms; 3) Evolve input forms to new software release.
Week -2	Mon-Fri	Clean level 1
Week -2	Fri-Sat	1) Map error free input forms to new base relations; 2) Evolve ECD; 3) Generate office records.
Week -1	Sun	1) Verify mapping output; 2) Submit dbgen to build new ODDs.
Week -1	Mon-Tue	1) Receive RC log file; 2) Apply log file to new ODDs.
Week -1	Tue-Wed	1) Generate new ODD/ECD tapes; 2) Generate RC reports, office record, and functional listing.

Week -1	Wed-Thur	1) Verify tape; 2) Ship tapes and listings.
Week -1	Fri	On site retrofit.

Figure 1 SUMMARY OF RETROFIT SCHEDULE

DIV. 2: FEATURES

SEC. 1: GENERAL FEATURES

SEC. 1A: CHARGE-A-CALL

1. FEATURE DESCRIPTION

The Charge-A-Call feature allows a customer to use a special coinless public telephone, instead of the conventional coin station, to make calls not requiring a coin deposit. Only those calls that do not require a coin deposit are allowed from a Charge-A-Call station. Failure Treatment is given on calls that require a coin deposit.

The only calls allowed from a Charge-A-Call station are those not requiring a coin deposit. These calls are of the following types:

- 0- - Dial zero for operator
- 0+ - For customer-dialed toll calls which require TSPS operator assistance
- 01+ - For customer-dialed international calls
- 010 - For calls to the overseas operator
- (1+)800+XXX+XXXX - For toll-free INWATS calls
- (1+)555+XXXX - For Directory Assistance within the local area code
- (1+)NPA+555+XXXX - For long distance Directory Assistance
- N11 - For calls to local Directory Assistance, Emergency Service Bureau, etc.

The Charge-A-Call feature using a CLASS OF SERVICE of "CHGCALL", defined on the LCC form (5306 Record) will not generate an AMA (Automatic Message Accounting) record for the owner of the public phone. The customer using the public phone will be billed directly.

Customer owned coin phones are able to originate 1+ 10-digit calls when a CLASS OF SERVICE of "CHGCALL" is defined on a LCC form and "Y" is entered in the ANI7 field of the LINE form (5109 Record). 1+ 7-digit calls are not affected by the ANI7 field. ANI7 calls from a CLASS OF SERVICE of "CHGCALL" are only for 1+ 10-digit calls with a prefix of one or none. An AMA record will not be generated for the owner of the coin station.

A special software routine is used when ten-digit calls (excluding prefix) are originated by a customer with a Charge-A-Call Class Of Service. If the Call Type on the LDIT form (5300-3 Record) is "NORMAL", then the digits 4, 5 and 6 are checked. If they are 555, then the call is allowed to continue. If not, then the prefix dialed is checked. Only 0+ calls are allowed to continue. If a Normal ten-digit call is not (1+)NPA+555+XXXX or is not dialed with a 0+, the Fixed Route type of "CAC" is checked to determine how to terminate the call. This is typically an announcement instructing the customer to place the call from a coin station. This special software routine was designed to allow the long distance Directory Assistance calls without requiring the 5ESS owner to build these digits out in digit analysis.

Other disallowed calls originated by a Charge-A-Call customer must be failed through entries on the RAR form (5301 Record). Calls that are inappropriate for this class of customer should have the Route Index entered that is associated with the failure treatment designated by the Fixed Route Type, CAC, (e.g., the special announcement).

Free calls are allowed by appropriate Route Index entries on the RAR form. The majority of calls permitted

from this class of customer will be 0+ and destined for the TSPS operator. These calls require the TSPS Route Index entry.

If the call is allowed from the Charge-A-Call station, it is processed as a normal POTS call. If the call required TSPS handling, an information digit 7 is outpulsed to inform the TSPS to do further screening on the call. If the call does not require a coin deposit, TSPS processes the call. If a deposit is required, the TSPS operator tells the customer to place the call from a coin station.

2. TRANSLATION REQUIREMENTS

2.1 ROUTING AND CHARGING TRANSLATIONS

LCC form (5306 Record) - Enter CHGCALL in the Class Of Service field.

FIXRT form (5301-1 Record) - Build Fixed Route Type, CAC. Normally, a Route Index, which must be defined on the RTIDX form (5303 Record) will be entered so this condition will route to a special announcement.

RAR form (5301 Record) - Enter the appropriate Route Indexes on the table associated with this Class Of Service to route the call to announcement (for calls not allowed), to a Regular Route Index (for free calls that are allowed such as N11, INWATS and long distance Directory Assistance), or to a TSPS Route Index (for nonfree, allowable calls).

SEC. 1B: DIVISION OF REVENUE

1. FEATURE DESCRIPTION

The DOR (Division of Revenue) feature provides the capability of performing Separation Studies of incoming and outgoing calls. For traffic separations purposes, every incoming or originating call is assigned an INSEP (Incoming Separation Class) and a DESEP (Destination Separation Class). INSEP/DESEP assignment is based on the following criteria:

- Geographical area in which the trunk or line originates,
- Ownership
- Service Class or domain of the originator,
- Type of traffic (e.g., toll, EAS, or local exchange).

The INSEP and DESEP of a call ultimately determine the appropriate accumulating counters to be updated. There is a maximum of 256 INSEPs and 256 DESEPs, therefore 65,536 possible pairs. Each pair may update more than one counter, thus, intermediate counters are used.

The INSEPs and DESEPs are used as indexes into a matrix. Each matrix element, called a cell, contains a pointer to one intermediate counter or cell grouping, which should be updated.

Every call through the 5ESS Switch is recorded in the DOR cell group report. CELL GROUP 0 has always been used as a default cell group for calls that are not applicable to DOR (i.e. busy, reorder, permanent signal, vacant code etc). However, calls with translation problems were also defaulted to cell group 0.

For 5E7 and later, to separate the calls that had translation problems from the calls that are not applicable to DOR, each call is initialized to the following "switch defaults":

INSEP of 63
DESEP of 63
CELL GROUP of 1023.

If a call is not applicable as a DOR call then the call is recorded in the switch default CELL GROUP 1023 or Cell Groups translated with a INSEP/DESEP value of 63, and all translational problem calls are recorded in default CELL GROUP 0.

INSEP/DESEP values of 0 and 63 should not be assigned. An INSEP and DESEP of 0 is used whenever INSEP and/or DESEP is not provided by the line, trunk, or routing translations. The INSEP and DESEP of 63 and a CELL GROUP of 1023 are Switch defaults which are used for calls that are not applicable to DOR.

CELL GROUP 0 is the default cell group. Valid DOR calls not assigned an INSEP and/or DESEP value use INSEP/DESEP 0.

CELL GROUP 1023 is the Switch default cell group. When a call that is not applicable to DOR, the Division of Revenue CELL GROUP 1023 collects the data.

CELL GROUPs translated with DESEP values of 63 include calls routed to a permanent signal, because a call to permanent signal never receives a digit with which to read the database for a DESEP value. A switch default INSEP and DESEP value of 63 is used for non DOR calls, because these calls do not use the INSEP or DESEP database values.

The intermediate results contained in the cell groupings are periodically accumulated into SSR (Separations Summarization Registers). The translations from cell grouping to summary register is a mapping function. This mapping, the mapping from INSEP/DESEP pair to cell grouping and the INSEP/DESEP assignment process, are generated by a Division of Revenue administrator.

Division of Revenue measurements can be classified according to the studies in which they are included. There are three types of traffic Separations Studies:

1. monthly studies
2. periodic studies
3. special separations studies

Monthly studies are performed for either a 120 or a 168 hour period during the first or second week of each month. In most cases, a monthly study only includes Peg Counts.

Periodic studies are performed approximately every three years. These studies include the measurements taken monthly as well as additional measurements. Both Peg and Usage Counts are taken for all measurements included in a periodic study.

Special separations studies may be performed occasionally to collect office separations data not normally found in Division of Revenue reports. This type of study temporarily assigns SSRs for special measurements. The special separations mappings are either substituted for or added to the mappings described above.

Division of Revenue measurements are not taken continuously. Furthermore, the frequency and content of DOR reports may change according to the DOR configuration.

The 5ESS Switch provides the flexibility required for the different studies and counts through options set during the ODA process on the OFCOPT form (5509 Record), or through Recent Change.

The master Division of Revenue input turns on the mechanisms of traffic separations. There are no timing mechanisms for automatic control.

A frequency field input determines whether reports will be generated on an hourly basis. Twenty four hour reports are generated regardless of this entry.

A content field input signifies whether peg only, usage only, or peg and usage reports are being generated. The frequency and the content input are mutually independent of each other. Neither is activated if the master Division of Revenue is inactivated.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
IDDD	5307	3	3T	9.6
INDIT	5309	3	3V	9.5
LCC	5306	3	3S	4.1
LDIT	5300-3/5	3	3C	9.3
OFCOPT	5509	3	5I	8.1 8.15
PDIT	5300-2	3	3B	9.2
TKGRP	5202	3	2A	5.1
TRFSEP	5308	3	3U	8.4

2.1 TRUNK TRANSLATIONS

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). For incoming and two-way Trunk Groups which require traffic separations studies, enter an INSEP to indicate Incoming Separation Class.

2.2 ROUTING AND CHARGING TRANSLATIONS

IDDD form (5307 Record) - This form is used for IDDD (International Direct Distance Dialing) Country Access Codes. Enter DESEP to indicate Destination Separation Class.

INDIT form (5309 Record) - This form is used to define the initial digit analysis and subsequent treatment of impulsed digits from all incoming and two-way trunks based upon the initial digits received. Enter DESEP to indicate Destination Separation Class for those entries where LDIT is not used for additional digit analysis but the call passes directly to the ESS 5301 Record, RAR Form.

LCC form (5306 Record) - This form is used to define the Line Class Codes. Enter INSEP to indicate Incoming Separation Class (classification for call originations from this class of customer) and DESEP to indicate Destination Separation Class (classification for terminations to this class of customer).

LDIT form (5300-3/5 Record) - This form is used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Enter DESEP to indicate Destination Separation Class for appropriate Call Types.

PDIT form (5300-2 Record) - The purpose of PDIT is to provide information defining feature and operator access and to provide prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). Enter DESEP to indicate Destination Separation Class for terminations on Call Types OPER and IDDDOPR.

TRFSEP form (5308 Record) - This form defines the Cell Groupings associated with INSEP/DESEP pairs. Enter each possible combination of INSEPs and DESEPs that have been assigned. Each combination requires a cell grouping.

2.3 MISCELLANEOUS TRANSLATIONS

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. Make the appropriate entries for Division of Revenue fields; ACTIVATE DIV OF REV?, DIV OF REV HOURLY RPTS? and DIV OF REV COUNT TYPES?

3. GLOSSARY

DESEP	Destination Separation Class
DOR	Division of Revenue
INSEP	Incoming Separation Class
SSR	Separation Summarization Registers

SEC. 1C: REMOTE STAND-ALONE CALL PROCESSING

1. FEATURE DESCRIPTION

This feature provides the capability for a Remote Site to continue limited call processing while in the Stand-Alone state.

For 5E2 and later Software Releases the Remote Site enters the Stand-Alone state when it loses its communication or functionality with either the AM (Administrative Module) or its host Switching Module, or both.

The telephone company may purchase this feature on an individual RSM/ORM/TRM basis. The EQIM form (5700 Record) contains the indication STAND ALONE for each RSM/ORM/TRM. If the feature is not purchased for a Remote SM, and it loses the communication link with the host office, all calls originated at that RSM/ORM/TRM will be routed to reorder tone.

1.1 Remote Stand-Alone Billing

An RSM/ORM/TRM which has Stand-Alone Purchased may optionally be provided with Stand-Alone Billing. This feature may also be purchased on an individual RSM/ORM/TRM basis and is indicated on the EQIM form (5700 Record). Stand-Alone Billing provides the capability for the RSM/ORM/TRM to retain AMA call record information in the Switching Module's memory boards while it is in the Stand-Alone state. When the RSM/ORM/TRM resumes linked operation with the host, the billing information which has been saved will be transmitted over the umbilical links to the AM (Administrative Module). The billing records at the AM will ultimately be sent to an AMA teleprocessing system.

1.2 Emergency Calls

If the RSM/ORM/TRM is equipped with this feature, and it enters Stand-Alone state, the RSM/ORM/TRM continues to process intramodule calls. If the call is destined for outside the RSM/ORM/TRM, it first checks its list for emergency number rerouting entered on the EMRNM form (5108 Record). By rerouting these non-RSM numbers to a local number served by the RSM/ORM/TRM, the calls may continue to be processed. The local number may be an FX line to a nearby office which could pass the call to an operator.

Message trunks can be provided at the RSM/ORM/TRM so emergency numbers may be rerouted to a local trunk.

1.3 Global Hunt Group with Local Members

If the call is to a global hunt group which has local members, either lines or trunks, the RSM/ORM/TRM will be initialized at the time it enters the Stand-Alone state so it will only try to terminate to its own members.

1.4 Non-Emergency Non-local Calls

For non-emergency, non-local calls, the Fixed Route Type of "RMSA" is checked for further treatment. Normally, "RMSA" is defined for a Route Index which provides routing to an announcement at a locally provided 13A Recorded Announcement machine. Every RSM/ORM/TRM for which this announcement is desired must have a local member in the announcement trunk group. This trunk group should be designated as Global.

Regular announcement trunk groups, such as vacant code, partial dial, permanent signal, prefix dialing error, etc., which are provided at the host recorded announcement machine will not be accessed during

Stand-Alone Call Processing. These conditions will be terminated as defined by the "RSM/ORM/TRM" Fixed Route Type. The announcement trunk groups typically contain only one member because many subscribers can camp-on and listen simultaneously to the same recording. With a recorded announcement machine located at the remote location of the RSM/ORM/TRM, these regular announcements could be added as another member of the trunk group so they can be utilized during Stand-Alone Call Processing. However, this may not be efficient during normal operating conditions. The hunt sequence on announcement trunk groups is such that calls will terminate equally to all members in the group on a rotating basis without regard to the location of the originating module. Therefore, calls originated at the host will be sent to the RSM/ORM/TRM announcements and vice-versa. If the office has multiple RSM/ORM/TRMs with recorded announcement machines, calls originated in one RSM/ORM/TRM may route through the host and out to another RSM/ORM/TRM to be connected to the announcement. Although this type of call is short duration, the usage on the Umbilical links may not be engineered for this extra capacity.

1.5 Interoffice Trunks as Primary or Alternate Routes

Provisioning interoffice trunks at the RSM/ORM/TRM will allow these trunks to be used as either the primary or alternate route for interoffice calls. During normal linked operation, the primary or alternate routes can be either at the host 5ESS Switch or at the RSM/ORM/TRM. During Stand-Alone operation, calls requiring a primary or an alternate route located at the host 5ESS Switch will be able to bypass these routes to an alternate route located at the RSM/ORM/TRM.

For example, during Stand-Alone, assume that a call originates that is normally routed to a trunk group with no members at the RSM/ORM/TRM. The alternate route for this call, however, is to a trunk group which does have members at the RSM/ORM/TRM. The RSM/ORM/TRM Stand-Alone routing function will try the primary route first, and the call will be routed if a local trunk is available. If not, subsequent alternate routes will be checked to determine if a local trunk (i.e., at the RSM/ORM/TRM) is available.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	RecordNumber	Division	Section	RC View
EQIM	5700	8	2	18.1
EMRNM	5108	3	1H	4.9
FIXRT	5301-1	3	3G	10.1
MLHLN	5111	3	1K	3.2

2.1 Line Translations

MLHLN form (5111 Record) - If Global Multi-Line Hunt Groups include members which have equipment assignments on an RSM/ORM/TRM with Stand-Alone, enter "Y" in the field RSM REROUTE for all members which have Telephone Numbers assigned and have equipment assignments other than the RSM/ORM/TRM.

EMRNM form (5108 Record) - A maximum of ten Telephone Numbers, which under normal conditions would terminate outside the RSM/ORM/TRM, may be entered on this record for each RSM/ORM/TRM. Corresponding entries are made to indicate what local RSM/ORM/TRM number (i.e., equipment assignment on the RSM/ORM/TRM) is to be rerouted to when the RSM/ORM/TRM is in the Stand-Alone state.

2.2 Trunk Translations

If calls to non-local, non-emergency numbers are to be terminated at a recorded announcement during Stand-Alone state, build an announcement trunk group. Each RSM/ORM/TRM which is to utilize the announcement must have its own local trunk member (i.e., equipment assignment on the RSM/ORM/TRM) in the trunk group.

2.3 Routing and Charging Translations

FIXRT form (5301-1 Record) - If any RSM/ORM/TRM has the Stand-Alone Call Processing option, the route type "RMSA" must be defined. Usually it will be associated with a Route Index which is defined on the RTIDX form (5303 Record) and pointing to the announcement trunk group described above.

2.4 Engineering Assignments

EQIM form (5700 Record) - To enable RSM/ORM/TRM Stand-Alone Call Processing, "Y" must be entered in the STAND ALONE field for each RSM/ORM/TRM where it is desired. Also, make the appropriate entry in the field STAND ALONE BILLING.

SEC. 1D: SINGLE MODULE RSM

1. FEATURE DESCRIPTION

This feature is available with 5E1, and later Software Releases, and provides the capability of having a 5ESS SM (Switching Module) remotely located from the host 5ESS and its AM (Administrative Module). This capability extends the features and services to a remote group of customers outside the normal area of the 5ESS Switch Central Office. The Single Module RSM was formerly known as a 5A Remote Switching Module (RSM).

The Multimodule RSM replaces this feature, adding the capability of having from one to four RSMs located within the same site. For more information on Multimodule RSM see the Multimodule RSM feature section in this guide.

The RSM is linked to the host 5ESS Switch via digital transmission facilities known as T1 Umbilical Links. A minimum of four and maximum of twenty Umbilical Links must be provided between an RSM and its host Switching Module. Each umbilical provides one channel for signaling and four of the umbilical links also provide control time slot links to enable communication between the RSM and the host 5ESS Switch. When four control time slot links are provided, two of them are active and two are backup. If the backup control time slots are not deemed necessary, a minimum of two Umbilical Links is supported. The remaining 22 or 23 channels on each T1 umbilical are used for voice paths. The T1 carrier lines terminate at ANN5 DFI (Digital Facility Interfaces) which are part of DLTU (Digital Line Trunk Units) at both the RSM and host Switching Module. All T1 lines used as umbilicals from an RSM must terminate on the same host module. However, not all DFIs on the host Switching Module must be used for umbilicals.

The RSM must be equipped with one or two DLTUs and a FIU (Facility Interface Unit). The DFIs of the DLTU (Digital Line Trunk Units) are linked to the FIU which converts the T1 carrier format to and from the NCT (Network Control and Timing) format used by the RSM processor. The RSM must also be equipped with LU (Line Units) for analog customers and/or DCLU (Digital Carrier Line Units) for integrated SLC-96 customers served by the RSM. Optional equipment for the RSM include a Trunk Unit (which may be used to access an optionally provided 13A Recorded Announcement machine, PBX DID trunks, and Local Test Desk trunks), a Directly Connected Test Unit and a Remote Alarm Unit.

The RSM can be equipped with analog and/or digital trunks for use as interoffice message trunks. These may be incoming, outgoing or two-way, LTOLLCON or TTOLLCON type trunks.

When the Umbilical Links are intact, the RSM processes intra-RSM calls in essentially the same manner as a 5ESS Switching Module processes intramodule calls. However, calls which are interoffice, inter-RSM, RSM-host and threeway calling are routed over the umbilicals to the host.

If interoffice trunks are provided on the RSM, these calls may not be routed over the umbilicals to the host.

If the RSM loses communication or functionality with either the AM (Administrative Module) or its host Switching Module, it enters the Stand-Alone state. The RSM may be optionally equipped for RSM Stand-Alone Call Processing which is described under that title as a Feature in this guide. Without the Stand-Alone Call Processing option, all calls originated at the RSM during Stand-Alone state will be sent to reorder tone.

2. TRANSLATION REQUIREMENTS

2.1 LINE TRANSLATIONS

Individual lines and Multi-Line Hunt Groups are translated similarly to those served by the host except that a

unique set of LENS and/or SLENS are available depending on how the particular RSM is equipped. Typically, the RSM will also have different NXXs from the host which implies a unique set of Telephone Numbers.

MLHG form (5105-1 Record):

If all members of the Multi-Line Hunt Group are served by a single RSM (i.e., they all have equipment assignments, LENS or SLENS, of the RSM), enter the RSM number in the Local RSM Module field. This allows control of the hunting sequence to be determined by the RSM instead of the host, providing more efficient call processing.

EMRNM form (5108 Record):

Used for the reroute of numbers not served by the RSM when communication with the host is lost if the RSM has the Stand-Alone Call Processing option. See the Feature in this guide titled RSM Stand-Alone Call Processing.

2.2 TRUNK TRANSLATIONS

Trunks are not defined between the RSM and its host Switching Module. The linkage required is defined on the RSMLNK form (5517 Record). The DFI (Digital Facility Interface) units on the RSM DLTU (Digital Line Trunk Unit) can be used only for Umbilical Links.

If an analog TU (Trunk Unit) is equipped on the RSM, trunks may be assigned for the following uses:

1. PBX Direct-Inward-Dialing (DID)
2. Local Test Desk (LTD)
3. Announcement, if a recorded announcement machine is provided at the remote location. For more information on Announcement Trunks, see the feature RSM Stand-Alone Call Processing.

Both analog trunks on a TU and digital trunks on a DLTU (Digital Line Trunk Unit) may be assigned as interoffice trunks. These may be incoming, outgoing or two way. Both "LTOLLCON" and "TOLLCON" trunk classes are used as either local or tandem applications. Any of the allowable Address Signal and Start Dial combinations for these trunk classes may be used.

TKGRP form (5202-1 Record):

If all members of the Trunk Group are assigned equipment numbers of a single RSM, enter the RSM number in the Local RSM Module field. This allows control of the hunting sequence to be determined by the RSM instead of the host, providing more efficient call processing.

2.3 ROUTING AND CHARGING TRANSLATION

Typically, the RSM is located in a different Rate Area than the host 5ESS Switch. This then is the major consideration in routing and charging for the RSM, but it is no different than building multiple Rate Areas in a 5ESS Switch that is not host to RSMs.

FIXRT form (5301-1 Record):

The type HOSTSA must be defined for any 5ESS Switch which hosts an RSM. RSMSA must be defined if any RSM has the Stand-Alone Call Processing option.

2.4 MISCELLANEOUS TRANSLATIONS

NOC form (5501 Record):

Any unique NXXs used for RSMs must be defined. However, the 5ESS Switch does not require any information that the NXX is destined for the RSM; the Administrative Module (AM) routes based on the module equipment value and not Telephone Number. In fact, NXXs may be shared among any modules, local or remote, in the 5ESS Switch.

IMINFO form (5510 Record):

Information must be provided on this form as with any other Switching Module in the 5ESS Switch. If a DCTU (Directly Connected Test Unit) is equipped on the RSM, a unique DCTU Route Index must be assigned on this form and defined on the RTIDX form (5303 Record). This Route Index must be associated with a unique Trunk Group of Logical Test Ports of the RSM.

TLWS form (5511 Record):

If a Supplemental Trunk and Line Work Station is provided at the location of the RSM, it would not be considered remote but would have a Local Talk and Monitor Telephone Number.

RALM form (5516 Record):

This record is used to define alarm information unique to the remote location of the RSM.

RSMLNK form (5517 Record):

For each RSM, this form must be used to define the two to twenty Umbilical Links between the RSM and its host Switching Module.

2.5 ENGINEERING ASSIGNMENTS

EQIM form (5700 Record):

Both the RSM and the host Switching Module must be defined as such on this record. For the RSM, NCT Even Link should not be entered but RSM Stand-Alone Purchased? must be answered.

Stand-Alone Billing Purchased? must be answered.

EQRAU form (5705 Record):

Defines the Remote Alarm Unit pack in the O.brc Alarm Unit of the RSM.

EQLU form (5710 Record):

Defines the Line Units of the RSM.

EQLUP form (5711 Record):

Defines the equipage of circuit packs on the Line Units.

EQTU and EQTUP forms (5720 Record):

Defines the Trunk Unit of the RSM with circuit pack equipage if required for access to a recorded announcement machine, PBX DID trunks or LTD trunks.

The circuit pack equipage may also be utilized for interoffice message trunks.

EQDU and EQDUP forms (5730 Record):

Defines the DLTU (Digital Line Trunk Unit) and DFI (Digital Facility Interface) usage for both the RSM and host Switching Module.

EQDS and EQDSP forms (5740 Record):

Defines the Local Digital Service Unit and circuit packs for the RSM. Global Digital Service Units may not be defined on an RSM. The host Switching Module may be defined like any other SM. 5750 Record (EQMSU and EQMSP or EQMMSP Forms) Defines the Metallic Service Unit and pack equipage for either regular or

modular types. Two scan packs and one distribute point pack must be equipped in both Service Groups of the MSU of the RSM to be used for the remote alarm process.

EQDCTU form (5751 Record):

Defines the Directly Connected Test Unit if it is provided at the RSM.

EQPMU form (5752-1/2 Records):

Defines the Precision Measurement Unit associated with the Directly connected Test Unit.

EQFIU form (5753 Record):

Defines the facility Interface Unit of

EQDCLU and EQDCLP forms (5810 Record):

Defines the Digital Carrier Line Unit and circuit pack equipage if the RSM is to serve Integrated SLC-96 customers.

SEC. 1E: FEATURE GROUP A (FGA)

1. FEATURE DESCRIPTION

FGA (Feature Group A) is available with 5E1, Issue 2, Release 3 and later Software Releases, and is a means to provide line-terminated end-to-end interLATA (Local Access and Transport Area) service.

FGA services will be used by InterLATA Carriers who will interface with the FGASO (Feature Group A Serving Office) via FGA lines connected to the Carrier's switch for purposes of originating and/or answering calls on the FGA line. The FGA service may also be utilized for purposes of providing interLATA FX or interLATA private network services. In any case, the calling party accesses the FGA line by dialing its assigned Directory Number.

FGA lines may be denied origination or denied termination but cannot be two party, multiparty, manual, coin, charge-a-call, hotel/motel, or use message registers. FGA lines may be arranged for hunting such as Series Completion or Multi-Line Hunt. Call processing is the same for FGA lines, originating and terminating, as for other lines except that special screening and AMA (Automatic Message Accounting) treatment must be provided.

The type of AMA billing is dependent on whether the FGA line is in the originating or terminating LATA.

In the originating LATA, the calling party dials a Telephone Number which is assigned to the FGA line. The office of this originating party (which may or may not be the FGASO) generates a normal AMA billing record, if required, for calls to the NXX of the FGA line.

At the 5ESS FGASO, the call terminates to the Telephone Number and the 5ESS recognizes that the number is an FGA line (because the line has FGA set to "Y"). When the call is answered by the InterLATA Carrier's switch, an AMA record is generated. The AMA Call Type, FGA Originating LATA, is used and a call code 131 is produced which causes the Billing Directory Number of the FGA line to be entered in the AMA fields of Originating NPA and Originating Number.

Once the InterLATA Carrier answers, it will request additional information (probably by applying second dial tone) from the calling party such as an identification number and the desired Telephone Number. As far as the 5ESS is concerned, the call is in the talking state but it will pass Dual Tone Multi-Frequency digits or tones through to the Carrier as the originating party dials them.

Now the InterLATA Carrier processes the information from the calling party and switches the call over its own network.

The InterLATA Carrier may also use an FGA line to terminate to the called number in the terminating LATA. In this case, the InterLATA Carrier switch originates on an FGA line (recognized by the 5ESS as an FGA because the line is defined with FGA set to "Y"). The InterLATA Carrier then passes the digits of the called number to the 5ESS just like any line customer dialing an originating call.

A special AMA record will be generated on all calls that originate at FGA lines and are answered by the called party. This record, call code 132, is invoked by the line being defined as FGA set to "Y" and is in addition to other AMA records, if any, that would otherwise be generated on the call (e.g., by a Charge Index on the Rate and Route). If the FGA call is to terminate within the same LATA and is routed over the Local Exchange Company's facilities, only one AMA record should be generated. This is the FGA Terminating LATA record, call code 132. Therefore, the Rate and Route should contain a Charge Index set to "FREE" for this kind of call. This requirement indicates that FGA lines must have a Line Class Code that is defined with a unique Screening Index to permit the special routing and charging required on these lines. Local tariffs determine whether FGA calls can terminate to special numbers (e.g., N11 and operator type, 0+) and/or to interLATA

points.

2. TRANSLATION REQUIREMENTS

2.1 LINE TRANSLATIONS

LINE form (5101-3 Record) - Individual lines must have FGA set to "Y". Message Registers may not be assigned.

MLHG form (5105-1 Record) - FGA lines associated with an MLHG are defined on the group level. The MLHG must have FGA set to "Y". Message Registers may not be assigned to the members of the MLHG. All members must have the same signaling type.

2.2 ROUTING AND CHARGING TRANSLATIONS

RAR form (5301 Record) - Determine which Code Index/Prefix combinations should complete to regular routing and which should terminate to an announcement based on local tariffs. Enter the appropriate Route Index. For calls which are allowed to complete to regular routing and terminate within this LATA, enter a Charge Index number which has been defined as FREE. If calls destined for another LATA are allowed to complete, the Charge Index should be the same as used for a POTS line. (This may include Charge Indexes defined as FGBOL and FGDOL with 5E2, Issue 1 and later Software Releases.)

LCC form (5306 Record) - Define a Line Class Code (or codes) with a unique Screening Index to permit special routing and charging as indicated on the RAR Form. The Class Of Service must be "INDIV" or "PBX" and the Terminating Treatment must be "INDIV", "MLHG", or "INWATS".

2.3 MISCELLANEOUS TRANSLATIONS

AMACT form (5506 Record) - FGAOL and FGATL AMA Call Types must be defined to generate the 131 and 132 call code AMA records. These should be provided by ODA.

SEC. 1F: BRCS FEATURES

1. FEATURE DESCRIPTION

BRCS (Business and Residence Custom Services) permits 5ESS Switch owners to offer modular communications capabilities to their subscribers.

BRCS features are found in Division 4 of this guide and are grouped by section number and letter suffix. The associated record numbers for each capability have common four digits with individual dash numbers to distinguish them. For example, the Terminal Group/Station Restriction capability appears in Sections 8A through 8D and the associated records are 5607-1 through 5607-5.

1.1 Feature Definition

The major component of a BRCS capability is the feature definition form which appears in the first section (section "A") of the TG-5 documentation pertaining to each capability. There are two kinds of features, preconstructed and constructed. A preconstructed feature is defined by Lucent Technologies and is available to all 5ESS Switch owners (for a particular Software Release). A constructed feature is defined by the 5ESS Switch owners in order to customize a feature for their particular needs.

Each 5ESS Switch owner will purchase a CFL (Constructed Feature Limit) which is defined on the CFL form (5712 Record). This form is defined by the Lucent Technologies engineers. Once the CFL form has been reached, a new limit will have to be purchased before additional features can be constructed. Preconstructed features do not count toward the CFL. Also, all ID (Individualized Dialing) and PFA (Private Facility Access) features, including constructed, are not counted.

A feature is identified by its feature name of one to eight characters. The first character of all preconstructed feature names is always a slash (/). The first character of all constructed feature names is prohibited from being a slash. Preconstructed features may be reviewed in the ODA (Office Data Administration) database but may not be deleted, changed or inserted. The definition of the preconstructed features will also appear in this Translation Guide and can be found in Figure 1 of the "A" section under each particular BRCS capability. See Division 4, Section 2A, Figure 1 for the preconstructed features associated with Individualized Dialing. Note that Abbreviated Dialing (Speed Calling) for subscribers who use either the ODP (Office Dialing Plan) or an IDP (Individualized Dialing Plan) is included in this section.

However, for 5E6 and later Software Releases, Speed Calling assignments are made independently from IDP assignments. This disassociation of assignments is explained further under the heading, "Dissociate Speed Calling from Individualized Dialing Plan."

When determining whether to use a preconstructed feature or to define a constructed feature, several things must be taken into consideration. First, it must be determined if a preconstructed feature exists for the requirements of the subscriber. Figure 1 of the particular BRCS capability should be reviewed for this purpose. Even if the requirements are met, it may be decided to construct a feature to ease data entry or to ease ongoing administration of the subscriber information.

1.2 Default Parameters

The feature definition form for most BRCS capabilities includes one or more default parameters. These default parameters will be applied to each terminal (line and/or trunk) that has this feature assigned to it, if specific parameters are not defined for the terminal. Generally, preconstructed features will not include definition of default parameters.

1.3 BRCS Features for IDP Implementation

A specific example may help in clarifying this information and illustrate the various combinations of forms that are required to make a BRCS feature applicable (and available) for a terminal's use.

A company called "Ajax" with 1000 terminals requires an IDP. Ten of these terminals are lines in a Multi-Line Hunt Group which is assigned to an attendant console. One hundred lines are assigned to individual managers and the remaining 890 lines are used by the sales personnel.

The preconstructed features for the IDP are checked in Figure 1 of Division 4, Section 2A. The preconstructed feature, /IDCTX1, meets the requirements for this company and will be used. Note that there are no default parameters defined (and a preconstructed feature cannot be modified).

Because Ajax needs an IDP for initial digit interpretation instead of the ODP, information needs to be defined on the 5601-1 through 5601-5 Records (Division 4, Sections 2B through 2E) for the group level information. These records are tied together through the IDP Group name which, in this case, will be named AJAX.

To assign the Ajax lines to the AJAX IDP Group, parameter forms must be defined. In defining the parameters for each of the lines, they will also be categorized for DPAT (Dialing Plan Access Treatment). DPAT 1 will be used for the console lines which will be allowed to use all codes in the IDP Dialed Code Assignment form (5601-1/2 Record). DPAT 2 will be used for the 100 management lines which will be allowed to use all codes except those which are customer changeable features. DPAT 3 will be used for the sales personnel lines which are similar to DPAT 2 except that they cannot dial 9 (defined in the IDPDCA (Individualized Dialing Plan Dialed Code Assignments; 5601-1/2 Record) as escape to POTS (Plain Old Telephone Service) - the ODP - with dial tone).

Each of the terminals in the console MLHG are defined on the IDPMPA form (5601-7 Record) as ID FEATURE equal to /IDCTX1, IDP GROUP NAME equal to AJAX and DPAT CATEGORY equal to 1.

- **NOTE:** There was a restriction that any line assigned to an IDP Group must have a Telephone Number. However, this has not been enforced through either ODA or Recent Change data entry. If an MLHG terminal does not have a Telephone Number assigned, it will not be busy verifiable.

Each of the management and sales personnel lines are defined on the IDPLPA form (5601-6 Record) as ID FEATURE equal to /IDCTX1 and IDP GROUP NAME equal to AJAX. The DPAT CATEGORY is entered as 2 for the management lines and 3 for the sales personnel lines.

For each of the Ajax lines, the Abbreviated Dial List information is also entered. The preconstructed feature, /IDCTX1, allows both 1 and 2 digit Speed Calling, customer changeable. The appropriate list names and shared indications are entered on the parameter assignment forms with the exception that if a line associated with the IDPLPA has an unshared list, the list name will be built by ODA. Ajax requires all 1-digit lists to be in the range 2 - 9 and all 2 digit lists to be in the range 20 - 49, therefore, the ADLIST forms (5601-9 Record) are not required. (If additional Abbreviated Dialing codes were required for this company, the ADLIST forms would be required for each AD List Name with all code blocks desired.)

The preceding forms built the IDP Group AJAX and assigned each line to the group with its own parameters. Now each line must be assigned the preconstructed feature that was chosen, /IDCTX1. To do this, the feature assignment forms will be defined. The attendant lines use the MLHLNFA form (5113 Record) and the rest of the lines use the LINEFA form (5112 Record) (Division 3, Sections 1M and 1L, respectively).

There is an assumption here that the lines have already been defined with telephone and equipment numbers on the LINE or MLHLN forms found in Division 3, Sections 1I and 1K. BRCS must equal "Y" on these forms. During call processing, this is what triggers the 5ESS Switch to check the feature assignment forms to

determine what features have been assigned to each terminal.

If other BRCS features, either constructed or preconstructed, were required for Ajax terminals, then they would also be defined and the feature name entered on these feature assignment forms for each line. (Some features are specific on the group level and therefore do not require defining on the individual terminal basis.) The CLUSTR form (5600 Record) in Division 4, Section 1, could also be used to consolidate from 2 to 16 separate features into one identifying name. Combinations of cluster and feature names may be assigned to a terminal (line or trunk) on the feature assignment forms with the constraint that the names do not represent more than 48 features. Also, if a specific feature is assigned to a terminal, then that feature may not be contained in any cluster assigned to the terminal.

The procedure is similar when features are constructed by the 5ESS Switch owner (instead of using a preconstructed feature). One difference is that the feature definition form must be defined. For Ajax, an IDP feature could be defined using the IDFD form (5601 Record) in Division 4, Section 2A. Perhaps Ajax does not want Abbreviated Dial, 2 digit. The IDFD will look similar to /IDCTX1 except that AD 2 DIGIT? is entered as "N". This feature must also have a name so it can be utilized later. It could be named AJAXDP for Ajax Dialing Plan.

Because this feature is being constructed, the default parameter options on the IDFD form can be used. The largest group of Ajax lines is for their sales personnel, therefore, their parameters will be used as the defaults (i.e., primarily their DPAT category of 3). Also, assume that all Ajax lines will have access to a shared 1-digit Abbreviated Dial List named AD1AJAX. Then the default parameters on the IDFD form are IDP Group Name of AJAX (the same group information is defined as before), DPAT Category of 3, AD 1 Name of AD1AJAX and AD 1 Shared equal to "Y".

In this case, because of the default parameters, the IDPLPA, line parameter form, does not need to be entered 890 times, once for each of the sales personnel lines. Instead, the feature name AJAXDP will be entered on each LINEFA form for these lines and the default parameters will be automatically assigned to each of these lines.

IDPMPA and IDPLPA forms will be defined to override the default parameters of this ID feature definition for the attendant and management lines. On these parameter assignment forms, the ID Feature is AJAXDP, IDP Group Name is AJAX, DPAT Category is 1 or 2 and AD1AJAX entered for the 1-digit list name. The MLHLNFA and LINEFA forms will still be required for these lines.

In terms of ODA input, the major difference between using the preconstructed feature, /IDCTX1, and defining the constructed feature, AJAXDP, is that 890 fewer form instances were required for the latter. For ongoing administration of the Ajax lines, it also might facilitate recognizing that a line belongs to Ajax by verifying the feature assignment forms when AJAXDP is used instead of /IDCTX1.

1.4 Wild Card Features

It should also be noted that there is a special kind of preconstructed feature that is not to be assigned to a terminal on the feature assignment forms. These are the wild-card features and will be used in dialing plans, either the office or individualized. The wild-card features can be recognized by their format of slash (/), followed by two alpha characters, followed by an asterisk. See Division 4, Section 2B, or Division 3, Section 3B for information on the use of wild-card features.

1.5 BRCS Features for ODP Implementation

The previous discussion illustrates two ways of defining a large business customer with an IDP. BRCS features are also used for POTS customers using the ODP. An example of this would be a subscriber who requests unshared single digit Speed Calling, customer changeable.

The telephone and equipment assignments are defined on the LINE form in Division 3, Section 1I, with BRCS equal to "Y". The preconstructed features are checked in Division 4, Section 2A, Figure 1 and the feature, /IDSC1C, is found to be appropriate. This feature name is entered on the LINEFA form in Division 3, Section 1L.

The Line Parameter form, IDPLPA, in Division 4, Section 1F, need not be defined for this subscriber. When an ID feature such as /IDSC1C, which does not include an IDP, and the Abbreviated Dialing List is unshared, ODA will build the parameter form with the list name of "A" plus the subscriber's Telephone Number.

The ADLIST form in Division 4, Section 1I, will not be required for ODA. The subscriber will enter the Telephone Numbers associated with the Abbreviated Dialing codes 2 - 9 after the 5ESS Switch cutover. To do this, the subscriber will dial *74 (or 1174 if the subscriber uses a rotary dial telephone). This dialed code is defined in PDIT (Preliminary Digit Interpreter Table) as ACTION "AD1CH" (Change 1 Digit Abbreviated Dial List).

*74 is an example of a dialed code that must be defined in the ODP, specifically on the PDIT form (5300-2 Record) found in Division 3, Section 3B. These standardized codes must be available (i.e., defined) for subscribers who use the ODP. For subscribers who use an IDP, these actions may also be appropriate. However, the codes are not standardized; they may be unique to each IDP.

See Figure 1 for a composite list of ODP and IDP Action Definitions. These actions are used to define dialed codes in PDIT, IDPDCA and/or CFGGRP (Configuration Group Definition) (5964 Record) for the ODP, IDP, and feature buttons, respectively. Most of the actions are allowed to be used for either ODP or IDP. However, the primary use for the majority of the actions will probably be for the IDPs.

Those actions that are used in PDIT are shown in Figure 1 with "Y" entered in USE IN ODP, followed by specific dialed codes that must be defined in PDIT. A "P" in the USE ODP column indicates the action is "permitted" by defining any desired dialed codes in the ODP. If these actions are used, they are available (and common) to all subscribers using the Office Dialing Plan who have the appropriate features.

A "Y" entered in USE IN IDP indicates the action may be used in defining dialed codes in an Individualized Dialing Plan. These actions, combined with appropriate features, are used in IDPDCA forms found in Division 4, Section 2B.

A "Y" entered in FEATURE BUTTON indicates the action may be used in defining feature buttons on an ISDN station set. These actions are defined on the CFGGRP form (5964 Record).

Figure 1 also provides subsequent tone responses returned by the 5ESS for the dialed codes and expected customer dial responses. In the case of the POTS subscriber entering the 1-digit Abbreviated Dial List, *74 is dialed. (See ACTION, AD1CH in Figure 1.) The 5ESS Switch returns a recall dial tone. The subscriber dials the 1-digit number, 2 through 9, that is to be entered (or changed). The 5ESS Switch returns a second recall dial tone. The subscriber now dials the Telephone Number which is to be stored in this customer's Abbreviated Dial List.

Now, when this subscriber dials the single digit, the PDIT translates the digit as an AD1USE action and retrieves the appropriate Telephone Number from this subscriber's Abbreviated Dial List. The call is processed as if this subscriber had dialed the full Telephone Number.

1.6 Disassociate Speed Calling from Individualized Dialing Plan

Prior to the 5E6 Software Release, the assignment of an IDP to a subscriber included the subscriber's SC (Speed Calling) needs, as well. Therefore, these SC needs and the customer's IDP parameters are included as part of the ODD even though the subscriber's SC needs are normally not known at this time. This causes

a large number of changes to be made to the IDP feature assignments after the subscriber's actual SC needs are known. When SC and IDP features are assigned separate from each other in 5E6 and later Software Releases, the need to make this type of change can be avoided, and SC and IDP features are easier to administer and maintain.

For example, disassociating Speed Calling assignments from IDP assignments allows the operating company to assign a different Speed Calling feature, for example, two-digit Speed Calling (SC2), to a line or trunk that already has been assigned a Speed Calling feature (SC1) without having to manually delete the existing feature and Speed Call list.

Subscribers can still select Speed Calling while being part of an IDP, however, the operating company no longer has to make the Speed Calling assignments as part of the IDP assignments. Therefore, this disassociation is transparent to the subscriber and does not affect the functionality of either feature.

1.7 Time of Day Capability

The TOD (Time of Day) capability is a modular feature that allows the end customer (business/residential subscriber) to control various aspects of other features assigned to the subscriber's line or group. That is, TOD allows the customer to set both the time and day for a particular action to occur, via the use of dial codes. For example, the subscriber may wish to have feature "xwy" activated at noon on Tuesday through Friday and deactivated at 2:00 p.m. on those same days. Similarly, the subscriber may wish to alternate between InterLATA Carriers at specific times. Included among the features which can be controlled by TOD are:

- Account Codes (5E3)
- Authorization Codes (5E3)
- Automatic Route Selection (5E2)
- Call Forwarding (5E3)
- Call Pickup (5E3)
- Call Waiting (5E3)
- Distinctive Ringing (5E3)
- Multiway Calling (5E3)

Using the TOD feature, the subscriber has the ability to control the activation, deactivation, and various alterable aspects of these and other features. Available with the 5E7 Software Release, capability is provided to activate/deactivate the subscriber's IDP.

At the time of initial feature subscription, the switch owner can specify the degree of control allowed for its subscribers for the various TOD actions allowed. For example, will the subscriber be able to control Account Group, Automatic Route Selection, or Authorization group data? Such permissions are defined on the TODFD form (5610-1 Record) (Div. 4, Sec. 11A).

The TOD dial codes represent CORC (Customer-Originated Recent Change) actions associated with the TOD feature or action codes for other modular features assigned to the customer line. These dial codes are based upon either the IDP or the ODP; see the PDIT (Prefix/Feature Digit Interpreter) form (5300-2 Record). For more information on provisioning Time of Day, see Div. 4, Sections 11A thru 11E.

2. TRANSLATION REQUIREMENTS

2.1 Line Translations

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109-1/2/3	3	1I	1.1
MLHLN	5111-1/2/3	3	1K	3.2
LINEFA	5112	3	1L	1.8, 1.11, 1.12
MLHLNFA	5113	3	1M	3.8, 3.11, 3.12

LINE form (5109-1 Record). Enter "Y" in the BRCS field for each line that is to have any BRCS feature.

MLHLN form (5111-1 Record). Enter "Y" in the BRCS field for each Multi-Line Hunt Group member that is to have any BRCS feature.

LINEFA form (5112 Record). Enter the subscriber's Telephone Number and feature name assignments (constructed, preconstructed and /or cluster names).

MLHLNFA form (5113 Record). Enter the Multi-Line Hunt Group and member number and feature name assignments (constructed, preconstructed and /or cluster names).

2.2 Trunk Translations

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202-1/2/3/4	3	2A	5.1
TRUNK	5204-1/2	3	2C	5.5
TRUNKFA	5205	3	2D	5.11
TKGRPFA	5206	3	3E	5.4

TKGRP form (5202-1 Record). Enter "Y" in the BRCS field for each Trunk Group that is to have any BRCS feature if all members of the Trunk Group are to have identical features. If "Y" is entered here, a TKGRPFA form must be entered for the Trunk Group.

TRUNK form (5204 Record). Enter "Y" in the BRCS field for each trunk that is to have any BRCS feature if a TKGRP form is not submitted for the group or if the features are required to be different for the member.

TRUNKFA form (5205 Record). Enter the Trunk Group Number and Member Number and feature name assignments (constructed, preconstructed and/or cluster names).

TKGRPFA form (5206 Record). Enter the Trunk Group Number and feature name assignments (constructed, preconstructed and/or cluster names).

2.3 BRCS Routing and Charging Translations

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PDIT	5300-2	3	3B	9.2

PDIT form (5300-2 Record). Required dialed codes are built by ODA with the associated actions and features. Optionally, enter other codes which will be used for subscribers with specific BRCS features and who use the Office Dialing Plan.

2.4 BRCS Feature Translations

All 5600 Series Records construct features, as necessary, on the various feature definition forms. Use other BRCS forms to define associated requirements, such as the forms for IDP groups. Use the parameter assignment forms as necessary.

2.5 ISDN/PACKET Switching Translations

New Or Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
DSL	5900-1/2/3	5	1A	23.1, 23.2
DSMLHLN	5901-1/2/3	5	1B	23.3
DSLUSR	5908-1/2/3/4/5/6/7/8	5	1I	23.2

DSL form (5900 Record). Enter "Y" in the BRCS field if the line has BRCS features assigned.

DSMLHLN form (5901 Record). Enter "Y" in the BRCS field if the line has BRCS features assigned.

DSLUSR form (5908 Record). Enter "Y" in the BRCS field if the line has BRCS features assigned.

ACTION	USE IN ODP	USE IN IDP	FEATURE BUTTON	DESCRIPTION	SYSTEM RESPONSE	CUSTOMER RESPONSE
AAOFF	P	Y	N	Auto Answer Off via dial code	off-lamp if provisioned dial tone	dial code or press feature button
AAON	P	Y	N	Auto Answer On via dial code	on-light if provisioned dial tone	enter dial code or feature button
ACBCANC	P	Y	N	Cancel auto-callback camp-on	confirmation tone followed by dial tone	none
ACBUSE	P	Y	N	Use auto-callback to camp-on to busy line	confirmation tone followed by dial tone or/ringing tone if line is no longer busy	none
ACCANC	P	Y	N	Deactivate LASS Automatic Callback	cancellation announcement	none
ACCFB	N	N	Y	Deactivate LASS Automatic Callback	cancellation announcement and feature button lamp goes off	none
ACCTACT	P	Y	N	Activate Account Code feature	none	none
ACCTDCT	P	Y	N	Deactivate Account Code feature	none	none
ACCTUSE	P	Y	Y	Account Code Use Code	none	none
ACDXFER				Transfer to ACD from ARU Special Feature - Transfer call to ACD, followed by ACD DN		
ACSR OFF	P	Y	N	Deactivate ACSR for group by group controller	none	none
ACSR ON	P	Y	N	Activate ACSR moves for group by group controller	none	none
ACSRUSE	P	Y	N	Invoke ACSR move	DSU2-RAF-DTA dial-through announcements will be given	customer responds to announcements
ACSRVfy	P	Y	N	Check status of ACSR move	DSU2-RAF-DTA dial-through	customer

					announcements will be given	responds to announcements
ACTCPNBN	P	Y	N	Activate CPN/BN	confirmation tone followed by dial tone	none
ACTOFF	N	Y	N	Turn off an ACT set	recall dial tone	dial an ACT set number
ACTON	N	Y	N	Turn on an ACT set	recall dial tone	dial an ACT set number
ACUFB	N	N	Y	Activate LASS Automatic Callback	confirmation announcement	or audible alerting
ACUSE	P	Y	N	Activate LASS Automatic Callback	confirmation announcement	or audible alerting
AD1CH	Y *74 1174	Y	Y	Change 1-digit AD list entry	recall dial tone second recall dial tone	dial 1-digit code to be changed dial new digit sequence
AD1USE	Y 2-9	Y	Y	Use 1-digit AD	none	none
AD2CH	Y *75 1175	Y	Y	Change 2-digit AD list entry	recall dial tone second recall dial tone, dial 2-digit code to be changed dial new digit sequence	
AD2USE	Y 20-49	Y	Y	Use 2-digit AD	none	none
AIUSE	P	Y	N	Agent Intercom via dial code	dial tone agent ID connect call	enter dial code
ALTACT	P	Y	N	Activate Alternate Parameter Set	none	none
ANSBACK	N	Y	Y	Call Park Answer Back	Analog: 1. dial tone 3. recall dial tone ISDN: 1. dial tone 3. recall dial tone	Analog: 2. dial access code 4. dial extension of parked DN ISDN: 2. dial access code or press feature button 4. dial extension of parked DN
AQCUSE	P	Y	N	ACD Queue Calling via dial code	secondary audible tone routes the call	enter dial code
ARCANC	P	Y	N	Deactivate LASS Automatic Recall	cancellation announcement	none
ARCFB	N	N	Y	Deactivate LASS	automatic recall	cancellation announcement and feature button lamp

ARSCP	P	Y	N	Change an ARS active pattern group	recall dial tone	goes off dial an ARS pattern group identifier
ARSDCT	P	Y	N	Deactivate an ARS feature for 1 call		dial digits for call
ARS1USE	P	Y	Y	Use ARS with the private network dialing plan 1 to interpret next dialed sequence	recall dial tone	dial a number to be ARS routed
ARS2USE	P	Y	Y	Use ARS with the private network dialing plan 2 to interpret next dialed sequence	recall dial tone	dial a number to be ARS routed
ARSUSE	P	Y	Y	USE an ARS to interpret next dialed sequence	recall dial tone	dial a number to be ARS routed
ARUFB	N	N	Y	Activate LASS Automatic Recall	confirmation announcement, or audible alerting, or long-term denial, or short-term denial	none
ARUSE	P	Y	N	Activate LASS Automatic Recall	confirmation announcement, or audible alerting, or long-term denial, or short-term denial	none
ASITOG	P	Y	N	Toggle for activating/deactivating ASI Proxy's implicit mode.	stutter dial tone	none
ASIUSE	P	Y	N	Use ASI Proxy in the explicit mode (allows ASI Proxy subscriber to communicate directly with an IP (Intelligent Peripheral)).	immediate connection to an ASI Proxy trunk (no dial or confirmation tone).	Variable (dial digits, respond to announcements, or do nothing).
ASPDNC	Y	Y	N	Use ASP with no digit collection.	none	none
ASPORM	Y	Y	N	Use ASP with normal digit collection.	recall dial tone	dial digits for ASP query
ASPVAR	Y	Y	N	Use ASP with variable digit collection.	recall dial tone	dial variable number of digits (up to 32) for ASP query
ATHACT	P	Y	N	Activate Authorization Code	none	none
ATHDCT	P	Y	N	Deactivate Authorization Code	none	none
ATHINS	P	Y	N	Authorization Code in service	none	none
ATHNRQ	Y	Y	N	Non-dialable code used in ODP or IDP; reference for TODCL inputs	none	none
ATHOOS	Y	Y	N	Authorization code out of service	none	none
ATHREQ	Y	Y	N	Non-dialable code used in ODP or IDP; reference for TODCL inputs	none	none
ATHUSE	Y	Y	Y	Authorization code; use code dialed	none	none
AUCUSE	Y	Y	Y	Auto-call set-up with MSS and EDS features	none	none
BPARK	N	Y	Y	Basic Call Park	Analog: 2. recall dial tone	Analog: 1. flash hook

					4. confirmation tone ISDN: 2. confirmation tone	3. dial access code 5. hang up or none ISDN: 1. press feature button
CCL	P	Y	Y	Use code calling for call pickup originating	none	none
CFDATCH	P	Y	N	Change don't answer timing for Call Forwarding	recall dial tone	dial new timing value
CFDCT	P	Y	N	Deactivate all Call Forward features with pre-stored telephone numbers	confirmation tone followed by dial tone	none
CFDNCH	P	Y	N	Change the forward-to telephone number for Call Forwarding	recall dial tone	dial a telephone number
CFVACT	Y	Y	N	Activate all Call Forward variable features	confirmation tone followed by dial tone	none
CFVDCT	Y	Y	N	Deactivate all Call Forward variable features	confirmation tone followed by dial tone	none
CLOFF	P	Y	N	Closed Off via dial code	feature button lamp if activated confirmation tone if successful reorder if not successful	enter dial code
CLON	P	Y	N	Closed On via dial code	feature button lamp if activated confirmation tone if successful reorder if not successful	enter dial code
CLWCUSE	P	Y	Y	Cancel leave word calling	none	none CLWCUSE
CNDACT	P	Y	N	Activate ICLID Calling Number Delivery	confirmation tone	none
CNDDCT	P	Y	N	Deactivate ICLID Calling Number Delivery	confirmation tone followed by dial tone	none
CNDFBP	N	N	Y	Activate/Deactivate ICLID Calling Number Delivery	confirmation tone and feature button lamp on/off	none
COTFBP	N	N	Y	Activate Customer Originated Trace	successful activation message, or trace not available message, or buffer full message, or short-term denial message, or feature denial message	none
COTUSE	P	Y	N	Activate Customer Originated Trace	confirmation announcement, or trace not available message, or buffer full message, or short-term denial message, or feature denial message	none
CPQ1	P	Y	Y	Pickup a call from pickup queue	none	none

				1		
CPQ2	P	Y	Y	Pickup a call from pickup queue 2	none	none
CPQ3	P	Y	Y	Pickup a call from pickup queue 3	none	none
CPQ4	P	Y	Y	Pickup a call from pickup queue 4	none	none
CWDLU	P	Y	Y	Use dial Call Waiting for 1 call	recall dial tone	dial a telephone number
CWOACT	P	Y	N	Activate all Call Waiting Originating features	confirmation tone followed by dial tone	none
CWODCT	P	Y	N	Deactivate all Call Waiting Originating features	confirmation tone	none
CWTACT	P	Y	N	Activate all Call Waiting Terminating features	confirmation tone followed by dial tone	none
CWTDCT	P	Y	N	Deactivate all Call Waiting Terminating features	confirmation tone followed by dial tone	none
CWXCH	P	Y	N	Change Call Waiting tone interval	recall dial tone	dial new tone interval
DALTACT	P	Y	N	Activate alternate parameter set for CSD (ATH)	"CONFIRM", followed by "CONT:"	none
DBDACT	Y	Y	N	Activate all busy/idle data Call Forward features	confirmation tone followed by dial tone	none
DBDDCT	Y	Y	N	Deactivate all busy/idle data Call Forward features	confirmation tone followed by dial tone	none
DCTCPNB N	P	Y	N	Deactivate CPN/BN	confirmation tone followed by dial tone	none
DCTMWI	P	Y	Y	Deactivate message waiting indicator	none	none
DFRLALT	P	Y	N	Alternate FRL feature is active for CSD (ARS)	"CONFIRM", followed by "CONT:"	none
DGPACT	P	Y	N		"CONFIRM", followed by "CONT:"	none
DGPDCT	P	Y	N		confirmation tone followed by dial tone	none
DMAINACT	P	Y	N	Activate main parameter set for CSD (ATH)	"CONFIRM", followed by "CONT:"	none
DNPCAN	P	Y	Y	Cancel Per-Call Privacy	confirmation tone followed by dial tone	dial a telephone number
DNPUSE	P	Y	Y	Use Per-Call Privacy	confirmation tone followed by dial tone	dial a telephone number
DPARK	N	Y	Y	Directed Call Park	Analog: 2. second dial tone 4. recall dial tone 6. confirmation tone ISDN: 2. second dial tone 4. confirmation tone	Analog 1. flash hook 3. dial access code 5. dial extension 7. none ISDN: 1. press feature button

						3. dial extension
						5. none
DPN	P	Y	Y	Use directed call pickup without barge-in	1. none 2. recall dial tone	1. none 2. dial telephone number
DPU	P	Y	Y	Use directed call pickup with barge-in	1. none 2. recall dial tone	1. none 2. dial telephone number
DRPCH	P	Y	N	Change ringing pattern for distinctive ringing	recall dial tone	dial new ringing pattern indicator
DTONE	N	Y	N	Provides second dial	second dial tone	none
DTPOTSA	N	Y	Y	Use the ODP for the following digit sequence	dial tone (removed upon receipt of 1st digit)	dial digits
EMUSE	P	Y	Y	Emergency via dial code or feature button	display at Agent station Routes call	enter dial code or feature button
FRLALT	P	Y	N	Activate the alternate FRL table	none	none
FRLMAIN	P	Y	N	Activate the main FRL table	none	none
FRLDMAIN	P	Y	N	Alternate FRL feature is not active for CSD (ARS)	"CONFIRM", followed by "CONT:"	none
FTACT	Y *72 117 2	Y	N	Activate a BRCS feature	(e.g., Call Forwarding, Pickup Orig. or Term., Call Waiting or Distinctive Ring, Auto Callback, Multiway PFA)	1. recall dial tone 2. confirmation tone followed by dial tone
FTDCT	Y *73 117 3	Y	N	Deactivate a BRCS feature	(e.g., Call Forwarding, Pickup Orig. or Term., Call Waiting or Distinctive Ring, Auto Callback, Multiway PFA)	confirmation tone followed by dial tone
*FTACT	Y *72 117 2	Y		Activate a call forwarding feature	1. recall dial tone 2. recall dial tone 3. confirmation tone followed by dial tone	1. dial target telephone number 2. dial forward to telephone number 3. none
*FTDCT	Y *73 117 3	Y		Deactivate a call forwarding feature	1. recall dial tone 2. confirmation tone followed by dial tone	1. dial target telephone number 2. none
GPACT	P P	N Y	N N	Activate an IDP group Activate an ARS group	confirmation tone followed by dial tone confirmation tone followed by dial tone	none none

	Y	Y	N	Activate an ACVT group	confirmation followed by dial tone	none
GPDCT	N	Y	N	Deactivate an IDP group	confirmation tone followed by dial tone	none
	P	Y	N	Deactivate an ARS group	confirmation tone followed by dial tone	none
	Y	Y	N	Deactivate an ACVT group	confirmation tone followed by dial tone	none
GRPCAR	Y	Y	N	Change the group primary Interexchange Carrier	recall dial tone	dial carrier id (XXX)
HIDHOLD	P	Y	N	Used by the Home Intercom feature to put outside calls on hold	confirmation tone followed by dial tone	go on-hook
HIRINGA	P	Y	N	Used by the Home Intercome feature to apply ringing pattern A	confirmation tone	go on-hook
HIRINGB	P	Y	N	Used by the Home Intercome feature to apply ringing pattern B	confirmation tone followed by dial tone	go on-hook
HIRINGC	P	Y	N	Used by the Home Intercom feature to apply ringing pattern C	confirmation tone followed by dial tone	go on-hook
HIRINGG	P	Y	N	Used by the Home Intercome feature to apply ringing pattern G	confirmation tone followed by dial tone	go on-hook
ICMUSE	N	Y	N	Use an intercom range	none	none
LQ1DISP	N	N	Y	Display Status of MLHG Queue from the DSLQMON form	display queue status data for this ACTION (if customer terminal is capable)	none
LQ2DISP	N	N	Y	same as LQ1DISP	Same as LQ1DISP	none
LQ3DISP	N	N	Y	same as LQ1DISP	Same as LQ1DISP	none
LQ4DISP	N	N	Y	same as LQ1DISP	Same as LQ1DISP	none
LQ5DISP	N	N	Y	same as LQ1DISP	Same as LQ1DISP	none
LQ6DISP	N	N	Y	same as LQ1DISP	Same as LQ1DISP	none
LQ7DISP	N	N	Y	same as LQ1DISP	Same as LQ1DISP	none
LQ8DISP	N	N	Y	same as LQ1DISP	Same as LQ1DISP	none
LSP	P	Y	Y	Use call pickup orig. loudspeaker paging	none	none
LSFNOSYM	Y	Y	N	Activate LASS Screen List Editing (SLE) session	DSU2-RAF-DTA Dial-Through-Announcements will be given	Customer responds to announcements
LSFSYM	Y	Y	N	Activate LASS Screen Listing Editing (SLE) session	DSU2-RAF-DTA Dial-Through-Announcements will be given	Customer responds to announcements
LWCUSE	P	Y	Y	Use leave word calling (allow a message from the calling party to be left for the called party)	none	none
MAINACT	P	Y	N	Activate main parameter set	none	none
MDRACT	P	Y	N	MDR feature activation code	none	none
MDRDCT	P	Y	N	MDR feature deactivation code	none	none
MDROFF	P	Y	N	MDR group status off	none	none
MDRON	P	Y	N	MDR group status on	none	none
MWSOH	P	Y	N	Start multiway feature off hook	recall dial tone	dial digits
MWSPL	P	Y	N	Split last added party from multiway call	none	none
NTPOTSA	N	Y	N	Escape to POTS (ODP) without Dial Tone	none	none

PAEO	N	Y	N	Executive Override precedence access code. Next dialed number is call at Executive Override precedence level and should be an intercom number	second dial tone	dial digits for call
PAF	N	Y	N	Flash precedence access code. Next dialed number is call at Flash precedence level and may be intercom number, PP route code or PP area code	second dial tone	dial digits for call
PAFO	N	Y	N	Flash Override precedence access code. Next dialed number is call at Flash Override precedence level and may be intercom number, PP route code or PP area code	second dial tone	dial digits for call
PAI	N	Y	N		second dial tone	dial digits for call
PAP	N	Y	N	Priority precedence access code. Next dialed number is call at Priority precedence level and may be intercom number, PP route code or PP area code	second dial tone	dial digits for call
PAR	N	Y	N	Routine precedence access code. Next dialed number is call at Routine precedence level and should be intercom number, PP route code or PP area code	second dial tone	dial digits for call
PDTEO	N	Y	Y	Executive Override precedence access code. Next dialed number is call at Executive Override level and should be intercom number, PP route code or PP area code	second dial tone	dial digits for call
PDTF	N	Y	Y	Flash precedence access code. Next dialed number is call at Flash precedence level and may be intercom number, PP route code or PP area code	second dial tone	dial digits for call
PDTFO	N	Y	Y	Flash Override precedence access code. Next dialed number is call at Flash Override precedence level and may be intercom number, PP route code, or PP area code	second dial tone	dial digits for call
PDTI	N	Y	Y	Immediate precedence access code. Next dialed number is call at Immediate precedence level and may be intercom number, PP route code, or PP area code	second dial tone	dial digits for call
PDTP	N	Y	Y	Priority precedence access code. Next dialed number is call at Priority precedence level	second dial tone	dial digits for call

				and may be intercom number, PP route code, or PP area code		
PDTR	N	Y	Y	Routine precedence access code. Next dialed number is call at Routine precedence level and should be intercom number	second dial tone	dial digits for call
PDTRC	P	Y	N	Use a private facilities access	none or dial tone	dial digits
PFUSE	P	Y	Y	Use a private facilities access	none or dial tone	dial digits
PNTEO	N	Y	Y	Executive Override precedence access code. Next dialed number is call at Executive Override precedence level and should be intercom number	none	dial digits for call
PNTF	N	Y	Y	Flash precedence access code. Next dialed number is call at Flash precedence level and may be intercom number, PP route code, or PP area code	none	dial digits for call
PNTFO	N	Y	Y	Flash Override precedence access code. Next dialed number is call at Flash Override precedence level and may be intercom number, PP route code, or PP area code	none	dial digits for call
PNTI	N	Y	Y	Immediate precedence access code. Next dialed number is call at Immediate precedence level and may be intercom number, PP route code, or PP area code	none	dial digits for call
PNTP	N	Y	Y	Priority precedence access code. Next dialed number is call at Priority precedence level and may be intercom number, PP route code, or PP area code	none	dial digits for call
PNTR	N	Y	Y	Routine precedence access code. Next dialed number is call at Routine precedence level and should be intercom number	none	dial digits for call
PODUSE	P	Y	Y	Print on demand (used with the MSS feature)	none	none
PRCD	N	Y	N	PP route code 0. Provides alternate Route Choice 0 for PP call	none	dial digits for call
PP1AREA	N	Y	N	PP area 1	none	none
PP2AREA	N	Y	N	PP area 2	none	none
PP3AREA	N	Y	N	PP area 3	none	none
PP4AREA	N	Y	N	PP area 4	none	none
PP5AREA	N	Y	N	PP area 5	none	none
PPEO	N	Y	N	Executive Override precedence access code. Next dialed number is call at Executive Override level and should be intercom number	none	dial digits for call
PPF	N	Y	N	Flash precedence access code. Next dialed number is call at	none	dial digits for call

				Flash precedence level and may be intercom number, PP route code, or PP area code		
PPFO	N	Y	N	Flash Override precedence access code. Next dialed number is call at Flash Override precedence level and may be intercom number, PP route code, or PP area code	none	dial digits for call
PPI	N	Y	N	Immediate precedence access code. Next dialed number is call at Immediate precedence level and may be intercom number, PP route code, or PP area code	none	dial digits for call
PPP	N	Y	N	Priority precedence access code. Next dialed number is call at Priority precedence level and may be intercom number, PP route code, or PP area code	none	dial digits for call
PPR	N	Y	N	Routine precedence access code. Next dialed number is call at Routine precedence level and should be intercom number	none	dial digits for call
PRC0	N	Y	N	PP route code 0; provides alternate Route Choice 0 for PP call	none	dial digits for call
PRC1	N	Y	N	PP route code 1; provides alternate Route Choice 1 for PP call	none	dial digits for call
PRC2	N	Y	N	PP route code 2; provides alternate Route Choice 2 for PP call	none	dial digits for call
PRC3	N	Y	N	PP route code 3; provides alternate Route Choice 3 for PP call	none	dial digits for call
PRC4	N	Y	N	PP route code 4; provides alternate Route Choice 4 for PP call	none	dial digits for call
PRC5	N	Y	N	PP route code 5; provides alternate Route Choice 5 for PP call	none	dial digits for call
PRC6	N	Y	N	PP route code 6; provides alternate Route Choice 6 for PP call	none	dial digits for call
PRC7	N	Y	N	PP route code 7; provides alternate Route Choice 7 for PP call	none	dial digits for call
PRC8	N	Y	N	PP route code 8; provides alternate Route Choice 8 for PP call	none	dial digits for call
PRC9	N	Y	N	PP route code 9; provides alternate Route Choice 9 for PP call	none	dial digits for call
RBQCAN	P	Y	N	Cancel place in ringback queue	confirmation or re-order tone, if the call is or is not in queue,	none

RBQVY	P	Y	N	Verify place in ringback queue	respectively confirmation or re-order tone, if the call is or is not in queue, respectively	none
RTRV	N	Y	Y	Call Park Retrieve	Analog: 1. dial tone 3. parked call retrieved ISDN: 1. dial tone 3. parked call retrieved	Analog: 2. dial access code 4. none ISDN: 2. dial access code or press feature button 4. none
SAUSE	P	Y	Y	Service Assist via dial code or feature button	display to originating agent route the call	enter dial code or feature button.
SP4CAR	N	Y	N	Use the FGD CAC (Carrier Access Code) for next call	none	dial an AD code or an intercom code
SPCAR	N	Y	N	Use the FGD CAC for next call	none	dial an AD code or an intercom code
TD1PAD	P	Y	N	Add a one-parameter code to an action point for Time of Day	recall dial tone second recall dial tone third recall dial tone	dial 2-digit action point identifier dial one-paramet er code dial parameter
TDACT	P	Y	N	Activate a Time of Day feature	confirmation tone followed by dial tone	none
TDADZP	P	Y	N	Add a zero-parameter code to an action point for Time of Day	recall dial tone second recall dial tone	dial 2-digit action point identifier dial zero parameter
TDATCH	P	Y	N	Change action time for Time of Day action point	recall dial tone second recall dial	dial 2-digit action point identifier dial 4-digit action time
TDDALL	P	Y	N	Delete all code lists for a Time of Day action point	recall dial tone	dial 2-digit action point identifier
TDDCT	P	Y	N	Deactivate a Time of Day	confirmation tone followed by	none

				feature	dial tone	
TDDEL1P	P	Y	N	Delete one-parameter code list for Time of Day	recall dial tone	dial 2-digit action point identifier
TDOWCH	P	Y	N	Change one-week schedule for Time of Day action point	recall dial tone	second recall dial tone
TDZPDEL	P	Y	N	Delete zero-parameter code list for Time of Day	recall dial tone	dial 2-digit action point identifier
TGACT	P	Y	N	Activate a terminal group/station restriction feature for the hunt group if this is lead line	recall dial tone followed by confirmation tone	none
TGDCT	P	Y	N	Deactivate a terminal group/station restriction feature for the hunt group if this is lead line	recall dial tone followed by confirmation tone	none
UCRACT	Y	Y	N	Activate Unidentified Call Rejection	confirmation announcement	none
UCRDCT	Y	Y	N	Deactivate Unidentified Call Rejection	confirmation announcement	none

Figure 1 ODP AND IDP ACTION DEFINITIONS

SEC. 1G: REVISED ROUTING AND SCREENING FOR 5E2 SOFTWARE RELEASE

1. GENERAL DESCRIPTION

For Software Releases earlier than 5E2, Issue 1, the Route Index for a particular call is determined in the Rate and Route tables with a three level access. The originator of the call has been assigned to a Screening Index number by a Line Class Code, for line originations, or on an incoming (or two way) Trunk Group basis, for trunk originations. The Screening Index is the Rate and Route table, (5301 Record), which is represented by a matrix. The Code Index determined in digit analysis (PDIT, LDIT, IDDD and INDIT Forms) points to the particular row in the table. For line originations, PDIT has determined if a prefix has been dialed, deletes the prefix if any, but points to the appropriate column in the table. For trunk originations, the No Prefix column is always used.

With 5E2, Issue 1 and later Software Releases, the call processing is similar, but the Route Index is collected earlier. This is done by entering the Route Index in the digit analysis forms of PDIT, LDIT, IDDD and INDIT. Some new forms associated with CI (Carrier Interconnect) will also include a Route Index. Generally, whenever a Code Index is entered on a form, a Route Index will also be entered.

The Route Index that is entered in digit analysis forms is considered the Regular Route Index, i.e., the Route Index that the majority of the call originators will use to successfully complete the call. This is usually the Route Index that was entered in 5E1 Software Releases in the Rate and Route Record for the one party flat rate or message rate subscriber under either (or both) the No Prefix or 1 Prefix columns.

The exceptions to this routing will be taken care of through Special Route Index entries on the Rate and Route Records. A Special Route Index entry overrides the Regular Route Index during call processing if it is found on the Rate and Route.

The office codes (i.e., the NXXs served by the 5ESS Switch and defined with Normalized Office Codes - NOCs) are also entered on the digit analysis forms with 5E2, Issue 1 and later Software Releases. These forms are usually LDIT and INDIT. Although the NXX column still appears on the Rate and Route, most offices will no longer use these entries.

The Code Indexes 3 - 9 are no longer reserved in the 5ESS Switch. These Code Indexes may now be used if desired. Code Indexes 1 and 2 are still defined in all offices in PDIT for operator and IDDD operator for line originations.

If the call originators assigned to the particular Screening Index for the Rate and Route table are to use the Regular Route Index (or office code) determined in digit analysis, then REGL will be entered in the appropriate prefix column. If a Special Route Index is required for the call originators, then a Route Index number from 1 to 16,383 is entered. The particular Charge Indexes are entered without change in the procedure.

As illustrated in the figures, the use of REGL in the Rate and Route Records allows them to be significantly compacted when compared to the method used with the 5E1 Software Releases. The quantities of Code Indexes are now dependent on charging types and special dialing requirements instead of the requirement to obtain a specific Route Index (in addition to the Charge Index). The REGL indication also aids in the ongoing administration of the 5ESS Switch because, when a new Trunk Group is added, the Route Index can be changed in LDIT to reflect the new Trunk Group instead of adding a new Code Index which requires every prefix type in every Screening Index to be added.

The figures in this section are for illustration purposes only, and are used to emphasize the associated documentation. They should not be construed as a recommendation. The requirements for each office must

be determined based on charging types, special codes and the local dialing pattern.

2. LINE ORIGINATIONS

See Figure 1 for a typical example of a Rate and Route Record used for message unit subscribers. This sample office has a dialing pattern of No Prefix on seven digit calls and Prefix 0 or 1 required for ten digit calls. To dial a 0+ call within the area code, the Home NPA must be dialed, but 1+ the HNPA is now allowed.

Several new columns have been added to the Rate and Route Record for Carrier Interconnect. Ignore these columns for now; they will be discussed later in this section.

Several examples may help illustrate how this revised screening works. A line subscriber who has been assigned to this Screening Index, 1, originates a call and dials 767-1234. This is a 3 Message Unit call and should be routed on a direct Trunk Group to Office B.

Prefix/Feature Digit Interpreter (PDIT) analyzes the digits and recognizes with the digits 76 that all digits for this call should be analyzed in the Local Digit Interpreter Table (LDIT). The LDIT entry for 767 indicates this is NORMAL Call Type with seven digits expected to be dialed. LDIT also indicates the Code Index is 6 and the Regular Route Index is 156.

The call enters the Rate and Route Record, Screening Index 1 in Figure 1. No prefix was dialed so the entry for No Prefix and Code Index 6 is Route Index equal to REGL and Charge Index equal to 6. REGL indicates the Regular Route Index found in digit analysis should be used. In this case, the Route Index is 156 determined in LDIT. Charge Index 6 has been defined on the CHGIDX Form as 3 Message Units.

Now, let's see what happens when this subscriber dials the same number, 767-1234, but inappropriately dials 1+. Remember, in this sample office, one plus seven digits is not permitted. PDIT analyzes the digits 17, deletes the 1 for translation in LDIT, but the prefix type dialed, 1, is remembered for entry into the Rate and Route. LDIT analyzes the digits 767, as before, with the same result. Code Index 6 and Route Index 156.

The call enters the Rate and Route but this time the entry for 1 Prefix and Code Index 6 is Route Index equal to 4 and Charge Index equal to 1. Route Index 4 is considered a Special Route Index which will override the Regular Route Index of 156 found in digit analysis. Route Index 4 is defined so that this subscriber receives an announcement which indicates a one should not be dialed for calls within the local area code.

Different types of customers require unique Screening Indexes so they can be charged differently or so different types of calls can be blocked (i.e., not be allowed to successfully complete). See Figures 2, 3 and 4, respectively, for Rate and Route Records for coin, Hotel/Motel with Message Registers and WATS Band 4 subscribers. When these subscribers dial 767-1234 like the message unit subscriber, the same result is output from digit analysis, i.e., Code Index equal to 6 and Regular Route Index equal to 156. The No Prefix and Code Index 6 combination in Screening Index 2 yields a Special Route Index of 151 for the coin subscriber to be routed to the TSPS operator for completion and coin collection. The Charge Index has been defined as Coin OPR. Screening Index 3 for the hotel subscriber uses the Regular Route Index 156 from digit analysis, but the Charge Index is different from that used in Screening Index 1. This Charge Index has been defined with a Message Billing Index so a message register can be appropriately pegged and the hotel can collect the charge from their guest. Screening Index 4 for the WATS Band 4 subscriber yields the Special Route Index 7 which is associated with an announcement telling the subscriber this call is out of band for the WATS line.

The process is only slightly different when a line originates and dials a Telephone Number that terminates within the office. As mentioned before, the Office Code may also be defined in digit analysis with 5E2 and later Software Releases.

When a subscriber assigned to Screening Index 1 dials 233-1000, digit interpretation starts in PDIT. As soon as 233 has been dialed, PDIT recognizes that all digits are to be analyzed in LDIT. LDIT translates 233 as a Normal Call Type with seven digits expected to be dialed. This time, LDIT has been defined with Code Index equal to 3 and Office Code equal to 233. Digits defined in LDIT as an Office Code must be a code served by this office and therefore defined on the Normalized Office Code Record. When an Office Code is entered in a digit analysis table instead of a Route Index, the 5ESS Switch knows that Directory Number Translations are required to terminate to a line defined in this office.

When this call enters Screening Index 1 with No Prefix and Code Index 3, the result is REGL which again means use what was found in digit analysis, in this case, Office Code 233. Again, this "route" to a local Office Code can be overridden with a Special Route Index when it is inappropriate for an originator to complete to a local number. See Screening Index 4 for the combination of No Prefix and Code Index 3: The WATS Band 4 subscriber would be given an announcement.

In offices where more than one LDIT is used for line originations, screening can be simplified with this revised screening method. Usually, a second LDIT is used because the office has two rate areas and it is necessary to get unique Charge Indexes depending on whether the line originator is in Rate Area 1 or 2. (When the second Rate Area is associated with an RSM and the RSM requires a seven digit conversion number for 911, unlike the host, a second DAS and LDIT are usually required.)

With the 5E1 Software Releases, a duplicate set of Screening Indexes were required for the second Rate Area so the appropriate combination of Route Index and Charge Index could be found in the Rate and Route. Because the Regular Route Index (or Office Code) is determined in digit analysis with the 5E2 Software Releases, the same set of Screening Indexes can be used for both Rate Areas.

Two Line Class Codes will still be defined for each customer type. For instance, this office might use 1 MR (Measured Rate) to uniquely describe a one party message rate subscriber. One LCC would be defined for 1MR and Rate Area 1 and another for 1MR and Rate Area 2. Both might indicate Screening Index 1 but would have Digit Analysis Selector (DAS) 1 and 2 respectively for Rate Area 1 and 2. (The DAS is defined so customers in Rate Area 1 use LDIT 1 and customers in Rate Area 2 use LDIT 2.)

Use the example of a customer dialing 767-1234. Assume the LDIT result of Code Index 6 and Route Index 156 is found in LDIT 1 for Rate Area 1 subscribers. Now, the Route Index 156 is also appropriate for the Rate Area 2 subscribers, however, these subscribers should be charged 4 Message Units instead of 3. All that is required when using the same set of Screening Indexes for both Rate Areas is to define the LDIT 2 entry for 767 with Route Index 156 and Code Index 7.

3. TRUNK ORIGINATIONS

Look at some types of trunk originations in this sample office. Each incoming Trunk Group must specify a Screening Index and a Digit Analysis Selector (DAS). The DAS is defined with an Incoming Trunk Digit Interpreter (INDIT) and LDIT, although the LDIT is not necessary used. Digit interpretation always starts for incoming trunks in an INDIT. In the case where the office expects five, six, or seven digit incoming calls and only completes to the 5ESS Switch Office Codes (i.e., the office does not tandem calls through to other offices), it is simplest to enter the digits received of each of the 5ESS Switch Office Codes on the INDIT and enter N in LDIT?

Assume this office has Office Codes 232 and 233 For Trunk Groups where five digits are expected, the appropriate DAS is specified so the INDIT has two entries of 2 and 3 as the Incoming Digits, LDIT? equal to No, Code Index is 1, Office Codes are 232 and 233 respectively and Number of Digits Expected is 5. Screening Index 100 is assigned to this incoming Trunk Group. See Figure 9. This Screening Index is used only for trunk originations so No Prefix is the only type entry that needs to be defined.

Similar to the line origination cases, the entry of REGL found in Screening Index 100 indicates the call should be processed with the Route Index or Office Code found in digit analysis, in this case, the Office Codes 232 or 233 entered in the INDIT. The Charge Index in this case is irrelevant. The far end of the Trunk Group has the responsibility of billing this call for its subscriber. (The Charge Index is pertinent on trunk originations for a CAMA serving office or for some Carrier Interconnect cases. These are illustrated in subsequent paragraphs.)

Perhaps this office also has some incoming Trunk Groups where seven digits are expected for calls terminating in this office. A separate INDIT table is defined similar to the one used for the five digit incoming case except the Incoming Digits are entered as 232 and 233 and Number of Digits Expected is 7. The same Screening Index entry will be used for these calls (i.e., Screening Index 100 and Code Index 1).

If this office expects only four digits to be impulsed for termination in this office, then two Trunk Groups will be required. By defining two INDIT tables, one for each Office Code, 232 and 233, the same Screening Index and Code Index can be used as for the five and seven digit cases. For cases where four digits are expected, none of the digits in the Office Code are received. Therefore, the INDIT should have entries of 0 through 9 as the Incoming Digits. Then each entry is the same as the five and seven digit cases except the Office Code is either 232 or 233 in the particular INDIT and Number of Digits Expected is four.

Perhaps this office receives five digits on a particular Trunk Group, however, not only are Office Codes 232 and 233 received but also 234 through 239 which must be tandemed to other nearby offices. The incoming digits are 2 through 9 with the digits 2 and 3 defined as before for the local Office Codes. Digits 4 and 5 are defined with Route Index 112 and digits 6, 7, 8 and 9 are defined with Route Index 113 to tandem these calls to Offices C and D respectively. Again, Screening Index 100 and Code Index 1 will be used. When a call is received on this Trunk Group with the digits 41234, the Rate and Route entry of REGL means use the information found in digit analysis, this time the Route Index 112 found in this particular INDIT table.

As demonstrated, if the INDIT tables are populated appropriately and the office has no responsibility for billing, only one Rate and Route entry is required to serve a variety of cases.

If this office acts as a CAMA serving office, there are several ways to accomplish routing and screening. Typically, the far end subscriber dials 1+ 7 or 10 digits. The far end office translates the 1, deletes it, and sends all other digits to the CAMA serving office on a "CAMAANI" Trunk Group.

The most efficient way to handle these calls is to use the LDIT built for line originations in this office. To do this, the INDIT is defined with all possible first digits 2 through 9 and LDIT? equal to Yes. The DAS has been defined with this INDIT number and LDIT 1. All calls will be translated in LDIT as if they had been originated in this office. A separate Screening Index must be defined for these calls with the same Code Index entries as for lines, however, only the No Prefix cases must be defined. The 5ESS Switch recognizes with the incoming trunk class of CAMAANI that it must create a billing record for its AMA so the Charge Index found on the Screening Index is used.

If it is necessary to do incoming screening on these calls so that Telephone Numbers in the originators local area or EAS (Extended Area Service) do not complete normally, then either the INDIT or a unique LDIT could be used to separate the traffic.

The INDIT could be populated with all permitted codes which are defined appropriately with either Route Indexes or the 5ESS Switch Office Codes and LDIT? equal to No. All codes not entered would default to reorder. If all calls require the same Charge Index (e.g., a Charge Index defined as Station Paid - SP), then only one entry is required in the Rate and Route similar to Screening Index 100 with the appropriate Charge Index number.

Similarly, a unique LDIT could be used to translate the incoming digits except that LDIT requires all codes to

be translated; the LDIT will not permit a default to reorder. Codes 2 through 9 would be entered on INDIT with LDIT? equal to Yes. In this case, permitted codes could use one Code Index entry in the Rate and Route defined as REGL and a Charge Index for Station Paid and another Code Index entry could be defined with either an announcement or reorder Route Index and Charge Index of Free for the disallowed codes. (Remember, Code Index 1 and 2 may not be used in LDIT.)

When incoming screening is desired, whether to use the INDIT or LDIT to translate the codes is dependent on several things. For instance, code conflicts and ambiguities may not be treated in INDIT. Also, if this office is a CAMA serving office for more than one office, then the LDIT method is probably more efficient. The largest group of codes would probably require the same treatment either permitted or not permitted. When the code should be permitted from one Trunk Group but not for another, then a unique Code Index would be required so that the Screening Index associated with the Trunk Group where the call is permitted would have a REGL entry. The Screening Index associated with the other Trunk Group would have a Route Index which would override the LDIT Route Index and send the call to tone or announcement.

4. RETROFIT OFFICES

Offices which are currently working on 5E1 Software Releases and retrofit to the 5E2 must define DOMSCR (Dominant Screening) forms before retrofitting. This form is found in Division 3, Section 3x of this guide.

These forms will be used by the ODA process to evolve some of the office data changes required for the revised routing and screening. If the entries on a DOMSCR Form are LDIT, 1 and Screening Index 1, then for each code (Incoming Digits) in LDIT 1, the associated Code Index will be analyzed in Screening Index 1 to find an Office Code or a Route Index that is not a tone or announcement. The No Prefix entry will be tried first followed by 1 Prefix and 0 Prefix. When the Office Code or Route Index is found, it is applied to the LDIT code. All PDIT, LDIT and IDDD codes are populated with the Route Indexes and 5ESS Switch Office Codes dependent on the DOMSCR Form entries.

For INDIT codes where LDIT? equals No, the 5ESS Switch Office Codes and Route Indexes are also populated, however, DOMSCR Forms are not used. If only one Screening Index is associated with an INDIT, with an INDIT, then those values will be used. When more than one Screening Index is associated with the INDIT, then the Screening Index which is used by the greatest number of trunks (or lower Numeric Screening index value if equal quantities) is considered dominant and those values will be used to populate the INDIT Office Code and Route Index entries.

No changes will be made to the Rate and Route tables during this evolution process. To take advantage of the revised screening, it will be necessary to use Recent Change to change the Code Indexes in digit analysis entries, and the Code Index entries in the Rate and Route tables.

For new offices that will be using the 5E2 Software Release at cutover, but are initially loading the Office Dependent Data with an ODA Issue of the 5E1 Software Release, the DOMSCR Forms will also be used. The entry of REGL will not be allowed in the 5E1 ODA Issue, but changes can be made in ODA after the office is evolved to the 5E2 ODA Issue.

5. CARRIER INTERCONNECT REQUIREMENTS

The Carrier Interconnect capability adds several new entries to the Rate and Route and also requires additional Code Indexes to be used for carrier specific routing and charging treatments.

In an EAEO (Equal Access End Office), an originating LATA billing record is required on the AMA for all IC (InterLATA Carrier) calls which originate in this office. Charge Indexes must be defined for FGBOL (Feature Group B Originating LATA) calls, where 950-1XXX has been dialed, and FGDOL (Feature Group D Originating LATA) calls. FGD calls have been dialed with a carrier prefix of 10XXX or the line has been

presubscribed to a carrier.

Terminating LATA billing records are required in the office that connects directly to the IC (i.e., where the call enters the LATA). Appropriate Charge Indexes are defined as FGBTL and FGDTL and are always used in an Access Tandem, but only used in the EAEO if the carrier has direct trunks to it. New WATS Band Charge Indexes may also be defined and used on the Rate and Route tables. See Figure 7 for the example of a new IntraLATA WATS Band.

Take a simple example of a carrier call from a subscriber assigned to Screening Index 1. The subscriber dials 10999 + 1 + 219-297-1234. PDIT recognizes the 10999 as a Carrier Access Code and it is retained for the specific carrier translations. The 1 is remembered for entry into the appropriate column of the Rate and Route but it is deleted. Starting with the digit 2, the call is further analyzed in LDIT. LDIT translates 219 as Type of Call, INTER for InterLATA calls. Now the specific carrier translations are determined in the InterLATA Carrier Feature Record (ICF Form) for carrier 999. The Domestic Code Index of 31 and Domestic Route Index of 119 are used for this call. The call now enters Screening Index 1 and the Code Index 31 and 1 Prefix entry is read. This entry has REGL (use the Regular Route Index found in digit analysis, in this case, the carrier specific Route Index of 119 found in ICF) and the Charge Index 30, which has been defined as FGDOL. Route Index 119 may be defined for transporting the call directly to the carrier or indirectly via an Access Tandem.

On the preceding call, if the ICF for the carrier had DIG ROUTING equal to Yes, then the carrier specific Code Index and Route Index would be found on the CDIM (Carrier Destination Mapping) form. If the Code Index for 219 in the LDIT was 13 then the entry for Code Index 13 and Carrier ID 999 would be used in the CDIM to find the carrier specific Code Index and Route Index which are then used in the RAR. DIG ROUTING and the CDIM Form are normally used for the carrier that currently provides long distance services for the office prior to Carrier Interconnect without the subscribers dialing a Carrier Access Code. The CDIM Forms are initially populated so that the carrier specific Code Index and Route Indexes are the same as the LDIT Code Index and Route Indexes. This insures that the routing of long distance calls (InterLATA) continue as they do today and transition is accomplished by changing the carrier specific Code Index and Route Indexes. If this carrier is permitted and accepts IntraLATA calls, then Code Indexes other than those found in LDIT must be used for the carrier specific Code Indexes. Digit Routing and the CDIM may also be used for other carriers whenever more flexibility is needed to obtain the appropriate carrier Route Index and Charge Index.

The new RAR field CBLK (Carrier Block) is used in conjunction with Line Screening. When Line Screening is equal to Yes and the call is a carrier call, the Rate and Route entry associated with the regular digit analysis forms (PDIT, LDIT and IDDD) is used first. Only if the call succeeds will the carrier specific Code Index and Route Index be used for the second reading of RAR.

There are several ways that Line Screening is set to Yes. The first way is part of the Office Dependent Data defined by the 5ESS Switch owner. There is a new field on the LCC (Line Class Code) form called LINE SCREENING. Line Screening should equal Yes for any LCC that requires screening to be checked first by the regular digit analysis Code Index. Yes is always used for LCCs defined for WATS Bands, Toll Diversion and Code Restriction. No is always used for Charge-A-Call; this is a special case and will be described later.

When the regular digit analysis Code Index is read in the RAR, both the Toll Diversion and Carrier Block designations are analyzed. If both are equal to No, the call processes normally and the RAR is read again, this time using the carrier specific Code Index and Route Index found in either the ICF or CDIM.

For example, a WATS Band 4 subscriber is presubscribed to carrier 998 and dials 1 + 219 + seven digits. Note, physical WATS lines must be preassigned to a specific carrier and may not dial a carrier Access Code. The Line Class Code has Line Screening equal to Yes and the Screening Index is 4. LDIT is defined with Code Index 13 and the Domestic Code Index and Route Index for carrier 998, found in that carrier's ICF, are 30 and 179 respectively. Because Line Screening is equal to Yes, the RAR entry for Code Index 13 and 1

Prefix on Screening Index 4 is read first. (Charge Index 18 in this entry needs to be defined as WATS Band 4.) Both Toll Diversion and Carrier Block are equal to No. Therefore, call processing continues with the carrier specific Code Index 30 and 1 Prefix. This entry indicates the REGL Route Index, 179, should be used and Charge Index 38 is defined as WATS Band 4 InterLATA with a Group Billing Number. Let's see what happens when this same line originates a call with 1 + 213 + seven digits. All the information is the same except Code Index 17 is defined for 213 in the LDIT. This time Code Index 17 and 1 Prefix has Carrier Block equal to Yes. This causes the call to be completed to the Route Index found in this entry, in this case it is for an announcement which tells the subscriber the call is out of band.

For Code Restriction, the processing is similar but Carrier Block should be Yes on the RAR entries which are restricted by forcing the call to tone or announcement.

There are two cases for Toll Diversion; RVB (Reverse Battery) and ATT (Attendant). The LCC is again defined with Line Screening equal to Yes. The call processing is similar to that of the WATS case except what happens to the call when Toll Diversion is other than No on the entry for the regular digit analysis Code Index. When ATT is found, the Call completes to the attendant of this member's Terminal Group. When RVB is found, Reverse Battery is applied on the line toward the PBX. The PBX will either tear the call down or allow it to continue. If the call stays up, the 5ESS Switch will read the entry again except the RVB will be ignored on the second read. Therefore, the call will continue using the carrier specific Code Index and Route Index.

There are several cases where the software program forces Line Screening to be Yes even though the LCC has been defined with No. These are on a per call basis. That is, Line Screening is temporarily changed to Yes for the carrier call being processed under the following conditions:

- A. 10 digits are dialed without a 1 or 0 prefix.
- B. 7 digits are dialed with 1+ or 0+.
- C. The LCC has a Class of Service equal to CHGCALL and the ICF for the carrier on this call has CAC SCRNING equal to Yes.

The first two conditions allow enforcement of local dialing requirements for carrier calls. By setting Carrier Block to Yes for all entries on all Screening Indexes where the call is normally given an announcement for either dialing a prefix when not allowed or not dialing a required prefix, the carrier calls will also be routed to these announcements when dialed improperly.

The third condition enables a carrier to specify whether or not it wants traditional screening done when calls originate from Charge-A-Call stations (Coinless Public Telephones). If the carrier's ICF has CAC SCRNING equal to No, then the special software routine to block NORMAL 10 digit calls that are not 0+ or not NPA + 555 is not invoked. Also, Line Screening remains set to No. All calls correctly dialed will be sent to the carrier by using the carrier specific Code Index and Route Index. If the carrier's ICF has CAC SCRNING equal to Yes, then the special software routine is invoked and Line Screening is temporarily set to Yes for this call. All entries on the Screening Index assigned to Charge-A-Call that enforce traditional CAC screening (i.e., block the originator with an announcement), must have Carrier Block equal to Yes.

All demonstrated cases of the use of the CBLK field show that when it is Yes, the customer is routed on the Route Index found with the CBLK entry. This is expected to be a tone or announcement to indicate failure to the subscriber. In any case, the CBLK must not be Yes if the associated Route Index entry is REGL because no Route Index number will be found.

The new field IECR (Interexchange Carrier Restriction) is part of the capability that provides call restriction from certain subscribers to a particular carrier. This is also referred to as non-payer screening which was

originally intended as a service to the carrier for which the 5ESS Switch is providing billing (i.e., the carrier which is providing toll service before CI). The 5ESS Switch is not limited to providing this service to only one carrier, however, the screening requirements can become complex if the carriers do not share the same set of non-paying subscribers.

If IECR is equal to Yes, a special two digit ANI information number will be outpulsed on the subsequent Trunk Group. The far end of the Trunk Group is typically a TSPS or similar OS (Operator Service) facility which is equipped for long term OS signalling and can recognize the special ANI information digits as an indication of a non-payer.

If a subscriber normally assigned a Line Class Code which uses Screening Index 1 needs to be screened as a non-payer, first copy Screening Index 1. Figure 8 is an example of Screening Index 1 revised for non-payer screening for Carrier A and has been assigned 51 as the revised Screening Index number. A new Line Class Code will also be defined with Screening Index 51.

First, it must be determined which Code Indexes are used for this carrier. If the ICF for the carrier has DIG ROUTING equal to No, then all Code Indexes are on the ICF. If DIG ROUTING equals Yes, then the carrier Code Indexes are found on the CDIM. To be able to block calls for this carrier and still allow calls to other carriers, including the local company, it is obvious that the Code Indexes must be specifically for this carrier.

If DIG ROUTING is Yes, then it is likely that Carrier A is the current long distance provider that is in transition and the carrier non-specific Code Indexes 1 through 26 will need to be checked in addition to any carrier specific Code Indexes for this carrier. If DIG ROUTING is No, then the carrier specific Code Index needs treatment.

For each Code Index entry used for this carrier (excluding 800 calls) and the call routes to an appropriate OS facility, enter Y for IECR. For this carrier's Code Indexes that do not currently route to the OS facility, either change the Route Index to one for a tone or announcement that will block the originator or optionally enter the Route Index for the OS facility and make IECR equal to Yes.

The example in Figure 8 of Screening Index 51 shows that non-operator dialed codes are being routed to Route Index 10 which is a special announcement. Carrier A is digit routing in transition and uses Code Indexes 2, 12 - 19, 25 and 29. Now when subscribers who normally are assigned to Screening Index 1 become non-payers of Carrier A, they will be assigned to the new Line Class Code which will allow normal completion on all calls except to Carrier A.

If Carrier A and Carrier B both uniquely require non-payer screening, then three new Line Class Codes and Screening Indexes would be required for this specific case. One to restrict subscriber access to Carrier A, one to restrict subscriber access to Carrier B, and one to restrict subscriber access to Carrier A and B. All other Screening Indexes with other types of subscribers (WATS, Hotel-Motel, etc.) which require non-payer screening, similarly need to be duplicated. The more carriers that are given the option for non-payer screening, the more complex the translations.

Special carrier routing based on Class Of Service can be accomplished by assigning a unique Code Index for the carrier. Special carrier routing may be to route the call to an operator or to a tone or announcement. For instance, on calls to Carrier A from a coin phone, the carrier may request that calls not dialed 0+ also be sent to the carrier's operator service facility for coin return and collection. However, Carrier B does not have the ability to return or collect coins, and therefore requests calls not dialed 0+ to route to an announcement that tells the call originator this type of call is not accepted by this carrier.

As illustrated, the majority of screening requirements for line originated carrier calls are cared for by the Line Screening indicator and the CBLK designations used in the non-carrier specific Code Indexes. A specific carrier Code Index is needed for FGB calls to the FGBOL Charge Index can be used. Distinct carrier Code

Indexes are also required for FGD billing but the quantity is dependent on the specific needs of the carriers. Usually, for each carrier that requires non-payer screening or Class Of Service routing, a unique carrier specific Code Index will be required. However, if several carriers have identical requirements for shared non-payers and Class Of Service without specific carrier Route Indexes, they may share a Code Index. One Code Index is required for all other carriers who do not have special routing requirements other than those distinguished by the ICF Forms.

For trunk originated calls in an EAEO, additional Code Indexes are required only if the office has directly connected trunks incoming (or Two way) from any carrier. Then FGB and/or FGD Code Indexes, depending on the type of trunks, are required to provide FGBTL and FGBTL billing records.

For terminating calls from a carrier to an EAEO on a direct Trunk Group, the INDIT must be populated so that calls received that are not subtending codes of this office will be routed to an announcement and the Route Index for the announcement has a RT DES TYP of BADLATA.

On carrier calls incoming from the Access Tandem, additional Code Indexes are not required because the AT is doing the terminating LATA billing. However, two distinct Trunk Groups separating the local company traffic from the carrier traffic are required so the Trunk Group for carrier traffic can be defined to return answer supervision on termination to a free line.

In a trunk only Access Tandem office, FGBOL and FGDOL billing records are the responsibility of the EAEO and therefore not required in the AT. However, the Access Tandem does have billing responsibilities for calls incoming from any carrier so at least one Code Index will be required for each of the charging types, FGBTL and FGDTL. There will be additional requirements if the AT also acts as a CAMA serving office.

Although the AT has no billing responsibilities on an EAEO to AT to carrier call, the carrier specific Code Indexes and Route Indexes are derived differently than the EAEO routing to a carrier previously described. When the EAEO must route a carrier call through the AT with equal access signalling, it will prefix digits on its Route Index to divide major categories of calls so the AT can select a proper Trunk Group to the carrier. Spare toll center codes are used as the prefix digits. The format 0ZZ is used for domestic traffic and the format 1NX is used for international traffic. Another distinction may be for operator and non-operator routes for each of the domestic and international types. Any other distinctions required for flexible routing through the AT may be assigned as long as the EAEO and AT are coordinated for prefixing and receiving the codes. There may be common 0ZZ and 1NX codes established for the entire LATA which would ease translation considerations in the Access Tandem.

For instance, a subscriber of the EAEO originates a carrier call by dialing 10997 + 0 + 217-363-1234. The EAEO translates the call and recognizes this call must be routed over a common Trunk Group to the Access Tandem. On the Route Index (which was specified in carrier 997's ICF for Zero Plus), the 0ZZ code of 012 is prefixed. The EAEO seizes a trunk to the AT and outputs KP + 012 + 997 + ST. The 5ESS Switch Software Release automatically inserts the Carrier Identification Number of 997; this would also be true if this subscriber had presubscribed to carrier 997 and had not dialed 10997.

The AT receives 012997 and translates the 012 on its INDIT as Type of CI call of AVT and Code Index 1. This causes further translations to be done in the Carrier Destination Mapping Record (CDIM Form). The Code Index (1 in this example) and the Carrier ID of 997 are then used to find the carrier specific Code Index and Route Index. The code Index on the RAR could indicate REGL in which case the carrier specific Route Index is used to seize a trunk to the carrier. The AT cuts through the talking path between the carrier and the EAEO so the EAEO can send the second stage of outputting KP + (II + ANI) + ST. (II are the two digit information digits and ANI is the calling number, which are only outputted if requested by the carrier.) After the subscriber has finished dialing, the EAEO outputs KP + 0 + 217-363-1234 + ST to the carrier.

On calls incoming to the AT from a carrier, in addition to the FGBTL and FGDTL billing responsibilities, the AT

must also perform screening to ensure that only calls to subtending codes are routed to the appropriate end office. Calls to non-subtending codes must be routed to an announcement and the Route Index for the announcement has a RT DES TYP of BADLATA.

6. GLOSSARY

ATT	Attendant
CDIM	Carrier Destination Mapping
CI	Carrier Interconnect
DOMSCR	Dominant Screening
EAEO	Equal Access End Office
EAS	Extended Area Service
FGBOL	Feature Group B Originating LATA
FGDOL	Feature Group D Originating LATA
IC	InterLATA Carrier
LCC	Line Class Code
LDIT	Local Digit Interpreter Table
OS	Operator Service
RVB	Reverse Battery

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX _ 1 _

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS 1 MR
	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C				
1	REG L		1	N	N	N											0 -		
2	REG L		30	N	N	N	REG L	30	N	N	N	REG L	30	N	N	N			
3	REG L		3	N	N	N	4	1	N	N	Y	6	1	N	N	Y	INTRAOFFICE/Local Flat Rate		
4	REG L		4	N	N	N	4	1	N	N	Y	6	1	N	N	Y	1 MESSAGE UNIT		
5	REG L		5	N	N	N	4	1	N	N	Y	6	1	N	N	Y	2 MESSAGE UNIT		

6	REG L		6	N	N	N	4		1	N	N	Y	6		1	N	N	Y	3 MESSAGE UNIT
7	REG L		7	N	N	N	4		1	N	N	Y	6		1	N	N	Y	4 MESSAGE UNIT
8	REG L		8	N	N	N	4		1	N	N	Y	6		1	N	N	Y	5 MESSAGE UNIT
9	REG L		2	N	N	N	4		1	N	N	Y	6		1	N	N	Y	SP 7DIGIT INTRA LATA
10	4		1	N	N	Y	REG L		2	N	N	N	151		1	N	N	N	SP 10 DIGIT
11	REG L		30	N	N	N	4		1	N	N	Y	6		6	N	N	Y	WATS Bd 8 - 7D INTRA LATA/INTE
12	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS Bd 8 - 10D INTRA LATA/INT
13	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS Bd 1 - 10D INTRA LATA/INT
14	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS Bd 2 - 10D INTRA LATA/INT
15	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS Bd 3 - 10D INTRA LATA/INT
16	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS Bd 4 - 10D INTRA LATA/INT
17	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS Bd 5 - 10D INTRA LATA/INT
18	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS Bd 6 - 10D INTRA LATA/INT
19	4		1	N	N	Y	REG L		30	N	N	N	152		30	N	N	N	WATS OUT OF BAND
20	4		1	N	N	Y	4		1	N	N	Y	151		1	N	N	N	0+ HOME NPA
21	REG L		10	N	N	N	4		1	N	N	N	151		1	N	N	N	411 DIRECTORY ASSISTANCE
22	REG L		1	N	N	N	4		1	N	N	N	3		1	N	N	N	611 REPAIR
23	REG L		1	N	N	N	REG L		1	N	N	N	REG L		1	N	N	N	911 EMERGENCY
24	4		1	N	N	Y	REG L		30	N	N	N	3		1	N	N	N	800 INWATS
25	4		1	N	N	Y	REG L		30	N	N	N	152			N	N	N	900 MASS CALLING
26	REG L		1	N	N	N	4		1	N	N	Y	3		1	N	N	Y	950 ENFIA C - PRE CI
27																			
28	REG L		31	N	N	N	4		1	N	N	N	3		1	N	N	N	FGB
29	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	N	CARRIER A FGD
30	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	N	CARRIER B FGD
31	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	N	All Other Carries FGD

Figure 1 SCREENING INDEX 1

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX _2_

CO DE I	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS DTF Coin
	ROU TE	CHA RGE	T D	C I	C I	C I	ROU TE	N X	T D	C I	C I	C I	ROU TE	N X	T D	C I	C I	C I	

N D E X	IN D E X	N X X	IN D E X	V	SE T C R K	IN D E X	X	CHA RGE IN D E X	V	SE T C R K	IN D E X	X	CHA RGE IN D E X	V	SE T C R K	IN D E X	0 -
1	REG L		14	N	N	N											
2	REG L		34	N	N	N	REG L	34	N	N	N	REG L	34	N	N	N	
3	REG L		13	N	N	N	4	12	N	N	N	6	12	N	N	N	INTRAOFFICE/Local Flat Rate
4	REG L		13	N	N	N	4	12	N	N	N	6	12	N	N	N	1 MESSAGE UNIT
5	151		14	N	N	N	4	12	N	N	N	6	12	N	N	N	2 MESSAGE UNIT
6	151		14	N	N	N	4	12	N	N	N	6	12	N	N	N	3 MESSAGE UNIT
7	151		14	N	N	N	4	12	N	N	N	6	12	N	N	N	4 MESSAGE UNIT
8	151		14	N	N	N	4	12	N	N	N	6	12	N	N	N	5 MESSAGE UNIT
9	151		14	N	N	N	4	12	N	N	N	6	12	N	N	N	SP 7DIGIT INTRA LATA
10	4		12	N	N	N	151	14	N	N	N	151	14	N	N	N	SP 10 DIGIT INTRA LATA
11	152		34	N	N	N	4	12	N	N	N	6	12	N	N	N	WATS Bd 8 - 7D
12	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INTE WATS Bd 8 - 10D
13	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INT WATS Bd 1 - 10D
14	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INT WATS Bd 2 - 10D
15	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INT WATS Bd 3 - 10D
16	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INT WATS Bd 4 - 10D
17	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INT WATS Bd 5 - 10D
18	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INT WATS Bd 6 - 10D
19	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	INTER LATA/INT WATS OUT OF BAND
20	4		12	N	N	N	4	12	N	N	N	151	14	N	N	N	0+ HOME NPA
21	REG L		11	N	N	N	4	12	N	N	N	3	12	N	N	N	411 DIRECTORY ASSISTANCE
22	REG L		12	N	N	N	4	12	N	N	N	3	12	N	N	N	611 REPAIR
23	REG L		12	N	N	N	REG L	12	N	N	N	REG L	12	N	N	N	911 EMERGENCY
24	4		12	N	N	N	REG L	34	N	N	N	3	12	N	N	N	800 INWATS
25	4		12	N	N	N	152	34	N	N	N	152	34	N	N	N	900 MASS CALLING
26	REG L		12	N	N	N	4	12	N	N	N	3	12	N	N	N	950 ENFIA C - PRE CI
27																	
28	REG L		31	N	N	N	4	1	N	N	N	3	1	N	N	N	FGB
29	152		34	N	N	N	152	34	N	N	N	REG L	34	N	N	N	CARRIER A FGD
30				N	N	N		1		N	N	REG	34		N	N	CARRIER B FGD

	11		1		N	11			N	N	L			N		N			
31	REG L		34	N	N	N	REG L		34	N	N	N	REG L		34	N	N	N	All Other Carriers FGD

Figure 2 SCREENING INDEX 2

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX _3_

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS Hotel/Motel ANI 6 Message Registers
	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	
1	REG L		1	N	N	N													0 -
2	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	N	
3	REG L		20	N	N	N	4		1	N	N	Y	6		1	N	N	Y	INTRAOFFICE/Loc al Flat Rate
4	REG L		20	N	N	N	4		1	N	N	Y	6		1	N	N	Y	1 MESSAGE UNIT
5	REG L		21	N	N	N	4		1	N	N	Y	6		1	N	N	Y	2 MESSAGE UNIT
6	REG L		22	N	N	N	4		1	N	N	Y	6		1	N	N	Y	3 MESSAGE UNIT
7	REG L		23	N	N	N	4		1	N	N	Y	6		1	N	N	Y	4 MESSAGE UNIT
8	REG L		24	N	N	N	4		1	N	N	Y	6		1	N	N	Y	5 MESSAGE UNIT
9	151		1	N	N	N	4		1	N	N	Y	6		1	N	N	Y	SP 7DIGIT INTRA LATA
10	4		1	N	N	Y	151		1	N	N	N	151		1	N	N	N	SP 10 DIGIT INTRA LATA
11	152		30	N	N	N	4		1	N	N	Y	6		1	N	N	Y	WATS Bd 8 - 7D INTER LATA/INTE
12	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS Bd 8 - 10D INTER LATA/INT
13	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS Bd 1 - 10D INTER LATA/INT
14	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS Bd 2 - 10D INTER LATA/INT
15	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS Bd 3 - 10D INTER LATA/INT
16	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS Bd 4 - 10D INTER LATA/INT
17	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS Bd 5 - 10D INTER LATA/INT
18	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS Bd 6 - 10D INTER LATA/INT
19	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	N	WATS OUT OF BAND
20	4		1	N	N	Y	4		1	N	N	Y	151		1	N	N	N	0+ HOME NPA
21	REG			N	N	N			1	N	N	3			1	N	N	N	411 DIRECTORY

	L		1		N		4			N	N				N	N	ASSISTANCE	
22	REG L		1	N	N	N	4		1	N	N	N	3		1	N	N	611 REPAIR
23	REG L		1	N	N	N	REG L		1	N	N	N	REG L		1	N	N	911 EMERGENCY
24	4		1	N	N	Y	REG L		30	N	N	N	3		1	N	N	800 INWATS
25	4		1	N	N	Y	152		30	N	N	N	152		30	N	N	900 MASS CALLING
26	REG L		1	N	N	N	4		1	N	N	Y	3		1	N	N	950 ENFIA C - PRE CI
27																		
28	REG L		31	N	N	N	4		1	N	N	N	3		1	N	N	FGB
29	152		30	N	N	N	152		30	N	N	N	REG L		30	N	N	CARRIER A FGD
30	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	CARRIER B FGD
31	REG L		30	N	N	N	REG L		30	N	N	N	REGI		30	N	N	All Other Carriers FGD

Figure 3 SCREENING INDEX 3

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX _ 4 _

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS WATS Band 4
	ROU TE IN D E X	N X X	CHA RGE IN D E X	T D V	C I C	I C	ROU TE IN D E X	N X X	CHA RGE IN D E X	T D V	C I C	I C	ROU TE IN D E X	N X X	CHA RGE IN D E X	T D V	C I C	I C	
1	3		1	N	N	N													0 -
2	3		1	N	N	N	3		1	N	N	N	3		30	N	N	N	
3	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	INTRAOFFICE/Loc al Flat Rate
4	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	1 MESSAGE UNIT
5	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	2 MESSAGE UNIT
6	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	3 MESSAGE UNIT
7	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	4 MESSAGE UNIT
8	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	5 MESSAGE UNIT
9	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	SP 7DIGIT INTRA LATA
10	3		1	N	N	N	7		1	N	N	N	3		1	N	N	N	SP 10 DIGIT INTRA LATA
11	7		1	N	N	N	3		1	N	N	N	3		1	N	N	N	WATS Bd 8 - 7D INTER LATA/INTR
12	3		1	N	N	N	7		1	N	N	N	3		1	N	N	N	WATS Bd 8 - 10D INTER LATA/INT
13	4		1	N	N	N	REG L		18	N	N	N	3		1	N	N	N	WATS Bd 1 - 10D INTER LATA/INT
14	4		1	N	N	N	REG L		18	N	N	N	3		1	N	N	N	WATS Bd 2 - 10D INTER LATA/INT
15	4		1	N	N	N	REG L		18	N	N	N	3		1	N	N	N	WATS Bd 3 - 10D INTER LATA/INT
16	4		1		N	N	REG		18		N	N	3		1		N	N	WATS Bd 4 - 10D

17	3	1	N	N	Y	L	1	N	N	Y	3	1	N	N	Y	INTER LATA/INT
18	3	1	N	N	Y	7	1	N	N	Y	3	1	N	N	Y	WATS Bd 5 - 10D
19	3	1	N	N	Y	7	1	N	N	Y	3	1	N	N	Y	INTER LATA/INT
20	3	1	N	N	Y	3	1	N	N	Y	3	1	N	N	Y	WATS Bd 6 - 10D
21	3	1	N	N	Y	3	1	N	N	Y	3	1	N	N	Y	INTER LATA/INT
22	3	1	N	N	Y	3	1	N	N	Y	3	1	N	N	Y	WATS OUT OF
23	REG L	1	N	N	N	REG L	1	N	N	N	REG L	1	N	N	N	BAND
24	3	1	N	N	Y	3	1	N	N	Y	3	1	N	N	Y	0+ HOME NPA
25	3	1	N	N	Y	3	1	N	N	Y	3	1	N	N	Y	411 DIRECTORY
26	3	1	N	N	Y	3	1	N	N	Y	3	1	N	N	Y	ASSISTANCE
27	3	1	N	N	Y	3	1	N	N	Y	3	1	N	N	Y	611 REPAIR
28	3	1	N	N	N	3	1	N	N	N	3	1	N	N	N	911 EMERGENCY
29	3	1	N	N	N	REG L	38	N	N	N	3	1	N	N	N	800 INWATS
30	3	1	N	N	N	REG L	38	N	N	N	3	1	N	N	N	900 MASS
31	3	1	N	N	N	REG L	38	N	N	N	3	1	N	N	N	CALLING
																950 ENFIA C - PRE CI
																FGB
																CARRIER A FGD
																CARRIER B FGD
																All Other Carriers FGD

Figure 4 SCREENING INDEX 4

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX _5_

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS
	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	SE B D E L X R K	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	SE B D E L X R K	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	SE B D E L X R K	
1	REG L		1	R V B	N N														0 -
2	REG L		30	R V B	N N	REG L		30	R V B	N N		REG L		30	R V B	N N			1DDD 010, 011+, 01+
3	REG L		4	N	N	4		1	N	N	Y	6		1	N	N	Y		INTRAOFFICE/Loc al Flat Rate
4	REG L		4	N	N	4		1	N	N	Y	6		1	N	N	Y		1 MESSAGE UNIT
5	REG L		5	N	N	4		1	N	N	Y	6		1	N	N	Y		2 MESSAGE UNIT
6	REG L		6	N	N	4		1	N	N	Y	6		1	N	N	Y		3 MESSAGE UNIT
7	REG L		7	N	N	4		1	N	N	Y	6		1	N	N	Y		4 MESSAGE UNIT
8	REG			N	N			1		N	Y	6		1		N	N		5 MESSAGE UNIT

	L		8		N	4			N	N				N		Y	
9	REG L		2	R V B	N N N	4		1	N	N	Y	6		1	N	N	SP 7DIGIT INTRA LATA
10	4		1	N	N N	REG L		2	R V B	N N N		151		1	R V B	N	SP 10 DIGIT INTRA LATA
11	REG L		30	R V B	N N N	4		1	N	N	Y	6		1	N	N	WATS Bd 8 - 7D INTER LATA/INTE
12	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS Bd 8 - 10D INTER LATA/INT
13	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS Bd 1 - 10D INTER LATA/INT
14	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS Bd 2 - 10D INTER LATA/INT
15	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS Bd 3 - 10D INTER LATA/INT
16	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS Bd 4 - 10D INTER LATA/INT
17	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS Bd 5 - 10D INTER LATA/INT
18	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS Bd 6 - 10D INTER LATA/INT
19	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	WATS OUT OF BAND
20	4		1	N	N N	4		1	N	N	N	151		1	R V B	N	0+ HOME NPA
21	REG L		10	N	N N	4		1	N	N	N	151		1	R V B	N	411 DIRECTORY ASSISTANCE
22	REG L		1	N	N N	4		1	N	N	N	3		1	N	N	611 REPAIR
23	REG L		1	N	N N	REG L		1	N	N	N	REG L		1	N	N	911 EMERGENCY
24	4		1	N	N N	REG L		30	N	N	N	152		1	N	N	800 INWATS
25	4		1	N	N N	REG L		30	R V B	N N N		152		30	R V B	N	900 MASS CALLING
26	REG L		1	N	N N	4		1	N	N	Y	3		1	N	N	950 ENFIA C - PRE CI
27																	
28	REG L		31	N	N N	4		1	N	N	N	3		1	N	N	FGB
29	REG L		30	N	N N	REG L		30	N	N	N	REG L		30	N	N	CARRIER A FGD
30	REG			N	N N	REG		30		N	N	REG		30		N	CARRIER B FGD

	L		30		N	L			N	N	L			N	N				
31	REG		30	N	N	N	REG		30	N	N	N	REG		30	N	N	N	All Other Carriers
	L		30		N	L			30		N	L			30		N		FGD

Figure 5 SCREENING INDEX 5

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX 6 _____

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS Charge-A-Call CPT
	ROU TE I N D E X	N X X	CHA RGE I N D E X	T D V	C I C	ROU TE I N D E X	N X X	CHA RGE I N D E X	T D V	C I C	ROU TE I N D E X	N X X	CHA RGE I N D E X	T D V	C I C	ROU TE I N D E X	N X X	CHA RGE I N D E X	
1	REG L		1	N	N	N													0 -
2	REG L		30	N	N	N	5	1	N	N	Y	REG L		30	N	N	N		
3	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		INTRAOFFICE/Loc al Flat Rate
4	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		1 MESSAGE UNIT
5	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		2 MESSAGE UNIT
6	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		3 MESSAGE UNIT
7	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		4 MESSAGE UNIT
8	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		5 MESSAGE UNIT
9	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		SP 7DIGIT INTRA LATA
10	5		1	N	N	Y	REG L	1	N	N	N	151		1	N	N	N		SP 10 DIGIT INTRA LATA
11	5		1	N	N	Y	5	1	N	N	Y	6		1	N	N	Y		WATS Bd 8 - 7D INTER LATA/INTE
12	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS Bd 8 - 10D INTER LATA/INT
13	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS Bd 1 - 10D INTER LATA/INT
14	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS Bd 2 - 10D INTER LATA/INT
15	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS Bd 3 - 10D INTER LATA/INT
16	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS Bd 4 - 10D INTER LATA/INT
17	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS Bd 5 - 10D INTER LATA/INT
18	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS Bd 6 - 10D INTER LATA/INT
19	5		1	N	N	Y	REG L	30	N	N	N	152		30	N	N	N		WATS OUT OF BAND
20	5		1	N	N	Y	5	1	N	N	Y	151		1	N	N	N		0+ HOME NPA
21	REG L		1	N	N	N	4	1	N	N	N	3		1	N	N	N		411 DIRECTORY ASSISTANCE
22	REG L		1	N	N	N	4	1	N	N	N	3		1	N	N	N		611 REPAIR
23	REG L		1	N	N	N	REG L	1	N	N	N	REG L		1	N	N	N		911 EMERGENCY

24	4		1	N	N	Y	REG L		30	N	N	N	3		1	N	N	Y	800 INWATS
25	5		1	N	N	Y	5		1	N	N	Y	152		30	N	N	N	900 MASS CALLING
26	REG L		1	N	N	N	4		1	N	N	Y	3		1	N	N	Y	950 ENFIA C - PRE CI
27																			
28	REG L		31	N	N	N	4		1	N	N	N	3		1	N	N	N	FGB
29	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	N	CARRIER A FGD
30	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	N	CARRIER B FGD
31	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	N	All Other Carriers FGD

Figure 6 SCREENING INDEX 6

ESS 5301(06)TG-5

RATE AND ROUTE RECORD
5ESS SWITCH

DATE _____

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX _7_

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS IntraLATA WATS Band
	ROU TE I N D E X	N X X	CHA RGE I N D E X	T D V	C I C	I C	ROU TE I N D E X	N X X	CHA RGE I N D E X	T D V	C I C	I C	ROU TE I N D E X	N X X	CHA RGE I N D E X	T D V	C I C	I C	
1	3		1	N	N	Y													0 -
2	3		1	N	N	Y	3		1	N	N	Y	3		1	N	N	Y	
3	7		1	N	N	Y	3		1	N	N	Y	3		1	N	N	Y	INTRAOFFICE/Loc al Flat Rate
4	REG L		25	N	N	N	3		1	N	N	Y	3		1	N	N	Y	1 MESSAGE UNIT
5	REG L		25	N	N	N	3		1	N	N	Y	3		1	N	N	Y	2 MESSAGE UNIT
6	REG L		25	N	N	N	3		1	N	N	Y	3		1	N	N	Y	3 MESSAGE UNIT
7	REG L		25	N	N	N	3		1	N	N	Y	3		1	N	N	Y	4 MESSAGE UNIT
8	REG L		25	N	N	N	3		1	N	N	Y	3		1	N	N	Y	5 MESSAGE UNIT
9	REG L		25	N	N	N	3		1	N	N	Y	3		1	N	N	Y	SP 7DIGIT INTRA LATA
10	4		1	N	N	Y	REG L		25	N	N	N	3		1	N	N	Y	SP 10 DIGIT INTRA LATA
11	3		1	N	N	Y	7		1	N	N	Y	3		1	N	N	Y	WATS Bd 8 - 7D INTER LATA/INTE
12	3		1	N	N	Y	7		1	N	N	Y	3		1	N	N	Y	WATS Bd 8 - 10D INTER LATA/INT
13	3		1	N	N	Y	7		1	N	N	Y	3		1	N	N	Y	WATS Bd 1 - 10D INTER LATA/INT
14	3		1	N	N	Y	7		1	N	N	Y	3		1	N	N	Y	WATS Bd 2 - 10D INTER LATA/INT
15	3		1	N	N	Y	7		1	N	N	Y	3		1	N	N	Y	WATS Bd 3 - 10D INTER LATA/INT

16	3		1	N	N	N	Y	7		1	N	N	N	Y	3		1	N	N	N	Y	WATS Bd 4 - 10D INTER LATA/INT
17	3		1	N	N	N	Y	7		1	N	N	N	Y	3		1	N	N	N	Y	WATS Bd 5 - 10D INTER LATA/INT
18	3		1	N	N	N	Y	7		1	N	N	N	Y	3		1	N	N	N	Y	WATS Bd 6 - 10D INTER LATA/INT
19	3		1	N	N	N	Y	7		1	N	N	N	Y	3		1	N	N	N	Y	WATS OUT OF BAND
20	3		1	N	N	N	Y	3		1	N	N	N	Y	3		1	N	N	N	Y	0+ HOME NPA
21	3		1	N	N	N	Y	3		1	N	N	N	Y	3		1	N	N	N	Y	411 DIRECTORY ASSISTANCE
22	3		1	N	N	N	Y	3		1	N	N	N	Y	3		1	N	N	N	Y	611 REPAIR
23	REG L		1	N	N	N	Y	REG L		1	N	N	N	Y	REG L		1	N	N	N	Y	911 EMERGENCY
24	3		1	N	N	N	Y	3		1	N	N	N	Y	3		1	N	N	N	Y	800 INWATS
25	3		1	N	N	N	Y	3		1	N	N	N	Y	3		1	N	N	N	Y	900 MASS CALLING
26	3		1	N	N	N	Y	3		1	N	N	N	Y	3		1	N	N	N	Y	950 ENFIA C - PRE CI
27																						
28	3		1	N	N	N	N	3		1	N	N	N	N	3		1	N	N	N	N	FGB
29	REG L		27	N	N	N	N	REG L		27	N	N	N	N	3		1	N	N	N	N	CARRIER A FGD
30	REG L		27	N	N	N	N	REG L		27	N	N	N	N	3		1	N	N	N	N	CARRIER B FGD
31	REG L		27	N	N	N	N	REG L		27	N	N	N	N	3		1	N	N	N	N	All Other Carriers FGD

Figure 7 SCREENING INDEX 7

ESS 5301(06)TG-5

RATE AND ROUTE RECORD
5ESS SWITCH

DATE _____

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX _51_

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS	
	ROU TE IN D E X	N X	CHA RGE IN D EX	T D V	C I C	I C	ROU TE IN D E X	N X	CHA RGE IN D EX	T D V	C I C	I C	ROU TE IN D E X	N X	CHA RGE IN D EX	T D V	C I C	I C		
																				Non Pager Screening for Carrier A Same as Screening Index 1
1	REG L		1	N	N	N														0 -
2	REG L		30	N	Y	N	REG L		30	N	N	Y	REG L		30	N	N	Y	N	
3	REG L		3	N	N	N	4		1	N	N	N	6		1	N	N	N	Y	INTRAOFFICE/Loc al Flat Rate
4	REG L		4	N	N	N	4		1	N	N	N	6		1	N	N	N	Y	1 MESSAGE UNIT
5	REG L		5	N	N	N	4		1	N	N	N	6		1	N	N	N	Y	2 MESSAGE UNIT
6	REG L		6	N	N	N	4		1	N	N	N	6		1	N	N	N	Y	3 MESSAGE UNIT
7	REG L		7	N	N	N	4		1	N	N	N	6		1	N	N	N	Y	4 MESSAGE UNIT
8	REG L		8	N	N	N	4		1	N	N	N	6		1	N	N	N	Y	5 MESSAGE UNIT
9	REG			N	N	N			1		N	Y	6		1		N	N		SP 7DIGIT INTRA

	L		2		N	4			N	N					N		Y	LATA
10	4		1	N	N	Y	REG L		2	N	N	N	151		1	N	N	SP 10 DIGIT INTRA LATA
11	10		30	N	N	N	4		1	N	N	N	6		1	N	N	WATS Bd 8 - 7D INTER LATA/INTE
12	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS Bd 8 - 10D INTER LATA/INT
13	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS Bd 1 - 10D INTER LATA/INT
14	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS Bd 2 - 10D INTER LATA/INT
15	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS Bd 3 - 10D INTER LATA/INT
16	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS Bd 4 - 10D INTER LATA/INT
17	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS Bd 5 - 10D INTER LATA/INT
18	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS Bd 6 - 10D INTER LATA/INT
19	4		1	N	N	N	10		1	N	N	N	152		30	N	N	WATS OUT OF BAND
20	4		1	N	N	N	4		1	N	N	N	151		1	N	N	0+ HOME NPA
21	REG L		10	N	N	N	4		1	N	N	N	151		1	N	N	411 DIRECTORY ASSISTANCE
22	REG L		1	N	N	N	4		1	N	N	N	3		1	N	N	611 REPAIR
23	REG L		1	N	N	N	REG L		1	N	N	N	REG L		1	N	N	911 EMERGENCY
24	4		1	N	N	N	REG L		30	N	N	N	3		1	N	N	800 INWATS
25	4		1	N	N	N	10		1	N	N	N	152		30	N	N	900 MASS CALLING
26	REG L		1	N	N	N	4		1	N	N	N	3		1	N	N	950 ENFIA C - PRE CI
27																		
28	REG L		31	N	N	N	4		1	N	N	N	3		1	N	N	FGB
29	10		1	N	N	N	10		1	N	N	N	REG L		30	N	N	CARRIER A FGD
30	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	CARRIER B FGD
31	REG L		30	N	N	N	REG L		30	N	N	N	REG L		30	N	N	All Other Carriers FGD

Figure 8 SCREENING INDEX 51

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX__ 100__

CO DE I N D E X	NO PREFIX					1 PREFIX					0 PREFIX					REMARKS	
	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C S E T C R K	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C S E T C R K	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C S E T C R K	Trunk Originations EAE0	

1	REG L		1	N	N	N												LOCAL COMPANY TRAFFIC
2	REG L		32	N	N	N												FGDTL INC. TRUNK FROM IC's
3	REG L		33	N	N	N												FGBTL INC. TRUNK FROM IC's

Figure 9 SCREENING INDEX 100

ESS 5301(06)TG-5

RATE AND ROUTE RECORD

DATE _____

5ESS SWITCH

BASE _____ CONT GR _____

5ESS UNIT _____

SCREENING INDEX__101__

CO DE I N D E X	NO PREFIX						1 PREFIX						0 PREFIX						REMARKS
	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	T D V	C I C	ROU TE IN D E X	N X X	CHA RGE IN D EX	
																			Trunk Originations AT
1	REG L		1	N	N	N													LOCAL COMPANY TRAFFIC
2	REG L		40	N	N	N													FGBTL
3	REG L		41	N	N	N													FGDTL

Figure 10 SCREENING INDEX 101

SEC. 1H: GUIDELINES FOR ASSIGNING LINES TO LINE UNITS

1. GENERAL

The following guidelines permit the 5ESS Switch owner to provide Load Balance for the Central Office by assigning Lines to Line Unit Models 1, 2 and 3.

A Line Unit has up to eight concentrators. The number of concentrators in a Line Unit depends upon the concentration required in that Line Unit. For 4:1 concentration, four concentrators are required; six and eight for 6:1 and 8:1, respectively. A concentrator has two Switch Groups, each Switch Group has eight switches, and each switch has four levels.

On initial and growth cutover jobs, class of service balancing should be used while assigning lines to LUs. While assigning lines from a given class, business for example, first assign lines across SMs, within an SM across LUs in that SM, within an LU across two Switch Groups, and within a Switch Group across eight switches. The order to be used while assigning lines across eight switches is switch 0, 1, 4, 5, 2, 3, 6 and 7. This means the first line assigned within a Switch Group goes to switch 0; the second line to switch 1; the third to switch 4; etc. The same order is repeated for lines 9 through 16, 17 through 24, etc., in that Switch Group. The four lines assigned to a switch are assigned to levels 0, 1, 2 and 3, in that order. The following example illustrates the above assignment procedure.

Example

Suppose a 5ESS Switching office has n SMs. Let us denote these SMs SM1, SM2, ..., SM n . Further suppose each SM has four Line Units - LU0, LU1, LU2, and LU3 - each with 8:1 concentration. Let us denote the eight concentrators CN0, CN1, ..., CN7; the two Switch Groups in a concentrator SG0 and SG1; the eight switches in a Switch Group SW0, SW1, ..., SW7; the four levels of a switch LV0, LV1, LV2, and LV3. Also, suppose this office has five classes of service C1, C2, C3, C4 and C5. These classes are ordered according to CCS-usage of their lines. C1 has highest CCS-usage lines and C5 has lowest.

The $2048 * n$ lines (512 lines per Line Unit $* four$ Line Units per SM $* n$ SMs) should be assigned to one class of service at a time and in the order as follows:

SM	Line Unit	Concentrator	Switch Group	Switch in Switch Group	Level
SM1	LU0	CN0	SG0	SW0	LV0
SM2	LU0	CN0	SG0	SW0	LV0
SM3	LU0	CN0	SG0	SW0	LV0
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
SM(n-2)	LU3	CN7	SG1	SW7	LV3
SM(n-1)	LU3	CN7	SG1	SW7	LV3
SM n	LU3	CN7	SG1	SW7	LV3

Thus, these 2048 lines are assigned first to class C1, then to C2, etc., and finally to C5.

Telephones in fire and police departments, operating rooms, switching offices, and most coin phones are usually designated as Essential Service Lines. An office is not expected to have more than 25 percent of its total lines, Essential Service Lines. Essential Service Lines are assigned according in the same manner described above such that no more than one line is assigned to a switch. (Note that since an office is not expected to have more than 25 percent Essential Service Lines, the above procedure will automatically not assign more than one line to a switch).

These guidelines also apply when 8:1 deloaded LUs are engineered for achieving 6:1 concentration or 6:1 LUs for 4:1.

These guidelines assume equal balance of LUs across SMs.

SEC. 1I: MULTI-MODULE RSM

1. FEATURE DESCRIPTION

Prior to the 5E2(2) Software Release, the RMS (Remote Switching Module) is a single switching module connected to a HRM (Host Switching Module) via umbilical links (T1 carrier digital trunks).

With 5E2(2) to 5E4(2) Software Releases, a RSM Site can consist of one to four RSMs. Each switching module in a RSM Site is connected to a Host Switching Module via umbilical links. The switching modules within a RSM Site are linked to each other by ICL (Intra-Cluster Links); these links are also T1 carrier digital trunks (Fig. 1). The RSMLNK form (5517 Record) provides information about umbilicals and ICL's for each RSM of a specific RSM Site. The EQIM form (5700 Record) is used to specify the RSM Site number to which the RSM is assigned.

2. MULTI-MODULE REMOTE SWITCHING MODULE OPTIONS

Multi-module RSM can be purchased with any of the following four options:

- Stand-Alone
- Alarm Input Option
- Alarm Output Option
- Remote Clock Unit

The Alarm Input, Alarm Output and Remote Clock options require additional hardware, assignment of scan points or assignment of distribute points. This hardware must reside on a single RSM of the RSM Site. This common resource RSM is referred to as the Master RSM of a RSM Site.

Stand Alone Option Stand-Alone occurs when some RSMs (partial stand-alone) or all RSMs (full stand-alone) of a particular RSM Site lose the ability to set up calls to their HSMs. When this occurs, the RSMs will set up Intra-RSM calls utilizing ICLs. The Stand-Alone Option is input via the EQSITE form (5722 Record).

2.1 Stand-Alone Billing Option

If a RSM Site is capable of stand-alone operation, it is possible for a RSM Site to have stand-alone billing. With this option, a RSM Site will maintain a billing record during stand-alone. The Stand-Alone Billing Option is input via the EQSITE form.

2.2 Alarm Input Option

With the Alarm Input Option, a full complement of scan points are active to report building, power and fire alarms as with RSMs in prior Generics. The Alarm Input Option is assigned to the RSM Site via the EQSITE form. If a RMS Site has the Alarm Input Option, appropriate scan points must be entered via the RALM form (5516 Record). These scan points must reside on the Master RSM.

2.3 Alarm Output Option

With the Alarm Output Option, distribute points on an ASC (Alarm and Status Circuit) display the current status of alarms for a RSM Site. The ASC is similar to the RAU (Remote Alarm Unit) that existed with RSMs prior to the 5E2(2) Software Release. The RAU is still supported in 5E2(2) for single module RSM Sites, but

an ASC must be used for all multi-module RSM Sites.

The Alarm Output Option is input via the EQSITE form. If the Alarm Output Option is purchased, appropriate distribute points must be entered on the RALM form. In addition, a EQRAU form (5705 Record) must be submitted.

2.4 Remote Clock Unit

The RCU (Remote Clock Unit) helps to ensure that the RSM Site is in synch with the rest of the 5ESS Switch. It also keeps each RSM at a RSM Site in synch when in stand-alone. If RCU is purchased, the EQRCLK form (5723 Record) must be submitted.

3. EMERGENCY NUMBER REROUTING

It is possible to reroute originating calls during stand-alone to a local telephone number at the RSM Site or to a route index. A maximum of ten emergency telephone numbers may be defined for any given RSM Site. When stand-alone mode is in effect, the RSM checks the emergency list and reroutes calls to the numbers on the list to the specified reroute telephone number or route index. The input form used to define these emergency numbers is the EMRNM form (5108 Record).

It is also possible to reroute calls originated outside a module in stand-alone mode to an emergency number physically located on that module. Up to one hundred telephone numbers may be defined on the EMROFC form (5116 Record). When a call to one of the emergency numbers is received and the module is found to be in stand-alone, the call is rerouted using the data entered on the EMROFC form.

If Multi-module RSM (MMRSM) emergency number rerouting is directed to a FX (Foreign Exchange) line, then there should be a FX line on every RSM of the MMRSM. The rerouting TN should be directed to a Multi-Line Hunt Group containing the FX lines. It is recommended that the Multi-Line Hunt Group use UCD hunting which would facilitate the testing of these FX lines using the stand-alone test line or assign each FX line a specific TN.

If MMRSM emergency number rerouting is directed to a Trunk Group via the route index, then this Trunk Group should have members on every RSM of the MMRSM.

4. RSM STAND-ALONE TEST LINES

RSM Stand-alone Test Lines allow testing of RSM emergency number rerouting for a given RSM Site when the RSM Site is not in stand-alone mode. In addition, stand-alone may be tested from the Host 5ESS Switch if desired. Up to ten RSM stand-alone test lines may be defined per RSM. They are defined on a LINE form (5109 Record) with an equipment number (LEN or SLEN) on the RSM for which stand-alone testing is required. The lines must have an LCC (LINE CLASS CODE) with a SERVICE CLASS of "SATSTLN" and a TERMINATING TREATMENT of "INDIV". When conducting the stand-alone rerouting test from the RSM Site, the lines may be used to originate and dial each of the emergency numbers which is normally rerouted during stand-alone operation.

If it is desired to conduct the test from the Host 5ESS Switch, the test lines must be defined with a remote call forwarding BRCS feature (the pre-constructed feature "/CFR" is suitable) with the forwarded-to TN equal to one of the emergency TNs. Either one stand-alone test line may be defined for each emergency TN to be tested, or one stand-alone test line may be defined and Recent Change used during testing to change the forwarded-to TN. No station equipment is required at the RSM if the call-forwarding method is used.

5. TRANSLATION REQUIREMENTS

5.1 LINE TRANSLATIONS

Individual Lines and Multi-Line Hunt Groups are translated similarly to those served by the host except that a unique set of LENS and/or SLENS are available depending on how the particular RSM is equipped. Typically, the RSM will also have different NXXs from the Host which implies a unique set of Telephone Numbers.

MLHG form (5105-1 Record) - If all members of the Multi-Line Hunt Group are served by a single RSM (i.e., they all have equipment assignments, LENS or SLENS, of the RSM), enter the RSM number in the LOCAL RSM field. This allows control of the hunting sequence to be determined by the RSM instead of the Host, providing more efficient call processing.

EMRNM form (5108 Record) - optional Used for the reroute of numbers not served by the RSM when communication with the Host is lost if the RSM has the Stand- Alone option.

LINE form (5109-2 Record) - When a line is assigned to test the Stand-Alone option, an entry must be made in the SA TST ROUTE field to indicate the type of testing desired.

EMROFC form (5116 Record) - optional Data entered on this form is used by the AM (Administrative Module) to reroute calls to a RSM or Local SM that is in the Stand-Alone mode. For more information on this input form, see Division 3, Section 1p.

5.2 TRUNK TRANSLATIONS

Trunks are not defined between the RSM and its Host Switching Module. The linkage required is defined on the RSMLNK form.

All trunk types available at the Host are available at any RSM.

TKGRP form (5202-1 Record) - If all members of the Trunk Group are assigned equipment numbers on a single RSM, enter the RSM number in the LOCAL RSM field. This allows control of the hunting sequence to be determined by the RSM instead of the Host, providing more efficient call processing.

For local announcement trunk groups (where TRKCLS is "ANNCMNT" and LOCAL RMS is entered), enter the trunk group number of the corresponding global announcement trunk group in the GL ANN TG field.

5.3 ROUTING AND CHARGING TRANSLATION

Typically, the RSM is located in a different Rate Area than the Host 5ESS Switch. This then is the major consideration in routing and charging for the RSM, but it is no different than building multiple Rate Areas in a 5ESS Switch that is not Host to RSMs.

FIXRT form (5301-1 Record) - The FIXED ROUTE TYPE "HOSTSA" must be defined for any 5ESS Switch which hosts an RSM. The FIXED ROUTE TYPE "RMSA" must be defined if any RSM has the Stand-Alone option.

LCC form (5306 Record) - When defining Stand-Alone test lines, a LINE CLASS CODE must be defined with a CLASS OF SERVICE equal to "SATSTLN".

5.4 MISCELLANEOUS TRANSLATIONS

NOC form (5501 Record) - Any unique NXXs used for RSMs must be defined. However, the 5ESS Switch does not require any information that the NXX is destined for the RSM; the AM routes based on the module equipment value and not TelephoneNumber. In fact, NXXs may be shared among any modules, local or

remote, in the 5ESS Switch.

IMINFO form (5510 Record) - Information must be provided on this form as with any other Switching Module in the 5ESS Switch. If a DCTU (Directly Connected Test Unit) is equipped on the RSM, a unique DCTU Route Index must be assigned on this form and defined on the RTIDX form (5303 Record). This Route Index must be associated with a unique Trunk Group of Logical Test Ports on the RSM.

TLWS form (5511 Record) - If a Supplemental Trunk and Line Work Station is provided at the location of the RSM, it would not be considered remote but would have a Local Talk and Monitor Telephone Number.

RALM form (5516 Record) - This record is used to define alarm information unique to the remote location of the RSM Site.

RSMLNK form (5517 Record) - For each RSM, this form must be used to define the Umbilical Links between the RSM and its host Switching Module, and the ICL (Intra-Cluster Links) between each RSM at the RSM Site.

RCLKREF (5519 Record) - optional Used to define the exterior references for the Remote Clock.

5.5 ENGINEERING ASSIGNMENTS

EQIM form (5700 Record) - Used to define which switching modules are RSMs and what RSM Site they are located in.

EQRAU form (5705 Record) - optional Defines the Remote Alarm Unit.

EQLU form (5710 Record) - Defines the Line Units of the RSM.

EQLUP form (5711 Record) - Defines the equipment of circuit packs on the Line Units.

EQTU and EQTUP forms (5720 Record) - optional Defines the Trunk Unit of the RSM with circuit pack equipment.

EQSITE (5722 Record) - Used to define Multi-module RSM options, such as Stand-Alone, Remote Clock, etc.

EQRCLK (5723 Record) - optional Used to define Remote Clock Data.

EQDU and EQDUP forms (5730 Record) - Defines the DLTU and DFI usage for both the RSM and host Switching Module.

EQDS and EQDSP forms (5740 Record) - Defines the Local Digital Service Unit and circuit packs for the RSM. Global Digital Service Units may not be defined on a RSM. The Host Switching Module may be defined like any other SM.

EQMSU and EQMSP or EQMMSP forms (5750 Record) - Defines the Metallic Service Unit and pack equipment for either regular or modular types. Two scan packs and one distribute point pack must be equipped in both Service Groups of the MSU of the RSM to be used for the remote alarm process.

EQDCTU form (5751 Record) - optional Defines the Directly Connected Test Unit if it is provided at the RSM.

EQPMU form (5752-1/2 Records) - optional Defines the Precision Measurement Unit associated with the Directly connected Test Unit.

EQFIU form (5753 Record) - Defines the facility Interface Unit of the RSM.

EQDCLU and EQDCLP forms (5810 Record) - optional Defines the Digital Carrier Line Unit and circuit pack equippage if the RSM is to serve Integrated SLC-96 customers.

SEC. 1J: MULTIMODULE RSM STAND-ALONE CALL PROCESSING AND BILLING

1. FEATURE DESCRIPTION

With 5E2(2) Software Releases, MMRSM (Multimodule Remote Switching Module) became available. This new feature added the capability of having from 1 to 4 switching modules remotely located from the Host office(s) within a common remote site. The modules within the site are interconnected by ICL (Intra-Cluster Links) and connected to the Host office(s) via T1 umbilical links.

STAND ALONE CALL PROCESSING (MMRSM)

Stand-alone call processing and billing options for MMRSM are purchased on a RSM Site basis. The form entries for these options are found on the EQSITE form (5722 Record).

The MMRSM Site has two modes of Stand-Alone operation:

- Partial Stand-Alone - Some, but not all, remote modules are in module stand-alone and cannot process calls over their T1 umbilical links.
- Full Stand-Alone - All remote modules are in module stand-alone and cannot process calls over their T1 umbilical links.

Each remote module within the MMRSM Site has two modes of Stand-Alone operation:

- Stand-Alone - The remote module cannot process calls over its T1 umbilical links.
- Module Partial Stand-Alone - The remote module can complete direct calls over its T1 umbilical links, but is prevented from handling global hunt group calls over these links to prevent multiple processors from allocating the same ports.

When an RSM Site is in Full or Partial Stand-Alone, routing in the individual modules of the RSM Site is modified with the goal of completing all calls possible. Intra-RSM calls and calls to local groups continue unchanged from the linked mode.

When a particular module in a RSM Site is in Module Stand-Alone, the other modules are in Partial Stand-Alone. No calls can be switched out of the RSM in Module Stand-Alone via its T1 umbilical links. Intra-RSM, Inter-RSM Site calls and calls to local groups continue unchanged from the linked mode. The modules in Partial Stand-Alone continue to complete direct calls over their T1 umbilical links, but calls to global hunt groups are not allowed. The module in Module Stand-Alone gives stand-alone treatment to the Host controlled calls that normally complete over its T1 umbilicals (i.e., stand-alone announcement).

EMERGENCY NUMBER REROUTING (MMRSM)

Emergency number rerouting can be accomplished in two ways with 5E4(2) and earlier Software Releases. Calls to a RSM in stand-alone can be rerouted by defining the numbers considered to be emergency numbers on an EMROFC form (5116 Record). Calls originating from within a module in stand-alone to an emergency number located outside the RSM Site can be rerouted by defining these emergency numbers on an EMRNM form (5108 Record).

If MMRSM emergency number rerouting is directed to a FX (Foreign Exchange) line, then there should be a FX line on every RSM of the MMRSM. The rerouting TN should be directed to a Multi-Line Hunt Group

containing the FX lines. It is recommended that the Multi-Line Hunt Group use UCD hunting which would facilitate the testing of these FX lines using the stand-alone test line or assign each FX line a specific TN.

If MMRS emergency number rerouting is directed to a Trunk Group via the Route Index, then this Trunk Group should have members on every RSM of the MMRS.

STAND-ALONE BILLING (MMRS)

Stand-Alone Billing is available as an option of the MMRS. This allows the MMRS to buffer call record data during stand-alone operation. Upon restoration of the umbilical links to the Host 5ESS Switch, this call record data is sent to the Administrative Module.

ANNOUNCEMENTS

Announcements are treated differently in MMRS than in the earlier 5A RSM. The major difference is that if an announcement for some condition (i.e., vacant code, partial dial, etc.) is replicated among the Host 5ESS Switching Modules and one or more RSMs and it is desirable not to make the RSM Site's announcement versions globally available (either because of different announcement wording in the RSM or to minimize T1 umbilical traffic), the calls must be routed to a global announcement trunk group containing the Host 5ESS Switch announcements. For each RSM Site equipped with the announcement, one additional announcement trunk group must be defined as a local announcement group on one of the site's RSMs. Normally, each group will contain one member; more than one member is allowed but is unnecessary. The local trunk group must have the corresponding global announcement trunk group specified in the GL ANN TG field of the TKGRP form (5202 Record). No route index is allowed to point to a local announcement trunk group. No more than one local group may be defined with the same GL ANN TG in any given RSM Site. Calls originated in the RSM Site destined for one of these announcements will terminate to the local group, if defined, and use the RSM Site's version of the announcement.

2. TRANSLATION REQUIREMENTS

2.1 LINE TRANSLATIONS

MLHLN form (5105-2 Record) - If Global Multi-Line Hunt Groups include members which have equipment assignments on RSMs with Stand-Alone purchased, enter "Y" in the field RSM REROUTE for all members which have Telephone Numbers assigned and have equipment assignments other than the RSM.

EMRNM form (5108 Record) - A maximum of ten Telephone Numbers, which under normal conditions would terminate outside the RSM Site, may be entered on this record for each RSM. Corresponding entries are made to indicate what local RSM Site number (i.e., equipment assignment on the RSM) is to be rerouted to when the RSM is in the Stand-Alone state.

LINE form (5109-2 Record) - When a line is assigned to test the Stand-Alone option, an entry must be made in the "SA TST ROUTE" field to indicate the type of testing desired.

EMROFC form (5116 Record) - Data entered on this form is used by the AM (Administrative Module) to reroute calls to a RSM or Local SM that is in the Stand-Alone mode. For more information on this input form, see Division 3, Section 1p.

MLHG form (5110 Record) - The RSM Stand-Alone Call Processing feature uses the 14A Recorded Announcement system to provide line side announcements in RSM Stand-Alone operation. Only one MLHG per RSM site can have the RSM Stand-Alone Call Processing feature.

2.2 TRUNK TRANSLATIONS

TKGRP form (5202-1 Record) - If all members of the Trunk Group are assigned equipment numbers of a single RSM, enter the RSM number in the Local RSM Module field. This allows control of the hunting sequence to be determined by the RSM instead of the Host, providing more efficient call processing.

For local announcement trunk groups (where TRKCLS is "ANNCMNT" and Local RSM Module is specified), enter the trunk group number of the corresponding global announcement trunk group in the GL ANN TG field.

2.3 ROUTING AND CHARGING TRANSLATION

FIXRT form (5301-1 Record) - The FIXED ROUTE TYPE "HOSTSA" must be defined for any 5ESS Switch which hosts a RSM. The FIXED ROUTE TYPE "RMSA" must be defined if any RSM has the Stand-Alone Call Processing option.

LCC form (5306 Record) - When defining Stand-Alone test lines, a LINE CLASS CODE must be defined with a CLASS OF SERVICE equal to "SATSTLN".

2.4 ENGINEERING ASSIGNMENTS

EQSITE form (5722 Record form) - Used to define Multi-Module RSM options, such as Stand-Alone, Remote Clock, etc.

SEC. 1K: SOFTWARE DEFINED NETWORK

1. FEATURE DESCRIPTION

SDN (Software Defined Network) is a service for businesses with multilocation telecommunications needs. SDN combines transport on the PSN (Public Switched Network) with call processing capabilities that enable the development of corporate telecommunications networks. SDN service emulates a private line network within the PSN and provides end-to-end voice and data communications between prespecified customer locations.

The Software Defined Network is made up of ACP (Action Control Point) switches and NAP (Network Access Point) switches.

An ACP switch can either be a 4ESS Switch or 5ESS Switch. A 5ESS Switch can function as an ACP in 5E5 and later Software Releases. An ACP interfaces with a remote database called a NCP, using CCS7 (Common Channel Signaling Version 7) Direct Signaling TCAP (Transaction Capability). When a SDN call is processed, the ACP will send queries to a NCP and process the calls based on responses from the NCP. The responses from the NCP will include routing, billing and network management information.

The SDN customer can access the ACP by being directly connected to ACP or connected through another office.

A NAP is a local switch which can originate or terminate SDN calls via an ACP switch.

2. NETWORK ACCESS POINT FEATURE DESCRIPTION

Available with 5E3 and later Software Releases, the Network Access Point capability allows the 5ESS Switch to provide switched access to an ACP (Action Control Point) for SDN service.

SDN calls will arrive at the NAP over facilities dedicated to SDN except those served by a Centrex arrangement. Calls coming from a Centrex arrangement will require a prefix to be used to access SDN. The NAP must route the SDN call over a dedicated SDN CAMA (Centralized Automatic Message Accounting) trunk to the ACP.

A basic call flow will be represented by a Centrex arrangement accessing the SDN network via the NAP. A prefix digit (e.g. 8) must be dialed to access the SDN service. The caller dials 8-NNX-XXXX where 8 is the prefix digit which identifies the call as a SDN call and the rest of the digits identify the called party. The 8 is deleted and the NNX-XXXX is sent over a dedicated SDN line to the NAP. The NAP routes the call over CAMA trunks dedicated to SDN to the Action Control Point (ACP). The ACP will send a query to the NCP (Network Control Point). The NCP translates the dialed digits into a routing number and creates SDN billing information. The call will then be routed over dedicated trunks to the terminating NAP. The terminating NAP receives this call over dedicated trunks and then routes the call to the called party.

3. TRANSLATION REQUIREMENTS

3.1 ROUTING AND CHARGING TRANSLATIONS

The NAP routes calls over dedicated CAMA trunks to the Software Defined Network. The Originating NAP should receive 7 or 10 digits for a SDN call or will provide partial dial treatment.

5300-1 Record (DAS form) Unique DAS numbers should be built for SDN calls outgoing and incoming to the NAP.

5300-3/5 Record (LDIT form) Call Type of SDNA should be used when defining LDIT entries for outgoing calls from the NAP. Call Type of SDNE should be used when defining LDIT entries for incoming calls to the NAP.

3.2 BRCS TRANSLATIONS

5609-2 Record (PFATG form) A MC Route Index should be entered in the SDN MC ROUTE INDEX field to route calls for SDN.

5609-3 Record (PFASFG form) A SFG Number should be entered with a SFG TYPE of SDN.

5304 Record (MCRTIDX form) The SDN MC ROUTE INDEX entered on the PFATG form should be defined on this record. The MC ROUTE TYPE should be SFG. The SFG number entered should be defined on the PFASFG form.

4. ACTION CONTROL POINT FEATURE DESCRIPTION

Available with 5E5 and later Software Releases, the Action Control Point capability allows the 5ESS Switch to be an ACP (Action Control Point) for Software Defined Network (SDN) service.

To identify the 5ESS Switch as an ACP, the ACT PT SDN field on the OFCOPT form (5509 Record) must be "Y".

A SDN customer may access the ACP by:

- CAMA (Centralized Automatic Message Accounting) trunks dedicated to SDN.
- Equal Access (LATA Connect) trunks dedicated to SDN.
- CCS7 ISUP trunks with a SDN call type indicated from the traveling class mark in the CCS7 IAM (Initial Address Message).
- Direct Access trunks like PF (Private Facilities).
- EDSL (Extended Digital Subscriber Line).

When a Direct Access trunk is used, a SGD (Station Group Designator) may be provided from the PBX. The SGD is used to indicate which group a station belongs to. If the SGD is to be sent to the ACP along with the dialed digits, the SDN STAT GRP on the TKGRP form should be "Y".

A basic call flow would be as follows:

- A SDN customer originates a call by dialing 8-NXX-XXXX. The dialed digit 8 identifies the call as a SDN access call. The 8 is deleted and the NXXX-XXXX is sent over the dedicated SDN line to the NAP.
- The NAP routes the call over CAMA trunks dedicated to SDN to a 5ESS Action Control Point. The TKGRP form where the CAMA trunk is defined must have "Y" entered in the ACP SDN field.
- The 5ESS ACP receives the call over the incoming CAMA trunk group and digit analysis is performed. The DAS (Digit Analysis Selector) value of 88 must be defined for a ACP switch. The DAS of 88 is used initially on the first three digits dialed to identify whether a query should be sent to the NCP. A query should not be sent on the following digits dialed and the call should be routed normally:
 - Test calls or maintenance calls with the digits 10X or 95X.

- 911 calls.
- Special number originations like 700, 800 or 900.

If the incoming digits dialed are in the format NXX-XXXX, NPA-NXX-XXXX, 011 + 7-12 digits or 11X + 7-12 digits, then a CALL TYPE of APSDN should be assigned on the LDIT form. A CALL TYPE of APSD indicates that a query should be sent to the NCP.

- The NCP will return a routing telephone number. If the original digits dialed are on off-net number, then the NCP will return the telephone number unchanged. If the digits dialed are an on-net number, the NCP will return a new routing telephone number.
- The routing telephone number returned by the NCP will undergo digit analysis. The DAS value used will be the DAS entered on the TKGRP form for the dedicated incoming CAMA trunk.
- The call is routed over dedicated outgoing CAMA trunks to a NAP. The NAP will terminate the call to the called party.

5. TRANSLATION REQUIREMENTS

5.1 TRUNK TRANSLATIONS

5202 Record (TKGRP) Incoming Trunk groups dedicated to SDN must have a "Y" entered in the ACP SDN field.

On a Direct Access trunk, if the Station Group Designator is to be sent from the PBX to the ACP, then the SDN STAT GRP field should be "Y".

5.2 ROUTING AND CHARGING TRANSLATIONS

5300-1 Record (DAS form) A DAS of 88 must be built to perform digit analysis on incoming digits to determine which call require queries to the NCP.

5300-3/5 Record (LDIT form) Call TYPE of APSDN should be used when defining LDIT entries for calls which require queries to the NCP.

5.3 MISCELLANEOUS TRANSLATIONS

5509 Record (OFCOPT form)

The ACT PT SDN field must be "Y" to indicate that this 5ESS Switch is an ACP.

6. GLOSSARY

ACP - Action Control Point
CAMA - Centralized Automatic Message Accounting
CCS7 - Common Channel Signaling, CCITT Ver. 7
NAP - Network Access Point
NCP - Network Control Point
PSN - Public Switched Network
SDN - Software Defined Network

TCAP - Translation Capability

SEC. 1L: ELECTRONIC DIRECTORY SERVICE (EDS)

1. FEATURE DESCRIPTION

The EDS (Electronic Directory Service) capability provides the ability to electronically query a directory for call and personnel information without attendant assistance.

Each directory, associated with a business customer, is located on an AP (Applications Processor). A query can be made by either logging on to an AP or using a display station set. Based on the query, an ISDN station set user may request to set up a call automatically. EDS provides the capability to display the name and number of the calling party at the called party's ISDN station set when both parties are in the same business group and switch.

EDS provides the following features. DQD (Directory Query Display) allows the user to press function buttons to initiate a query using an ISDN station set or an attendant console.

Directory query via a data call to an AP allows the user to log directly on to an AP to initiate a query using a non-ISDN terminal with a modem or an ISDN station set.

Auto Call feature allows a user, with an ISDN station set, after a query to automatically set up a call without dialing the telephone number.

Calling Name Display feature provides the calling party's name and number at the called party's ISDN station set when both parties are in the same business customer group and switch.

2. TRANSLATION REQUIREMENTS

2.1 ROUTING AND CHARGING TRANSLATIONS

PDIT form (5300-2 Record) - To activate the Auto Call feature using a dialed code in an Office Dialing Plan, the ACTION field must be "AUCUSE". Auto Call feature option is defined on the EDSFD form.

2.2 BRCS TRANSLATIONS

IDPDCA form (5601-1/2 Record) - To activate the Auto Call feature using a dialed code in an Individualized Dialing Plan, the ACTION field must be "AUCUSE". Auto Call feature option is defined on the EDSFD form.

2.3 ISDN/PACKET SWITCHING TRANSLATIONS

DSLUSR form (5908 Record) - If a telephone number is associated with a feature with one of the feature options set to "Y" on the EDSFD form, then the TN must be defined on the DSLUSR form with CA or CA QTY fields defined. If a Multi-Line Hunt Group/Terminal is associated with a feature with one of the feature options set to "Y" on the EDSFD form, then the MLHG/TERM must be defined on the DSLUSR form with CA or CA QTY fields defined.

2.4 ISDN BRCS TRANSLATIONS

EDSFD form (5961-1 Record) - This form is used to define the various combinations of options associated with the EDS feature. Only one EDSFD feature name is allowed on a given LINEFA, MLHLNFA, or associated CLUSTR forms.

EDSGP form (5961-2 Record) - This form is used to define the group information associated with the EDS feature.

EDSLPA form (5961-3 Record) - This form is used to assign feature parameters to non-Multi-Line hunt lines if the default parameters on the EDSFD form are inappropriate or unspecified.

EDSMPA form (5961-4 Record) - This form is used to assign feature parameters to Multi-Line hunt lines if the default parameters on the EDSFD form are inappropriate or unspecified.

EDSCNT form (5961-5 Record) - This form is used to identify up to twenty five EDS groups that are to receive measurement counts.

CFGGRP form (5964 Record) - To activate the Auto Call feature using a button, the ACTION field must be "AUCUSE". Auto Call feature option is defined on the EDSFD form.

SEC. 1M: MESSAGE SERVICE SYSTEM (MSS)

1. FEATURE DESCRIPTION

MSS (Message Service System) provides the capability of call coverage for users by an MSC (Message Service Center). An MSC consists of one or more message desks which are operated by message desk attendants.

MSS provides various call coverage options. One of the call forwarding options, call forwarding busy, call forwarding don't answer or all calls forwarded, can be used to redirect all unanswered calls to the MSC. An attendant in the MSC receives the redirected call and takes a message for the called party.

LWC (Leave Word Calling) feature may also be used. This feature allows predefined standard messages to be sent to/from another MSS user. When a message is received, an audible or visual MWI (Message Waiting Indicator) is activated at the station set.

Notified by the MWI, messages may be retrieved by calling the attendant or using the automated message retrieval options:

DLOG (Direct Login) allows direct login to the AP (Applications Processor) in order to retrieve and update personal status information using menu driven screens.

MRD (Message Retrieval Display) which allows the user to directly retrieve messages using ISDN display station set.

POD (Printout on Demand) which allows the user to request a printout of messages.

The MWI is deactivated after all new messages are retrieved. When a message is displayed after using MRD, a call to the party associated with the message can be made without dialing the destination telephone number. This is an Auto Call set up.

Two forms of MSS service are provided, basic and deluxe. The basic service does not use the AP and limits the use of ISDN station sets by the MSC attendants. MSS users with basic service can use either ISDN or analog station sets.

The deluxe service uses an AP and allows the users and MSC attendants to use either analog or ISDN station sets.

DTC (Dual Telephone Coverage) is an extension of the MSS and is available with 5E6 and later Software Releases. DTC will allow a subscriber to selectively forward calls arriving at his/her station to at least 2 different Message Services (max. of 4). The call forwarding may be based on the source of the call or the condition encountered at the line. The subscriber is alerted to the message via an MWI on the telephone. Also, DTC supports multiple Message Services per AP via a SRV ID, assigned on the MSGP form (5962-2 Record).

To provision DTC, the following features must be assigned to the line or hunt group member via the corresponding feature assignment form, LINEFA form (5112 Record) CLUSTR form (5600 Record), BFG form (5625 Record) or MLHLNFA form (5113 Record):

- One incoming only Call Forwarding feature (e.g., /CFIO), defined on the CFWFD form (5614-1/2 Record), must be assigned to allow calls from outside of the terminal group to be forwarded to one of the Message Services.
- One intra terminal group Call Forwarding feature (e.g., /CFVITG), defined on the CFWFD form, must be

assigned to allow calls from within the customer's terminal group to be forwarded to another Message Service.

- Two Message Service features, defined on the MSFD form (5962-1 Record), one for each of the following call forwarding features:
 - Calls from outside of the customer's terminal group (e.g., /CFIO).
 - Calls from within the customer's terminal group (e.g., /CFVITG).

NOTE: Each Message Service feature defined should have a unique group defined on the MSGP form. One Terminal Group feature, defined on the TGSFRD form (5607-1/2 Record), must be assigned to distinguish the calls that are originated within the customer's terminal group. Necessary Parameters for the Call Forwarding, Message Service and Terminal Group features.

See FIGURE 1 for the complete form flow for DTC.

2. TRANSLATION REQUIREMENTS

2.1 LINE TRANSLATIONS

MLHG form (5110-1/2/3 Record) - The MLHG form is used to define the MSC. The value entered in the BCID field on the MSGP form must be defined on the MLHG form, matching one of the BCID 1-6 fields. If deluxe service is allowed on the MSGP form, then an AP SITE ID must be entered. The MSG SRV CNTR entered on the MSGP form must be the MLHG entered on the MLHG form.

2.2 ROUTING AND CHARGING TRANSLATIONS

PDIT form (5300-2 Record) - There are various ACTION codes associated with the MSS feature. The options are defined on the MSFD form. The ACTION codes defined on the PDIT form are dialed codes used in an Office Dialing Plan.

To activate Leave Word Calling using a dialed code, the ACTION field must be "LWCUSE". To deactivate Leave Word ^Calling, the ACTION field must be "CLWCUSE".

To activate POD (Printout on Demand) using a dialed code, the ACTION field must be "PODUSE".

To activate the Deactivation of Message Waiting Indicator feature using a dialed code, the ACTION field must be "DCTMWI".

To activate the Auto Call feature using a dialed code, the ACTION field must be "AUCUSE".

2.3 BRCS TRANSLATIONS

IDPDCA form (5601-1 Record) - There are various ACTION codes associated with the MSS feature. The options are defined on the MSFD form. The ACTION codes defined on the IDPDCA form are dialed codes used in an Individualized Dialing Plan.

To activate Leave Word Calling using a dialed code, the ACTION field must be "LWCUSE". To deactivate Leave Word ^Calling, the ACTION field must be "CLWCUSE".

To activate Printout on Demand (POD) using a dialed code, the ACTION field must be "PODUSE".

To activate the Deactivation of Message Waiting Indicator feature using a dialed code, the ACTION field must be "DCTMWI".

To activate the Auto Call feature using a dialed code, the ACTION field must be "AUCUSE".

CFWFD form (5614-1/2 Record) - This form is used to define the call forwarding features used to forward calls to the MSCs.

TGSRFD form (5607-1/2 Record) - This form is used to define the terminal group feature. With 5E6 and later Software Releases, the terminal group is used by DTC to distinguish where a call will be forwarded.

2.4 ISDN/PACKET SWITCHING TRANSLATIONS

DSL form (5900-1/2/3 Record) - Telephone Number must be defined on the DSL form with FIRST CA and NUM CA fields defined when the AUTO CALL field is "Y" on the MSFD form.

5908 Record (DSLUSR form) This form is available with 5E6 and later Software Releases. The TN or CKT TN must be defined on this form with DISPLAY set to "Y" and the CA and CA QTY fields must be entered when the MSG RTRVL DISP field is "Y" on the associated MSFD form.

The TN or CKT TN must be defined on this form with the CA and CA QTY fields entered when the AUTO CALL field is "Y" on the associated MSFD form.

DSMLHLN form (5901-1/2/3 Record) - Multi-Line Hunt Group/Terminal must be defined on the DSMLHLN form with FIRST CA and NUM CA fields defined when the AUTO CALL field is "Y" on the MSFD form.

2.5 ISDN BRCS TRANSLATIONS

MSFD form (5962-1 Record) - This form is used to define various combinations of options associated with the MSS feature. Only one MSFD feature name is allowed on a given LINEFA, MLHLNFA or associated CLUSTER forms.

MSGP form (5962-2 Record) - This form is used to define the group information associated with the MSS feature. A maximum of 1023 MSS groups can be defined.

With 5E6 and later Software Releases, the SRV ID field was added to distinguish between multiple MSCs per AP.

MSLPA form (5962-3 Record) - This form is used to assign feature parameters to non-Multi-line hunt lines if the default parameters on the MSFD form are inappropriate or unspecified.

MSMPA form (5962-4 Record) - This form is used to assign feature parameters to Multi-line hunt lines if the default parameters on the MSFD form are inappropriate or unspecified.

MSCNT form (5962-5 Record) - This form is used to identify up to twenty five MSS groups who are to receive measurement counts.

MSCCNT form (5962-6 Record) - This form is used to identify up to twenty five MSC Multiline Hunt Groups who are to receive measurement counts.

5964 Record (CFGGRP form) There are various ACTION codes associated with the MSS feature. The options are defined on the MSFD form. The ACTION codes defined on the CFGGRP form are button features.

To activate Leave Word Calling using a button, the ACTION field must be "LWCUSE". To deactivate Leave Word Calling, the ACTION field must be "CLWCUSE".

To activate POD using a button, the ACTION field must be "PODUSE".

To activate the Deactivation of Message Waiting Indicator feature using a button, the ACTION field must be "DCTMWI".

To activate the Auto Call feature using a button, the ACTION field must be "AUCUSE".

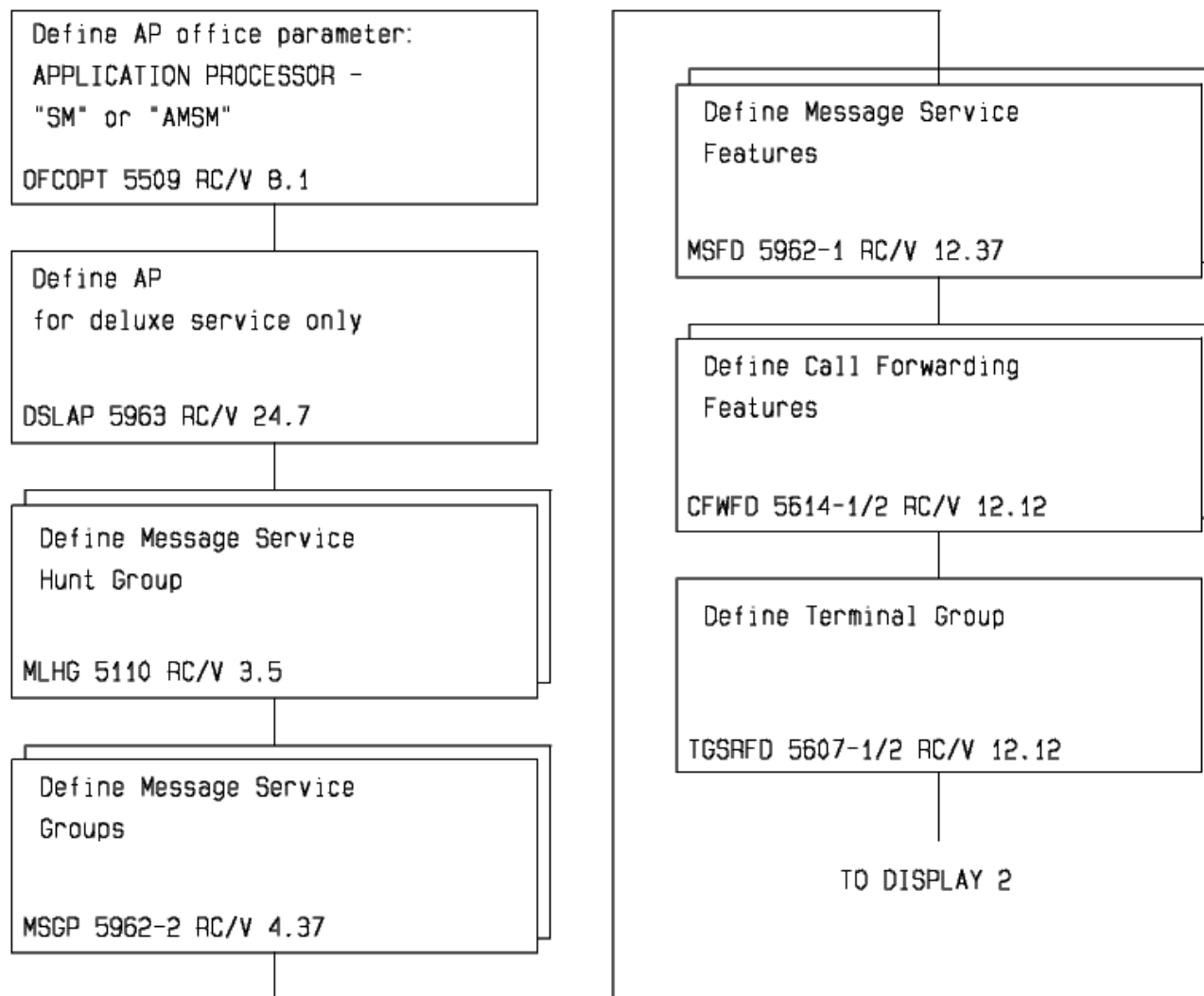
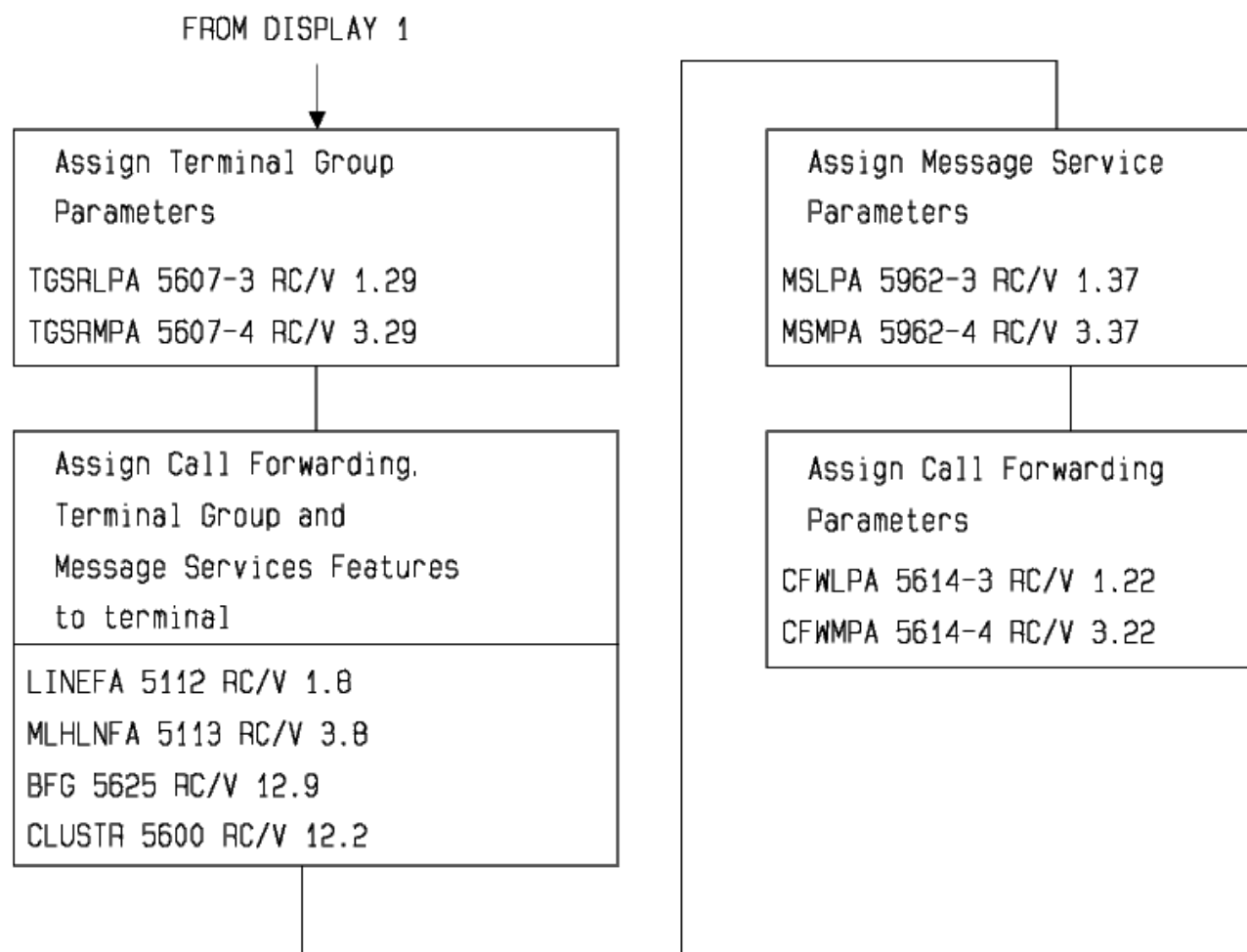


Figure 1 MESSAGE SERVICE SYSTEM AND DUAL TELEPHONE COVERAGE FORM FLOW



NOTE: With 5E6 and later software releases, the double boxes are used for DTC to assign multiple Message Service features to a subscriber.

Figure 2 MESSAGE SERVICE SYSTEM AND DUAL TELEPHONE COVERAGE FORM FLOW

SEC. 1N: INTER-MODULE TRUNKING

1. FEATURE DESCRIPTION

This feature is available with the 5E5 and later Software Releases and provides direct trunking between Switching modules connected to the same 5ESS Switch.

Switching Module can refer to MMRS (Multi-Module Remote Switching Module), RSM (Remote Switching Module), SM (Switching Module) or ORM (Optically Remote Modules). Inter-module trunks connect two modules (e.g., ORM to ORM, MMRS to MMRS, ORM to MMRS, etc.)

Inter-module trunks can be used when one or more of the switching modules is isolated from the switch (Stand-Alone).

If an Inter-Module trunk is to be used when the SM goes into stand-alone, the Stand-Alone Call Processing option must be purchased.

1.1 Call Scenarios

If Umbilical 1 Is Cutoff From The Host (See Figure 1):

- Then MMRS1 goes into stand-alone. When MMRS1 goes into Stand-alone, calls originating on MMRS1 or arriving on trunks residing on the MMRS1 are rerouted using the information on the EMRNM form (5108 Record).
- The EMRNM form allows a telephone number or a range of telephone numbers to be rerouted, using the ROUTE INDEX field, to an Inter-module trunk group. Calls originating on MMRS1 that do not terminate on MMRS1 will be rerouted over the IMT (Inter-Module Trunk) trunk group to MMRS2.

Both Umbilical 1 and Umbilical 2 Are Cutoff From The Host (See Figure 1):

- MMRS1 and MMRS2 are in stand - alone mode. MMRS1 and MMRS2 can still complete calls that originate or terminate on either one of the modules. For example, B can still call C because the inter-module trunk connects MMRS1 and MMRS2. Any calls that terminate outside the modules cannot be completed.
- Inter-Module trunks can be designated as the primary route and the communication links can be designated as the alternate or overflow route. When calls cannot be routed over the Inter-Module trunks, calls are rerouted over the communication links.
- The Route Index specified on the RTIDX form (5303 Record) or MCRTIDX form (5304 Record) should have the Trunk Group Number of the Inter-Module trunk group entered in the TGN field. The NEXT ROUTE INDEX on the RTIDX form or MCRTIDX form should correspond to a route index with a ROUTE TYPE of "DNTRAN". This allows Intra-Module calls to reroute over the Host NCT (Network Control And Timing Link) links to the Communication Module if all members of the Inter-Module trunk group are busy. Inter-Module calls are not rerouted over the communication links, therefore the calls are not completed.

If Calls Cannot Be Routed Over The Inter-Module Trunk (See Figure 1):

- Then the calls are rerouted over Umbilical 1 and Umbilical 2. In another example, if Umbilical 1 is blocked, calls are routed over the Inter-Module trunk which does not affect the routing or completion of the call.

- Host Office may be configured to redirect calls terminating on the isolated module or remote cluster by using the EMROFC form (5116 Record) to specify a telephone number or a range of telephone numbers which should route to a Route Index associated with an Inter-Module trunk group on another SM that connects to the isolated module or cluster.

2. FEATURE ASSIGNMENT

2.1 ENGINEERING ASSIGNMENTS

EQIM form (5700 Record) - Designate if the Local Switching Module or Host Switching Module has Stand-Alone capability. Set the STAND ALONE field to "Y".

EQSITE form (5722 Record) - Designate if the Remote Switching Module, Optically Remote Switching Module or Two-Mile Optically Remote Switching Module has Stand-Alone capability. Set the STAND ALONE PURCHASED field to "Y".

2.2 LINE ASSIGNMENTS

EMRNM form (5108 Record) - Specify a Telephone Number or a range of Telephone Numbers which are rerouted when a module goes into Stand-Alone.

EMROFC form (5116 Record) - Specify a Telephone Number or a range of Telephone Numbers which are rerouted when the terminating module goes into Stand-Alone.

2.3 TRUNK ASSIGNMENTS

TKGRP form (5202 Record) - Inter-Module trunk groups must have a "Y" in the INTER SM TRK field. The OPC (Originating Point Code) is the switch's point code. The DPC (Destination Point Code) will be a pseudo DPC.

TRUNK form (5204) - Inter-module trunks can use CCS7 signaling. For each end of the inter-module trunk the CLCI ID (Common Language Trunk Identifier) must be the same.

IMTRK form (5210 Record) - Define the terminating Switching Modules of the Inter-module trunk group.

2.4 ROUTING AND CHARGING ASSIGNMENTS

RTIDX form (5303 Record) - Specify a route index which routes to an Inter-module trunk group.

MCRTIDX form (5304 Record) - Specify a route index which routes to an Inter-module trunk group.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1
IMTRK	5210	3	2L	5.46

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The INTER SM TRK field was added.

IMTRK form (5210 Record) - This form is used to define each terminating end for inter-module trunk group members. The IMTRK form was added.

4. GLOSSARY

CCS7	Common Channel Signaling, CCITT Version 7
CLCI	Common Language Trunk Identifier
IMT	Inter-Module Trunk
MMRSM	Multi-module Remote Switching Module
NCT	Network Control And Timing Link
OPC	Originating Point Code
ORM	Optically Remote Modules
RSM	Remote Switching Module
SM	Switching Module

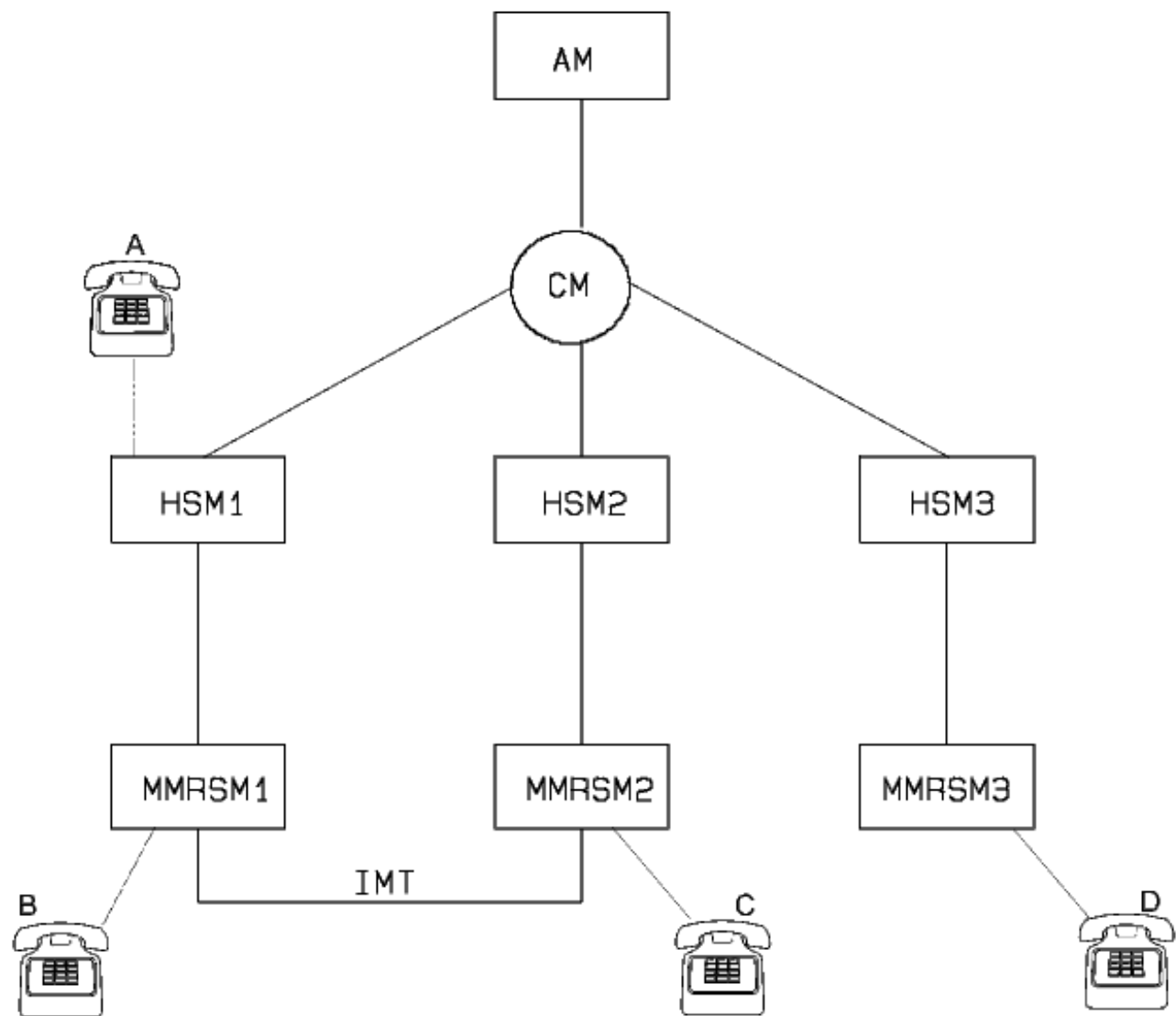


Figure 1 SAMPLE INTER-MODULE TRUNK SCENARIO

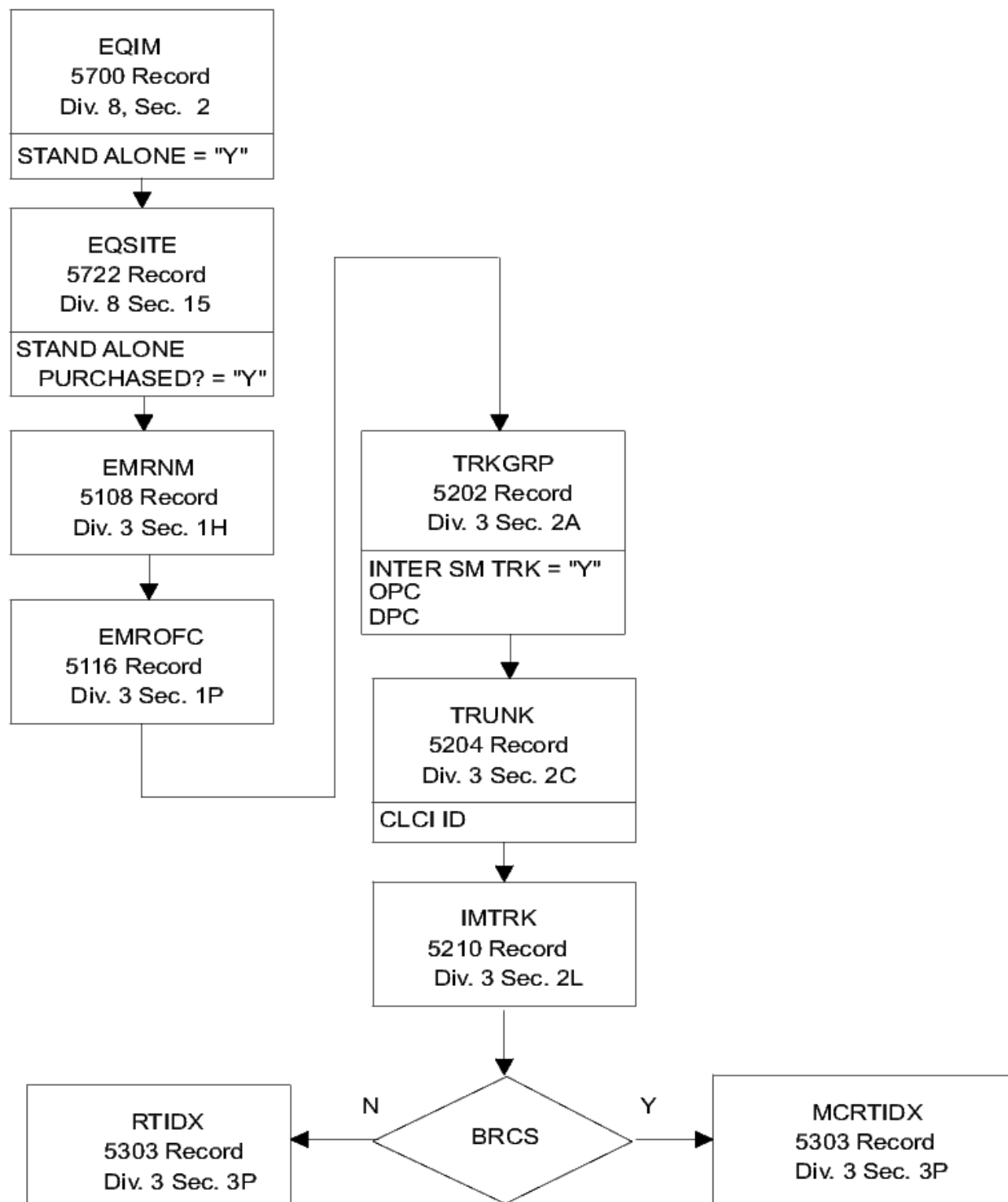


Figure 2 FORM FLOW FOR INTER-MODULE TRUNKING

SEC. 10: LEASED NETWORKS

1. LEASED NETWORK ACTION CONTROL POINT

1.1 Feature Description

A Leased Network is a pool of dedicated network facilities operated and maintained by a carrier. It allows customers to lease switch terminations to interconnect their private lines and locations with each other and with the public switched network.

The 5ESS Switch has supported LN (Leased Network) services since the 5E4(2) Software Release. In the earliest timeframe, LN requirements were met by existing BRCS features; no special development was required. The 5E5 Software Release introduced new features and services in response to Leased Network customer requests. The 5E6 Software Release continues to migrate the network architecture and feature offering toward a complete voice and data package.

This section describes features which were introduced in 5E6.

In 5E6 and later Software Releases, a 5ESS Switch can serve as a Leased Network ACP (Action Point).

In earlier releases, all call processing was performed by 5ESS Switch software. In 5E6 when the switch serves as an ACP, call screening, as well as routing and charging information, is provided by a remote NCP (Network Control Point). Communication between the ACP and NCP is performed via CCS7 Direct Signaling TCAP (Transaction Capability) messages.

A Leased Network call arrives at the switch via a dedicated trunk or ISDN BRI (Basic Rate Interface) line. Since the switch handles both ACP and non-ACP leased networks, it determines from the LN TYPE on the incoming facility (TKGRP or DSLUSR form) if a query should be sent to the NCP. Applicable LN TYPEs are "QRY" and "NOQRY".

When the incoming facility has LN TYPE "QRY", the ACP analyzes the first three incoming digits, using a Leased Network DAS (Digit Analysis Selector) specified in the OFCOPT form. This provides flexibility to bypass the NCP query for test and maintenance calls (10x, 95x), vacant codes and other calls for which call processing should be performed entirely on the switch, e.g., 800 and 900 calls.

When an NCP query is required, the ACP formulates the query message and transmits it via the CCS7 network to the NCP. It suspends call processing to wait for a response from the NCP. A parameter on the OFCOPT form determines the maximum time the ACP will wait before aborting the call.

If the NCP requests collection of an authorization code, the switch collects the code and passes it to the NCP. Upon receipt of the final NCP response, the ACP processes the call according to NCP instructions, routing the call to a specified destination or sending it to final treatment.

Leased Network routing is implemented through the BRCS ARS (Automatic Route Selection) feature with the off-hook queuing option. For LN ACP calls, the ARS group name and FRL (Facility Restriction Level) are determined by the NCP. For non-ACP calls the name and FRL are obtained from ARS forms.

The Leased Network switch at which a call enters the LN is called the Originating Toll Office or the "access" switch. If that switch is not also the destination switch, the access switch may route the call directly to the destination switch or may route it through a "via" switch to the destination switch. "Access" and "via" designations are call dependent and are determined by the incoming facility on which the call enters the

switch. A trunk belonging to a trunk group with LN TYPE "QRY" or "NOQRY" indicates "access"; a trunk group with LN TYPE "IMT" (Intermachine Trunk) indicates "via".

The 5E6 Software Release introduces the "crankback" option for routing inter-5ESS Switch voice and data traffic. Crankback is the ability of a via switch to return control of a call to the originating (access) switch when the via switch is unable to successfully complete the call. If all circuits from the via switch to the destination switch are busy, the via switch will use the crankback capability to return control of the call to the originating switch. The originating switch must then attempt to complete through another via switch or to terminate the call to reorder if no other paths are available in the route list.

1.2 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ARSGPA	5608-2	4	9B	10.5
DSAPP	5537	3	5AK	8.17
DSLUSR	5908	5	5I	23.2
LNARSGD	5214	3	2P	10.27
LNROUT	5322	3	3AI	10.22
MCRTIDX	5304	3	3Q	10.4
MLDIT/ LDIT	5300-3/5	3	3C	9.3
OFCOPT	5509	3	5I	8.1
SCFAM	5536	3	5AJ	10.18
TKGRP	5202	3	2A	5.1

OFCOPT Form (5509 Record) - The DAS field on the OFCOPT form specifies the DAS for digit interpretation prior to an NCP query for LN ACP calls. In the LDIT form associated with this DAS, calls requiring an NCP query must have CALL TYPE "LNACP".

The TIME OUT field specifies the number of seconds the ACP will wait for a response from the Leased Network NCP before sending the call to reorder.

LNROUT Form (5322 Record) - The Leased Network Routing form specifies screening indexes for ARS routing on a Leased Network switch. One screening index may be specified for each of the following types of calls:

- voice calls on the access switch
- data calls on the access switch
- voice calls on the via switch
- data calls on the via switch

The screening index must match a screening index on the ARSSCRN form.

LNARSGD Form (5214 Record) - For each Leased Network, the LN ARS Group Definition form lists the ARS groups belonging to the Leased Network. Its purpose is to identify ARS Groups that share trunks, for example, Leased Network CCS7 Intermachine Trunks.

The 1-8 character LN GROUP name identifies the Leased Network on the switch.

The ARGNAME list contains up to 100 ARS Group IDs. Each ID is defined on an ARS Group Parameter (ARSGPA) form (5608-2 Record).

DSLUSR Form (5908 Record) - The LN TYPE field on the DSLUSR form designates whether or not the BRI line belongs to a Leased Network. It also specifies if a Network Control Point data base is to be queried for routing and charging information.

TKGRP Form (5202 Record) - The LN TYPE field on the TKGRP form designates whether or not the trunk group belongs to a Leased Network. When the group does belong to a Leased Network, the field specifies if a Network Control Point data base is to be queried for routing and charging information. It also identifies LN Intermachine trunks.

The LN GROUP name represents a set of ARS Groups that share a Trunk Group, in particular a Leased Network CCS7 Intermachine Trunk Group. For LN trunk groups that query the LN NCP and for LN ISUP7 Intermachine trunk groups, there should be a matching tuple in the LNARSGD form that defines the LN GROUP.

The LN VIRT field specifies if the trunk group is a Leased Network virtual on-net trunk group. If this field is set, the switch will prefix the caller's NPA on all 7-digit dialed calls.

MCRTIDX Form (5304 Record) - The MCRTIDX form defines the ARS Route Index list. For 5E6, the CRANKBACK field has been added to enhance Leased Network routing flexibility. When an LN "via" switch exhausts its routing list, it may send a crankback message to the "access" switch which will reroute the call. This feature is available when the CRANKBACK field on the "via" switch is set to "Y" on the last route of an ARS route list.

MLDIT, LDIT Forms (5300 3/5 Record) - A new Call Type, LNACP, has been added to the LDIT and MLDIT forms. The LNACP Call Type indicates that the NCP should be queried for this call.

SCFAM Form (5536 Record) - For a Leased Network ACP, the Structure Code Family form translates the Call Code received from the Leased Network NCP data base to a structure code family. The SCFAM field determines how the call will be billed. For 5E6, the new structure code family, LNACP, specifies that the call should be billed as a Leased Network call at an Action Control Point.

DSAPP Form (5537 Record) - The Direct Signaling Application form is used to specify the Transaction Type and the Subsystem Number to be used by the direct signaling trunks in the CCS7 protocol. For 5E6, a new Application type, LNACP, has been added to define the direct signaling fields for the Leased Network Action Control Point application.

ARSGPA Form (5608-2 Record) - The ARS Group Parameter form defines ARS group level information.

For 5E6, an ARS group must be specified as a voice or data group. The new GROUP TYPE field must be "VOICE" or "CSD".

Also in 5E6, the LN CUST ID field is the numeric ID (1-255) that identifies an LN customer globally to all switches in the Leased Network. For an LN ACP, the ID is stored on the NCP and sent to the ACP in response to a query. For both ACP and non-ACP Leased Networks, the ID is transmitted from the "access" switch to the "via" switch for routing determination. Two ARS groups, one each for voice and data may be assigned the same LN CUST ID.

2. ISDN ACCESS TO LEASED NETWORK

2.1 Feature Description

The ISDN Access to Leased Network feature provides BRI and PRI (Primary Rate Interface) access to

Leased Networks for circuit switched data and voice calls. It allows ACP based services to access the Leased Network through CCS7 Network Interconnect signaling for offnet routing through a Local Exchange Carrier. Both ACP and non-ACP based Leased Network customers may use the ISDN feature that delivers CPN/BN (Calling Party Number or Billing Number) to the terminating user.

2.2 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	5I	23.2
TKGRP	5202	3	2A	5.1

DSLUSR Form (5908 Record) - The LN TYPE field on the DSLUSR form designates whether or not the BRI line belongs to a Leased Network. When the line belongs to a Leased Network, the field also specifies if a Network Control Point data base is to be queried for routing and charging information.

TKGRP Form (5202 Record) - The LN CRIT Q field indicates if an outgoing trunk group will support critical user queuing. For a call on an incoming Leased Network trunk: if the trunk group supports critical user queuing, the call may queue for this trunk group only if the incoming trunk has Facility Restriction Level equal to 14, and queuing is allowed and active.

3. LEASED NETWORK OS IMPROVEMENTS

3.1 Feature Description

The Leased Network Operating System Improvements feature provides the ability to generate MDR (Message Detail Recording) and HSS (Hundred Second Scan) records for Leased Network customers.

The MDR capability is a BRCS feature that provides customers with detailed records of calls originating on the customers' private facilities. The MDR records are shipped, in real time, to an AP (Application Processor) from the 5ESS Switch.

Leased Network customers can receive two types of MDR records for calls on their LN facilities:

- Originating Private Record (OPR)
- Incoming Private Record (IPR)

To receive MDR records, each line or trunk that serves a customer must belong to one MDR group and be assigned an MDR feature.

The MDRGP form is used to specify if MDR records are to be generated when a call is an 1) effective attempt (completed), 2) ineffective attempt (incompleted) or 3) effective or ineffective attempt. Prior to 5E6 this categorization applied to all MDR record types: OPR, IPR and PubR. In 5E6, the categorization has been changed for Leased Networks. Two effective and ineffective attributes have been replaced by six new attributes: EFF ORIG PRIV, INEFF ORIG PRIV, EFFINC PRIV, INEFF INC PRIV, EFF PUBLIC, INEFF PUBLIC.

Assumptions: MDR features assigned to Leased Network facilities are always active. Dialed code activation and deactivation are not supported for MDR features. The status of the MDR groups to which the LN facilities belong are always "on". The use of dialed codes to change MDR group status is not supported.

In 5E6, MDR record generation for circuit switched data calls is supported; record generation for ISDN packet switched data calls is not.

The Hundred Second Scan feature allows customers to monitor the call load on their networks. It provides information for administration and engineering of private networks. It collects usage data for all Leased Network trunk groups in the switch every 100 seconds and sends the data to a Leased Network Operations System via an API (Applications Processor Interface).

In 5E6, the existing HSS capability has been expanded to allow usage data to be collected on ISDN BRI multiline hunt groups. MLHG usage means the number of lines busy within the Multiline Hunt Group.

3.2 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
APCA	5620-1	4	21A	24.3
APHSS	5620-4	4	21D	24.12
MDRGP	5624-2	4	25B	24.33

MDRGP Form (5624-2 Record) - The MDRGP form contains six fields, each indicating if a count is to be kept for a specific call type. The new fields for effective and ineffective originating, incoming and public calls are: EFF ORIG PRIV, INEFF ORIG PRIV, EFF INC PRIV, INEFF INC PRIV, EFF PUBLIC, INEFF PUBLIC.

APCA Form (5620 Record) - On the APCA form, the HSS field indicates if the feature is assigned to a customer.

APHSS Form (5620-4 Record) - The APHSS form provides means of assigning and activating the HSS feature for a trunk group or MLHG.

SEC. 1P: CCS7 NETWORK INTERCONNECT

1. FEATURE DESCRIPTION

The CCS7 Network Interconnect feature supports CCS7 calls between LEC (Local Exchange Carriers) and IC (InterLATA Carriers). It requires new software in the EAEO (Equal Access End Office), the AT (Access Tandem) Office and the TO (Toll Office). It supports interLATA call setup and clearing through CCS7 protocol and provides fundamental signaling for interLATA ISDN calls. At the AT switch, CCS7 NI accommodates interworking from EA/MF signaling to the ISUP7 protocol and vice-versa.

ISDN EA (Equal Access) functionality across network boundaries is achieved with new messages and parameters. The integrity of private parameters within the IC and LEC networks is preserved.

The Leased Network Action Control Point feature employs CCS7 Network Interconnect to access and terminate from a leased network.

The CPN/BN feature relies on CCS7 NI to transport the CPN (Calling Party Number) or BN (Billing Number) to the called party over an ISDN interface.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CKTCODE	5311	3	3X	10.23
FIXRT	5301-1	3	3G	10.1
OFCOPT	5509	3	5I	8.1
RTIDX	5303	3	3P	10.2
TKGRP	5202	3	2A	5.1

OFCOPT Form (5509 Record) - The OFCOPT form provides two timer attributes that assist CCS7 Network Interconnect in providing reliable communication between the End Office, Access Tandem Office and Toll Office.

The Circuit Reservation Acknowledgement Timer, CRA TIMER, specifies the maximum time an originating Toll Office will wait after sending a CRA message to the originating Access Tandem. After sending the acknowledgement, the Toll Office expects an IAM message containing routing and charging information for the call. If the Toll Office does not receive the IAM message before the CRA TIMER expires, it issues an MDII (Machine Detected Interoffice Irregularity).

The Exit Message Delay Timer (EXM D TIMER) is set by the OAT (Originating Access Tandem) Office after it sends the IAM to the OTO (Originating Toll Office). The OAT uses the timer to provide a delay to ensure that glare or blocking is not encountered on the outgoing circuit to the OTO. When the timer expires, the AT sends an Exit Message (EXM) in a backward direction to the End Office. The EXM notifies the EO that an ISUP7 trunk has been selected as the outgoing trunk from the OAT to the OTO.

With 5E7 and later, the BUSY ANNC field was added to determine if the terminating exchange should send a busy tone or a CCS7 Release Message to the originating exchange when the called party is busy.

With 5E7 and later, the LEC ANNC field was added to determine if a busy tone or a CCS7 Release Message should be sent by the terminating exchange for calls that cannot be routed for failure conditions other than those associated with called party screening.

These options are for treatment of Vacant Code, No Circuit Announcement, and Reorder.

The options in this field do not apply to called party screening failures, which include the following CCS7 Release Messages: destination out of order (27), number changed (22), unallocated number (1), user busy (17), no user responding (18), call rejected (21), or bearer capability not implemented (65).

The value entered in this field will be checked at Local Exchanges by the operational software for call failures that consist of the following:

- the call originates from a non-ISDN interface.
- the call is of type, 3.1kHz audio or speech.
- the call route consists of only ISUP trunks.

With 5E7 and later, the LEC IW REL field was added to determine if a busy tone or a CCS7 Release Message should be sent by the terminating exchange for calls that cannot be routed for failure conditions other than those associated with called party screening.

These options are for treatment of Vacant Code, No Circuit Announcement, and Reorder.

The options in this field do not apply to called party screening failures, which include the following CCS7 Release Messages: destination out of order (27), number changed (22), unallocated number (1), user busy (17), no user responding (18), call rejected (21), or bearer capability not implemented (65).

The value entered in this field will be checked at Local Exchanges by the operational software for call failures that consist of the following:

- the call originates from a non-ISDN interface.
- the call is of type 3.1kHz audio or speech.
- the call route consists of a combination of ISUP trunks interworked to other protocol trunks (e.g., MF).

CKT CODE form (5311 Record) - For all incoming ISUP7 trunks at an Originating Access Tandem office and all incoming ISUP7 trunks at an Originating Toll office that handles international traffic, the circuit code must be populated on the CKT CODE form.

The form is used to translate the four bit circuit code received in an ISUP7 IAM message to a digit value which represents the 0ZZ, 1NX (international call, no operator requested) or 1N'X (international call, operator requested) digit string used in equal access and international signaling.

TKGRP form (5202 Record) - The TKGRP form is used to determine the handling of CCS7 ISUP7 parameters and to activate internetwork services.

The CCS7 TYPE field specifies whether ISUP7 parameters will be interpreted as specified by local telephone company requirements or by AT&T-NSD standards. If CCS7 TYPE is "RBOC" (5E6 only) or "BELLCORE" (5E7 and later), parameters will be handled as specified by Bellcore; if "TOLL" (5E6 only) or "ATT" (5E7 and later), they will be handled as specified by AT&T-NSD. If TRKCLS is "LATA" or "IC", the CCS7 TYPE must be "RBOC". Generally, trunk groups in a local exchange carrier environment are type "RBOC"; trunk groups in the AT&T-NSD environment are type "TOLL" (except "LATA" groups, which are "RBOC").

Three separate fields determine if CCS7 transmission will be restricted for certain types of information. The first is the MAUI RSTRCT field which determines if Message Associated User-to-User Information (MA-UUI) can be passed to the next office. If the feature is restricted, that is the information cannot be passed, the

MAUI RSTRCT field must be "Y". With 5E7 and later Software Releases, this field is jointly replaced by the ATP IC RSTRCT and UII IC RSTRCT fields to conform with CCITT and ANSI standards.

This attribute is used by operational software when the trunk class is "LATA" or "IC". It is ignored for all other trunk groups.

To allow the Billing Number to be delivered to the terminating user, the CHG RSTRCT field must be "N". A Billing Number can be forwarded only if TRKCLS is "LATA" and OUTPUTSING is "ISUP7". This attribute is used by operational software when trunk class is "LATA". It is ignored for all other trunk groups.

To allow the Calling Party Number to be delivered to the terminating user, the CPN RSTRCT field must be "N". A Calling Party Number can be forwarded only if TRKCLS is "LATA" and OUTPUTSING is "ISUP7". CPN RSTRCT is only used by operational software when the trunk class equals "LATA". It is ignored for all other trunk groups.

The PRIVACY attribute is used for EAMF, CAMA, PRI, EDSL and EDSLHM trunk groups to indicate if the received Directory Number is a private number.

The GLARE ACTION field specifies the action to be taken when dual seizure occurs on a two-way trunk.

With 5E7 and later, the CFN RSTRCT field was added to prohibit the generation of the CFN (Confusion Message). The CFN is used in order to identify that unrecognized signaling information has been received at an exchange.

- **NOTE:** The CFN should be generated only at LEC switches. Therefore, this attribute should be optioned by the customer at LEC offices where CCS7 TYPE is "BELLCORE" and TRKCLS is not "LATA".

With 5E7 and later, the ATP IC RSTRCT field was added to prohibit the passing/accepting of the ATP (ISUP Access Transport Parameter).

The ATP may be included in any of the following ISUP messages: IAM (Initial Address Message), ACM (Address Complete Message), ANM (Answer Message), CPG (Call Progress Message), or REL (Release Message).

- **NOTE:** This field is only used by the operational software at network boundaries. Therefore, this field should be optioned for trunks with a TRKCLS of "LATA" or "IC".

With 5E7 and later, the UII IC RSTRCT field was added to prohibit the passing/accepting of the UII (User to User Information Parameter). User to User Information Signaling transfer allows ISDN customers to exchange user data transparently through the network, in the UII of an ISUP message, during call setup and call clearing.

The UII may be included in any of the following ISUP messages: IAM (Initial Address Message), ACM (Address Complete Message), ANM (Answer Message), CPG (Call Progress Message), or REL (Release Message).

- **NOTE:** This field is only used by the operational software at network boundaries. Therefore, this field should be optioned for trunks with a TRKCLS of "LATA" or "IC".

With 5E7 and later, the NI ANNC field was added to determine if a CCS7 Release Message or an inband tone will be sent to the preceding exchange when a call cannot be routed from an IC (Inter-exchange Carrier).

The value entered in this field will be checked by the operational software for called number screening failures

that consist of the following:

- the call originates from a non-ISDN interface.
- the call route consists only of ISUP trunks.

With 5E7 and later, the NI IW ANNC field was added to determine if a CCS7 Release Message or an inband tone will be sent to the preceding exchange when a call cannot be routed from an IC (Inter-exchange Carrier).

The value entered in this field will be checked by the operational software for called number screening failures that consist of the following:

- the call originates from a non-ISDN interface.
- the call route consists of a combination of ISUP trunks interworked to other signal protocol trunks (e.g., MF).

FIXRT form (5301-1 Record) - For CCS7 Network Interconnect, two new Fixed Route Types are available: NCC and BUSY.

A Route Type of "NCC" indicates there is no circuit available to the carrier. The Route Type "BUSY" interacts with the PLAY ANNC field.

The PLAY ANNC field indicates if a tone/announcement should be played on an ISUP7 trunk which is crossing a network boundary. It is only effective when the Trunk Group is "LATA" or "IC".

RTIDX form (5303 Record) - The CKT CODE and CPN SUBSC fields have been added to the RTIDX form.

The CKT CODE field contains a network identification carried in the CCS7 ISUP message. It maps to a four bit circuit code.

The CPN SUBSC field indicates whether or not the InterLATA/International Carrier subscribes to the Calling Party Number parameter.

With 5E7 and later, the CSI SUBSC field was added to determine whether or not the CSI (Carrier Selection Information) parameter should be sent to the IXC (InterLATA Exchange Carrier) in the IAM (Initial Address Message).

If the OEO (Originating End Office) determines that an IXC is required to complete the call, and if circuit selection results in the selection of a CCS7 outgoing circuit either directly to the IXC or to an AT (Access Tandem), the OEO will mark the circuit busy and formulate an IAM.

With 5E7 and later, the UUI SUBSC field was added to determine whether or not the UUI (User to User Information) parameter should be sent to the far switch in the IAM.

The UUI parameter of the an ISUP message allows ISDN customers to exchange user data transparently through the network during call setup and call clearing.

With 5E7 and later, the ATP SUBSC field was added to determine whether or not the ATP (ISUP Access Transport) parameter should be sent to the far switch in the IAM. Q.931 Information Element transfer facilitates the transport of specific Q.931 information elements in the ISUP Access Transport Parameter (ATP) transparently between exchanges in the network.

SEC. 1Q: OPTICAL REMOTE MODULE STAND-ALONE

1. GENERAL

The ORM (Optical Remote Module) Stand-Alone feature allows an ORM or TRM (Two-Mile Optical Remote Module) that has lost functionality with a host 5ESS Switch (or the availability of the AM in 5E5 or the CMP in 5E6 and later Software Releases) to continue processing intra-module calls, rerouting emergency calls or rerouting inter-module calls to announcement. This feature also provides Enhanced Alternate Emergency Number Routing, Stand-Alone Billing, Remote Alarm/Status Panels for ORMs and Stand-Alone Measurement Counts. These options are described in the following sections. The ORM Stand-Alone feature is available with 5E5 and later Software Releases.

ORM Stand-Alone is an extension of the existing Stand-Alone feature that provides functionality for RSMs and MMRSMs to all other SM types. RSM Stand-Alone Call Processing is covered in Division 2, Section 1C. Inter-Module Trunking for 5E5 and later Software Releases is covered in Division 2, Section 1N.

Without the Stand-Alone feature, an SM routes each call origination to re-order.

2. FEATURE DEFINITIONS

2.1 Stand-Alone Call Processing

With Stand-Alone Call Processing, an ORM or TRM isolated from a host 5ESS Switch can terminate calls to any other available port on that module. This includes POTS terminations to lines, MLHG's, local trunk groups and the ports in global trunks and MLHG's that physically terminate on the module.

Examples of call processing features supported during Stand-Alone include:

- Speed Calling
- Call Waiting
- Call Forwarding - Don't Answer
- Call Hold

Features that require shared resources such as a GDSUs (Global Digital Service Units) access to routing data stored in the AM (5E5)/CMP (5E6), or access to hardware associated with the AM (e.g., the DLN for CCS), are not supported during stand-alone. Among these are:

- Three-Way Calling
- Conference Calling - 6 Way
- Directed Call Pickup with Barge-In
- OUTWATs
- Simulated Facility Groups
- Call Transfer (if controller disconnects before third party answers)
- Trunk terminating calls requiring CCS protocols (such as ISDN).

In addition to POTS and BRCS features, this capability supports ISDN packet-switched calls designed for the 5E4 RSM stand-alone environment. ISDN circuit-switched calls and ISDN MLHGs are also designed to work in the SM stand-alone environment.

2.2 Alternate Line Emergency Number Routing Without Stand-Alone

Alternate Line Emergency Number Routing provides up to 10 emergency numbers to alternate local DNs. For commonality across module types, local line alternate emergency number routing is separate from stand-alone call processing and is included in the base Software Release for all SMs.

2.3 Enhanced Alternate Emergency Number Routing

The full stand-alone call processing option incorporates and expands the alternate line emergency routing ability to include global MLHGs, local trunk groups, global trunk groups and alternate routing of a range of DNs to a single destination (typically a trunk). The local DNs must be associated with a local POTS/ISDN line or local MLHGs. Stand-Alone increases the number of alternate routes to 100.

The Stand-Alone option also allows alternate routing to local trunk groups and to members associated with global groups which terminate on the isolated module. These include DNs associated with global MLHGs and route indices associated with global trunk groups. Therefore, the stand-alone option allows alternate emergency routing to any port on the switching module.

A range of DNs can also be routed to alternate destinations. This capability is typically used to alternately route a range of dialed DNs associated with the office code for a remote module site to an inter-module trunk used as a backup route terminating at that remote site. If a module becomes isolated from the host switch and cannot complete calls to the remote site via the NCT links, it can still continue to route emergency ranges of DNs via the inter-module trunk directly to that site. The Inter-Module Trunking Feature for 5E5 and later Software Releases is covered in Division 2, Section 1N.

2.4 Stand-Alone Billing

For 5E5 and earlier Software Releases, Stand-Alone Billing uses all available spare memory in an isolated SM to store billing information. This option requires the installation of Stand-Alone Call Processing. If this option is not purchased, the amount of memory to store billing information is 50KB.

2.5 Stand-Alone Announcement

Stand-Alone Announcement can be provided with an announcement circuit such as a 13A announcement machine for the trunk side. A 14A announcement machine could be used for the line side. Utilization of announcement circuits during stand-alone requires the Stand-Alone Call Processing option.

2.6 ORM Remote Alarm Panel

Existing 5A RSM RAUs (Remote Alarm Units) and the MMRSMP ASP (Alarm and Status Panel) are available on ORMs and TRMs. This option is independent of the ORM Stand-Alone feature.

2.7 Stand-Alone Measurement Counts

The existing RSM measurement counts that relate to stand-alone operation apply to any module with ORM Stand-Alone.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIM	5700-1/2	8	2	18.1
EQSITE	5722	8	15	18.8
EMRNM	5108	3	1H	4.9
EMROC	5116	3	1P	4.9

MLHLN form (5111-1/2/3 Record) - This form is used to define a multi-line hunt line.

EQIM form (5700-1/2) - In 5E5 and later Software Releases, this form is used to specify Stand-Alone call processing on a host (SM USAGE is "HIM" on an EQIM form) or local SM (SM USAGE is "IM" on an EQIM form); the updated STAND-ALONE (RSM STAND-ALONE in 5E4(2) and earlier Software Releases) field must be set to "Y".

Also updated for 5E5 is the STAND-ALONE BILLING field (RSM STAND-ALONE BILLING in 5E4 and earlier Software Releases). Valid entries are "Y" or "N".

EQSITE form (5722 Record) - The REMOTE SITE field has been added with 5E5 and later Software Releases. It contains the ID for the set of Remote Modules that make up the Remote Site Cluster. Valid entries are from 1-174.

Also added is the MASTER MODULE field which contains the SM number of the master module (if one exists) at the Remote Site. Valid entries are from 1-192. MASTER MODULE must be defined on an EQRAU form (5705 Record).

The required field STAND-ALONE PURCHASED? has been updated for 5E5 (RSM STAND-ALONE PURCHASED in 5E4(2) and earlier Software Releases). Valid entries are "Y" or "N". This option can only be set with the ODA process. This is not a Recent Changeable item.

Also added is the required STAND-ALONE BILLING PURCHASED? field. Valid entries are "Y" or "N". This option can only be set by the ODA process. This is not a Recent Changeable item.

EMRNM form (5108 Record) - The EMRNM form defines stand-alone alternate routing for remote TNs that terminate outside of a remote site. In 5E5 and later Software Releases, remote TNs can be defined for sites that include ORMs and TRMs.

In 5E4 and earlier Software Releases, 10 emergency TNs can be defined for a local SM or RSM. In 5E5 and later Software Releases, up to 100 emergency TNs can be defined for a local SM, RSM, ORM or TRM.

Telephone Numbers not directly assigned to the Remote Site or Local SM, for a subscriber served by the remote site or local SM, are rerouted to a local TN or Trunk Group served by the remote site or local SM. A local TN or trunk group is assigned to an equipment number (LEN, SLEN or LCEN) on the remote site.

The STAND-ALONE field on the EQIM form must be "Y" if more than 10 Emergency TNs are defined for an SM entered in the LOCAL SM field on the EMRNM form. Up to 10 Emergency TNs can be defined for an SM entered in the LOCAL SM even if the SM does not have the stand-alone option.

An isolated remote site with the Stand-Alone Announcement option will reroute all numbers to announcement, except emergency TNs defined on this form that terminate outside of the remote site.

The EMER TN field can contain any valid 1- to 15-digit number (e.g., NXX-XXXX, NPA-NXX-XXXX). International numbers may be entered with either a 01 or 011 prefix.

The EMER TN (emergency telephone number) field indicates a telephone number or range of telephone numbers not served by the remote site or local SM that could be rerouted to an outgoing IMT (Inter-Module Trunk) (or rerouted to another TN located on this SM) when the module is in a stand-alone site. To specify a range of telephone numbers, use the wild-card character (*). Possible entries using the wild-card character are as follows:

- Reroute a hundreds group to the same alternate destination:

XXX-XX**

XXX-XXX-XX**

- Reroute an entire office code to the same alternate destination:

XXX-****

XXX-XXX-****

- Reroute all office codes within an area code to the alternate destination:

_*

XXX-***_****

- Reroute all dialed calls (up to 15 digits) to the same destination:

*****_***_***_****

The X is a value 0-9. The wild-card (*) character matches any dialed digit at that position.

When determining the order of precedence for matching emergency routing TNs, if an exact match fails on the entire TN, then partial matches are attempted with wild-card digits (*) in the hundreds group, in the whole office code, in the entire area code, and lastly for all 15 digits.

A range of telephone numbers specified with a wild-card character must not overlap another range of telephone numbers for a remote site or local SM in this relation. If an overlap occurs and the modules in stand-alone are connected by IMTs, a routed number that is overlapped would appear to terminate in both modules. This would result in the number looping through all the members of the IMT group until it is blocked.

After a call has been routed to a fixed route or announcement trunk, reorder is given instead of emergency routing. For example, this would occur when a mis-dialed call to an unassigned TN accesses the routing module for that number. Calls to the Operator or 911 that would have terminated to announcement because of stand-alone condition are allowed to emergency alternate route.

Stand-Alone Test Lines allow testing of emergency number rerouting for an RSM/ORM/SM site when the RSM/ORM/SM site is not in stand-alone mode. The lines must have an LCC (Line Class Code) with a SERVICE CLASS of "SATSTLN" and a TERMINATING TREATMENT of "INDIV". When conducting the

stand-alone rerouting test from the RSM/ORM/SM site, the lines may be used to originate and dial each of the emergency numbers which is normally rerouted during stand-alone operation.

If a three-digit number is to be rerouted (e.g., 911), the CONV form (5300-4 Record) must be checked to see if that three-digit number can be code converted.

The 5E5 Inter-Module Trunking Feature, provides direct trunking between SMs connected to the same 5ESS Switch. Refer to the feature description of Inter-Module Trunking in Division 2, Section 1N for more information.

EMROFC form (5116 Record) - Entries on the EMROFC form allow an AM to reroute emergency TNs that originate outside an isolated SM or RSM to an Emergency TN within the module. Emergency calls from customers assigned to an SM that is isolated or in Stand-Alone are rerouted based on entries on the EMRNM form (5108 Record).

In 5E4(2) and earlier Software Releases, up to 100 emergency TNs can be defined for an SM or RSM. For 5E5 and later Software Releases, up to 500 emergency TNs can be assigned throughout the office for remote sites that now include RSMs, ORMs or TRMs.

For more detailed information on Stand-Alone operation, see the RSM Stand-Alone Call Processing feature description in Division 2, Section 1C.

SEC. 1R: ALLIANCE TELECONFERENCING

1. FEATURE DESCRIPTION

ATC (Alliance Teleconferencing) is available in 5E4(2) and later Software Releases. The feature allows a 5ESS Switch equipped with OSPS (Operator Services Position System) to provide network access for ATC calls.

ATC calls are recognized when they are received on operator trunks and are signaled to the network using CCS7 ISDNUP (Common Channel Signaling System Number 7 Integrated Services Digital Network User Part) capabilities. The calls are routed in the DEV (Direct Egress Voice) domain, using the APN (Action Point Numbering) address plan.

ATC uses a teleconferencing bridge, at a distant NSC (Network Services Complex), that allows many parties to be present on the same call. The ATC capability consists of two services: "Add-On" teleconferencing and "Meet-Me" teleconferencing.

Add-On teleconferencing allows a customer to originate a teleconference and add conferees (through a 5ESS Switch with OSPS capabilities). The originator is billed for the bridge charges and all participant's legs. Billing is actually done at the NSC; a billing record is kept at the switch for access verification.

Meet-Me teleconferencing is scheduled on a reservation basis (by dialing an 800 number) through a dedicated operator who provides a number for a conference controller to call at a reserved time and another number for the other conferees to call at a reserved time. The conference originator specifies a billing option when the conference may be billed for their individual leg charges or all charges may be billed to the originator.

The dialing plan for Add-On and Meet-Me calls is 0+700-45Y-XXXX. The 0+ prefix causes local offices to route Alliance calls on the operator trunks to the OSPS. The Y digit distinguishes between the two services, Add-On and Meet-Me. The Y digit is equal to 6 for Add-On; the Y digit must not equal 6 for Meet-Me.

Alliance teleconferencing calls arriving at the OSPS switch will be screened for valid ANI (Automatic Number Identification), allowable originating area (based on NPA-NXX combinations) and acceptable NCD (Network Call Denial) query status.

2. TRANSLATION REQUIREMENTS

2.1 ROUTING AND CHARGING TRANSLATIONS

DAS form (5300-1 Record) - For ATC calls to be routed in the DEV domain, the 5300-1 Record must be populated with a DAS (Digit Analysis Selector) of "98".

The 5ESS Switch will query the INWATS data base and then attempt to route (in the format of the APN (Action Point Numbering) Plan) in DAS 98. The format of the APN is SSS-TTT-xxxx. This number consists of:

- SSS - Node. Each node is assigned one or more values of "SSS". The SSS digits in the APN normally exclude all valid NPA codes.
- TTT - Indicates a specific trunk group: SSS+TTT six-digit translation at host switch is sufficient to identify Add-On or Meet-Me.
- xxxx - Last four digits of dialed number (Meet-Me), or last four digits returned from INWATS query (Add-On).

This DAS should point to an LDIT (Local Digit Interpreter Table) that can handle the result of the INWATS query for Add-On calls and it should point to the result of the delete-prefix that is done on the outgoing trunk for Meet-Me calls. Both Add-On and Meet-Me calls should be able to translate in the DAS assigned to the incoming OSPS trunk. However, the outcome is slightly different after this point:

Add-On: The route index obtained from the LDIT of the first pass of digit analysis should point to a route index that performs the add/delete operation to transpose the 700-456-xxxx to the INWATS query number of 800-050-xxxx.

Meet-Me: The route index obtained from the LDIT should translate the 700-45Y-xxxx (Y must not equal 6) directly into the APN number via the add/delete found for the route index. No second pass of digit analysis is performed; the original LDIT should be set up such that it will route directly to a CCS7 ISDNUP trunk.

ATC numbers are translated in a POTS (Plain Old Telephone Service) domain associated with the incoming OSPS trunk. The 700 number is a POTS number and the APN is a special number requiring the DAS 98 translation. Only Add-On calls use the DAS 98 translation (in the OSO (Originating Screening Office) OSPS Switch), since the response from the NCP requires retranslation. The Meet-Me number is transformed into an APN address and routed from the original DAS (LDIT). But, the Add-On used the POTS DAS to transform the ATC number into an INWATS query number of 800-050-xxxx and then retranslates the INWATS response in DAS 98.

Any 5ESS Switch office in a network between the OSPS/OSO and the host 4 ESS Switch must also be able to translate the SSS-TTT-xxxx number in DAS 98. For this type of office, translations should come up with a CALL TYPE of "NORMAL" and the DAS 98 should ensure CCS7 ISDNUP routing.

LDIT and MLDIT forms (5300-3 Record) - When an ATC Add-On call is made, it is identified in digit analysis by the incoming digits of 700-456-XXXX. The 5300-3 Record must be populated with the CALL TYPE of "ADDON" to identify this as an ATC Add-On call. Similarly, when an ATC Meet-Me call is made, it is identified in digit analysis by the incoming digits of 700-45Y-XXXX (Y must not equal 6). The LDIT form must be populated with the CALL TYPE of "MEETME" to identify this as an ATC Meet-Me call.

FIXRT form (5301-1 Record) - Alliance calls that experience ANI-failure will be routed to an announcement using the fixed routing type of "ATCANIF" that must be populated in the 5301-1 Record.

Non-billable Add-On calls (originating from coin, hotel/motel, multi-party or stations from which paid billing is not permitted), ATC calls identified as ONI and ATC calls originating from a restricted NXX are routed to an announcement. the fixed routing type of "ATCINT" must be populated in the FIXRT form to accommodate these conditions.

Restrictions may be placed on the originating NXX for Add-On or Meet-Me calls by populating the ATC form (5446 Record). When these restrictions exist for the originating NXX, ATC calls will be routed to an announcement using the aforementioned fixed routing type of '&'ATCINT' (that must be populated in the 5301-1 Record).

RTIDX form (5303 Record) - ATC Add-On calls perform an INWATS query to obtain a new forward number on which routing must be done. The 5303 Record must be populated with a route index that is obtained through digit analysis. Associated with this route index are the number of digits to delete and digits to prefix. To perform the INWATS query, 6 digits must be deleted and then prefixed with 800050.

2.2 OSPS TRANSLATIONS

ATC form (5446 Record) - This is a new record that is used to list some or all NXXs, within an NPA, that are

restricted from using Meet-Me or Add-On ATC.

SEC. 1S: RECORDED ANNOUNCEMENT FUNCTION

1. FEATURE DESCRIPTION

The RAF (Recorded Announcement Function) is available with 5E3 and later Software Releases.

The RAF, located in the DSU2 (Digital Service Unit 2), resides in a SM (Switching Module). The DSU2-RAF contains the hardware that is necessary for constructing and playing digitally recorded announcements. Software in the SM selects the announcement header, digit string and trailer to be given in the announcement. The AM (Administrative Module) routes the announcement to the operator. The RAF pieces the actual announcement together in real time from a memory board that maps a phrase identification to memory addresses which contain digitized speech.

The announcement header, trailer and digit string are all application specific. The switch owner is furnished with default phrase values, and is responsible for constructing phrases and digit inflection schemes together through the data base. The flexibility to customize announcements is provided; however, it is essential in all cases that an announcement header, digit string and trailer be assembled together to form an announcement.

OSPS (Operator Services Position System) operators have the capability to access recorded announcements for both OSPS DA (Directory Assistance) and OSPS TA (Toll and Assistance) applications.

With 5E5 and later Software Releases, recorded announcements are provided for RACF (Remote Activation to Call Forwarding) and ACSR (Automatic Customer Station Rearrangement).

With 5E6 and later Software Releases, recorded announcements are provided for LSF (LASS Selective Features), ASP (Advanced Services Platform) and OSPS-MECH (OSPS-Most Efficient Call Handling).

The following describes a Directory Assistance call arriving at an OSPS operator position where the subscriber is given a recorded announcement:

- The call arrives at an operator position. The subscriber requests the directory listing of a party. The operator enters the name of the requested party into a vendor-supplied VDT.
- The VDT is connected to a Directory Assistance System Computer (DAS/C) data base, which retrieves the directory listing.
- This directory listing appears on the operator's VDT. The operator identifies this number as the one to give to the subscriber.
- The DAS/C sends announcement data to the SM.
- The SM constructs an array of phrases using the phrases and commands present in the announcement header, trailer and digit inflection relation, and transfers this data to the RAF, which constructs the announcement and plays it to the subscriber.

2. TRANSLATION REQUIREMENTS

2.1 ROUTING AND CHARGING TRANSLATIONS

RTIDX form (5303 Record) - Each route index (1ST ANN RTI, 2ND ANN RTI, 3RD ANN RTI or CLOSE DOWN RTI) entered on a 5404 Record (OSPSCT form) must be designated in the ROUTE INDEX field of the 5303 Record.

2.2 OSPS TRANSLATIONS

ANNAPL form (5529 Record) - The Announcement Application SM List form specifies the SMs which are populated with RAF automated announcements.

ANNHD form (5531 Record) - The Announcement Header Phrase List form contains phrase identifications that comprise announcement headers.

ANN DG form (5532 Record) - The Announcement Digit Inflection Scheme form contains inflection commands and phrase identifications that comprise a template for digit strings.

ANNTR form (5533 Record) - The Announcement Trailer Phrase List form contains phrase identifications that comprise announcement trailers.

PHRASE form (5534 Record) - The Announcement Phrase List form defines the phrases that comprise announcements.

2.3 ENGINEERING TRANSLATIONS

EQIM form (5700-1/2 Record) - Switching module entries on the ANNHD form (5531 Record),

ANN DG form (5532 Record) and ANNTR form (5533 Record) must be defined on a 5700-1/2 Record.

EQRA form (5821 Record) - This form defines the Recorded Announcement Function (RAF) unit. The RAF SERVICE TYPE must have one of the following values: "ANN", "DTA" or "CTR". See Figure 1 for further assignments.

EQRAP form (5822 Record) - This form defines the RAF circuit packs. The micro-code assignments are in Figure 1.

DSU2-RAF Common Control for MC5D058A1%TN833 RAF Common Board (J5D003EA1, List1)							
First Release	Feature	List	APPLICATION (EQRAP)	MICRO-CODE (EQRAP)			SERVICE TYPE (EQRA)
				pack1 (TN1053)	pack2 (TN1054)	pack3 (TN1054)	
5E4	OSPS DA	4	OSPS-DA	5D087A100002	**		ANN
5E4	OSPS TA	10	OSPS-TA	5D114A100002	**		DTA
5E4	OSPS CTR	10	OSPS-CTR	5D114A100002	**		CTR
5E4	800 DA	11	800-DA	5D144A100001	**		ANN
5E6	OSPS MECH	*20	OSPS-MECH	5D114A300001	**		DTA
5E5	RACF	12	BRCS-RAS	5D142A100001	**		DTA
5E5	ACSR	*16	ISDN-ACS	5D142A100001	5D143A100001	**	DTA
		13		5D142A100001	5D143A100001	**	DTA
5E6	LASS	*18	BRCS-SLE	5D142A100001	5D143A200001	**	DTA
5E6	ASP	14	ASP	5D151A100001	**		DTA

* List 18 used with List 12 provides RACF, ACSR and LASS.

List 16 used with List 12 provides RACF and ACSR.

List 20 used with List 10 provides MECH, OSPS-TA, and OSPS-CTR

** a customized pack may be used for 5E6 and Later Software Releases.

List 15A (MICRO-CODE=5D155xxx0001; xxx indicates the Customer Identification Number shown on the label attached to the pack).

For 5E5 and later Software Releases, the customized pack may be used for OSPS-TA (List 15A).

Figure 1 DSU2-RAF MICROCODE ASSIGNMENTS

SEC. 1T: ISDN ATTENDANT FEATURES

1. ISAT HUNTING AND QUEUING FEATURE DESCRIPTION

ISDN Attendant Hunting and Queuing features introduced in the 5E4(2) Software Release provide new hunting and queuing arrangements for ISAT (ISDN Attendant) hunt groups. ISAT Multi-Line Hunt Groups are comprised of specialized terminals (Attendants) that serve incoming calls based on call types.

1.1 ISAT Hunting

ISAT Hunting uses UCD (Uniform Call Distribution) based on ICIs (Incoming Call Identifiers). Using this hunting arrangement, terminals (attendants) of the ISAT Multi-Line Hunt Group can be assigned ICIs to serve particular types of calls.

The ISAT Multi-Line Hunt Group is assigned a number of ICIs up to 16 on the ICIPF form (5903 Record) and each of its associated terminals are assigned a subset (possibly all) of those ICIs (DSMLHLN form (5901 Record)).

NOTE: The DSMLHLN form is for 5E4(2) Software Release and the DSLUSR form (5908 Record) is used for 5E5 and later Software Releases.

In the examples given in Figure 1, "LDN1" (Listed Directory Number 1) and "EMER" (Emergency) type calls will be served by all terminals of the ISAT group, but LDN2 type calls will only be served by terminal number one.

1.2 ISAT Queuing

Modular Queuing for ISDN Attendant groups is affected by how ICIs are assigned to the terminals of the ISAT group and by the priorities given to the ICIs. An example of the effect that ICI assignment to terminals has on modular queuing can be seen in Figure 1. LDN1 is assigned to all terminals and LDN2 is assigned to only one terminal. Calls that are queued will have a much greater chance to be served if they are type LDN1. LDN2 will not be served until the terminal (terminal one in this case) assigned this ICI is idle.

Each ICI assigned on the ICIPF form must also be assigned a priority, 1 through 8, with 1 being the highest priority. These ICIs of higher priority have a greater chance of being served before lower priority ICIs even if the higher priority call is queued later. For example, in Figure 1, if terminal one becomes idle, LDN2 calls will be served first, regardless of the order in which the calls were queued, because the priority of the LDN2 ICI is higher.

Call waiting lamps for the ISDN Attendant console are assigned to buttons on the console. These lamps will operate based on the number of calls in the queue. The Calls Waiting lamp will light whenever there is one or more calls in the queue and the Calls Waiting Warning lamp will light whenever there are more than a pre-specified threshold of calls in the queue. Modular queuing forms QUFD and QUGPA are used to make the appropriate threshold, lamp type and threshold type entries. The configuration group (CFGGRP) form (5964 Record) is used to assign the appropriate actions "QCWT" and "QCWW" to the attendant console feature buttons.

Additionally, an action of "QCUSE" may be assigned to a feature button on the console (via the CFGGRP form), that will allow the attendant to monitor the status of the queue. This feature button will give the attendant a display of the number of calls in the queue for each of the ICIs. Since this feature button works with the display capability, an appropriate display feature must be assigned to the attendants that use this button.

2. TRANSLATION REQUIREMENTS FOR ISAT HUNTING AND QUEUING

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFGGRP	5964	6	7A	12.5
DSMLHLN	5901-1/2/3/4/5	5	1B	23.3
ICIPF	5903	5	1D	3.43
LCC	5306	3	3S	4.1
MLHG	5110-1/2/3	3	1J	3.5
MLHGFD	5604	4	5A	12.18
QUFD	5617-1/2	4	18A	12.40
QUGPA	5617	4	18B	3.40

2.1 Lines

MLHG form (5110-1/2 Record) - Establish an ISAT Multi-Line Hunt Group using the appropriate feature from the MLHGFD form (5604 Record). Two additional SUBTN fields were added with this feature allowing a maximum of eight sub-group telephone numbers for a given ISAT group. These sub-group telephone numbers, if assigned, will have a one-to-one relationship with the ICIs LDN1 through LDN8 or WAT1 through WAT5 (if this is an INWATS hunt group, the maximum number of SUBTNs is five). If desired, a queuing feature may also be assigned from the QUFD form (5617-1/2).

2.2 Routing and Charging

LCC form (5306 Record) - A Line Class Code must be assigned with a CLASS OF SERVICE of "ISATND" (ISDN Attendant Terminal). This LCC will be assigned to the terminals of the ISAT group on the DSMLHLN form.

2.3 BRCS

MLHGFD form (5604 Record) - Select a preconstructed hunting feature using the new "ISAT" hunt type (or construct a feature with this hunt type).

QUFD form (5617-1/2 Record) - If queuing is desired, select an appropriate queuing feature from the preconstructed features or construct one. The following entries apply to queuing features assigned to ISAT groups:

- New fields, LAMP TYPE and THRESHOLD TYPE, are used to designate the type of call waiting lamp (feature button) and the type of threshold.
- The EXTENDED SIZE field must be blank for ISAT Multi-Line Hunt Groups.
- A maximum of ten ISAT Multi-Line Hunt Groups may be assigned to the same Queue Module.

For more information, please refer to Division 4, Section 18A of the TG-5.

QUGPA form (5617-3/4 Record) - If the default parameters associated with the particular queuing feature (QUFD form) are inappropriate or unspecified, QUGPA may be used to enter the appropriate defaults.

2.4 ISDN

DSMLHLN form (5901-1/2/3/4/5 Record) - The following entries will apply to each terminal of the ISAT group:

- Each terminal will be assigned a sub-set (possibly all) of the ICIs assigned against the ISAT group on the ICIPF form.
- Each terminal must have a Line Class Code with a class of service of "ISATND" (ISDN Attendant Terminal) from the LCC form.
- An appropriate configuration group name from the CFGGRP form will be assigned to each terminal. A maximum of four configuration groups can be assigned to a given ISAT hunt group.
- Each terminal must be assigned a terminal type of "ATND" (ISDN Attendant Terminal).

ICIPF form (5903 Record) - This is a new form used to assign the ICIs (Incoming Call Identifiers) to the ISAT group and set the priority of each ICI.

CFGGRP form (5964 Record) - The Configuration Group Definition record, as with all ISDN terminals, will be used to define how each terminal within the ISAT group is configured. A maximum of four configuration groups may be assigned to an ISDN Attendant hunt group. For modular queuing, some or all of the following actions may be used:

QCUSE -Calls on queue use.

QCWT -Call waiting (one or more calls on queue).

QCWW -Call waiting warning.

For more information, please refer to Division 6, Section 7A of the TG-5.

3. ISDN OFFERED LOAD STATISTICS FEATURE DESCRIPTION

The Offered Load Statistics feature currently exists and is being expanded with the 5E7 Software Release. The Offered Load Statistics feature will allow the attendant to retrieve and display switch-based attendant traffic counts. These counts are pegged during call processing activities and are presently zeroed out once every 30 minutes. If the customer chooses to buy an AP (Applications Processor), the statistics can be downloaded every half hour, and no manual recording is necessary. With the ISDN Offered Load Statistics feature, the customer will be able to select either a 30 minute or 24 hour reinitializing period.

Two display features, "TCUSE" (traffic counts) and "AWTUSE" (aggregate work time), are currently supported on the ISDN Attendant. This feature will modify the functionality of the TCUSE feature button by allowing multiple button depressions.

For more information, please refer to the 235-190-105 document.

4. TRANSLATION REQUIREMENTS FOR ISDN OFFERED LOAD STATISTICS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MLHG	5110-1/2/3	3	1J	3.5

4.1 Lines

MLHG form (5110-1/2/3 Record) - An entry of "Y" in the STATS 24 HRS field indicates that a 24 hour time period has been selected to reinitialize the ISAT Load Statistics. An entry of "N" indicates that a 30 minute

time period has been selected.

5. ISDN ATTENDANT GROUP OVERLOAD WARNING

The ISDN Attendant Group Overload Warning feature, available with 5E8 and later Software Releases, provides four lamp indicators for ISAT Multi-Line Hunt Groups. Three lamps (PCWT, QWARN, and QBUSY) are assigned via feature buttons; the fourth lamp (QBUSY DPN) is assigned via a distribution point.

5.1 Background

Prior to 5E8, two call waiting indicators existed for ISAT member consoles, the CWT (Call Waiting) and CWW (Call Waiting Warning) feature button lamps. The CWT feature button lamp was lit when at least one call in the ISAT queue was in the subset of ICIs (ISDN Call Identifiers) the ISAT member could handle. This lamp remains unchanged for later software releases.

The function of the CWW feature button lamp depended on whether or not the switch was a DSN (Defense Switch Network) office. For a non-DSN switch, the CWW lamp was lit on a member's console when the number of queued calls with ICIs the member could handle exceeded the predefined threshold for the member. For a DSN switch, the CWW lamp was lit when at least one call with a precedence higher than routine (executive, priority, immediate, flash, or flash override), and with an ICI the member could handle, was queued.

For 5E8 and later, the function of the CWW lamp is changed for DSN switches, and the PCWT lamp is introduced so DSN and non-DSN switches can have both features.

5.2 Call Waiting Warning Lamp and Precedence Call Waiting Lamp

For 5E8 and later in the DSN switch, the existing CWW lamp functions the same as it does in a non-DSN switch. The CWW lamp is lit when the number of queued calls with ICIs that a member can handle exceeds the predefined threshold for that member.

The new PCWT (Precedence Call Waiting) indicator functions as the CWW lamp did in the DSN switch for 5E7 and earlier Software Releases; however, it is available to any ISAT MLHG members capable of handling MLPP (Multi-Level Precedence Preemption) calls on either a DSN or non-DSN switch. This PCWT lamp is lit on an attendant console when one or more calls above routine precedence level (executive, priority, immediate, flash, or flash override) which this attendant can handle, are in the queue. PCWT is extinguished when no precedence calls higher than routine level remain in the queue.

5.3 Queue Warn Lamp

The QWARN (Queue Warn) indicator lights on each console having the feature button for QWARN lamp when a predetermined number of calls, regardless of ICIs, are queued. QWARN is extinguished when the number of calls in the queue falls below the predetermined number. The threshold is defined in the QWARN THRESHOLD field of the QUFD or QUGPA form.

5.4 Queue Busy Lamp

When the ISAT queue becomes full, the QBUSY (Queue Busy) feature button lamp lights on each console having that button. QBUSY is extinguished when a queue slot becomes available.

5.5 Queue Busy Distribution Point

The QBUSY DPN (Queue Busy Distribution Point) is activated when the queue is full and is deactivated when a slot becomes available on the queue.

6. TRANSLATION REQUIREMENTS FOR ISDN ATTENDANT GROUP OVERLOAD WARNING

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFGGRP	5964	6	7A	12.5
QUFD	5617-1a/b/c	4	18A	12.40
QUGPA	5617-3/4	4	18B	3.40

6.1 BRCS

QUFD form (5617-1a/b/c Record) - The fields QWARN THRESHOLD and QBUSY DPN were added to the form.

QWARN THRESHOLD defines the number of queued calls that will cause the QWARN feature buttons to be lit. When the number of calls in the queue exceeds the threshold value, the QWARN feature button lamps (identified by an ACTION of "QCWARN" on the CFGGRP form) on ISAT terminals are turned on. When the number of calls in the queue falls below the threshold value, the QWARN feature button lamps are turned off.

The QBUSY DPN field defines a distribute point number. When the ISAT queue is full, the distribute point will cause a lamp to be lit. This lamp is different from the feature button lamp defined on the CFGGRP form with action "QCBUSY".

QUGPA form (5617-3/4 Record) - The fields QWARN THRESHOLD and QBUSY DPN were added to the form.

If the corresponding parameters on the QUFD form are inappropriate or unspecified, these fields may be defined for a particular MLHG and feature.

6.2 ISDN

CFGGRP form (5964 Record) - The ACTIONS "QCBUSY", "QCPCWT", and "QCWARN" were added to the CFGGRP form. Each of these can be assigned to feature buttons on ISAT consoles that are assigned a modular queuing feature.

The "QCBUSY" action specifies a QBUSY button. The lamp associated with this button will be lit when the ISAT queue is full.

The "QCPCWT" action defines an ISAT queue Precedence Call Waiting button. When one or more calls of priority level higher than routine are in the queue, the PCWT lamp is lit on each console that is assigned the feature button and is capable of handling MLPP (Multi-Level Precedence Preemption). The PCWT lamp is extinguished when no precedence calls higher than routine level remain in the queue for that member.

The "QCWARN" action defines an ISAT queue warning button. The QWARN lamp is associated with the QWARN THRESHOLD field on the QUFD or QUGPA form. The QWARN lamp is lit on each console having the feature button when the number of queued calls exceeds the predetermined number defined in the QWARN THRESHOLD field. The QWARN lamp is extinguished when the number of calls in the queue falls below this predetermined number.

7. REMOTE BUSY VERIFY FEATURE DESCRIPTION

RBV (Remote Busy Verify) is available with 5E8 and later Software Releases, and provides the ISAT (ISDN Attendant) on a 5ESS Switch the ability to busy verify any analog or ISDN line on a remote 5ESS Switch using a dedicated network of ISAT BVTs (Busy Verify Trunks). Lines on the remote 5ESS Switch are busy verifiable only if associated to an incoming ISAT BVT. For how various types of TNs are associated, see Section 8

ISAT RBV is similar to ISAT Busy Verification of DNs introduced in the 5E4(2) Software Release, with the added capability allowing busy verification of DNs on a remote 5ESS Switch. The following scenario occurs:

1. When the ISAT verifies a DN on a remote 5ESS Switch, the originating 5ESS Switch routes the call to an ISAT BVT. The translated digits of the DN to be busy verified are outpulsed over the outgoing ISAT BVT to the remote 5ESS Switch.
2. The terminating 5ESS Switch checks that the DN is valid and is remote busy verifiable.
3. If the DN is busy and verifiable, the incoming call from the ISAT across the ISAT BVT is bridged onto the active call. The bridging capability is only possible if the busy verifiable DN has a busy verify terminating feature assigned. (where verification barge-in cannot occur, tones are returned from the far 5ESS Switch: high tone for OOS, reorder tone for all else.)
4. If the DN is idle and verifiable, the call alerts as a normal incoming call and the ISAT hears audible alerting.
5. If the called party answers, the ISAT and the called party can converse.

In both the barge-in and idle case, all parties hear a 300 msec, 440 Hz tone from the ISAT's 5ESS Switch every 6 seconds while the ISAT is connected. After 30 seconds, the ISAT is automatically disconnected by the ISAT's 5ESS Switch. During the busy verification call, the ISAT display indicates Remote Busy Verify. This limited display capability is due to the remote 5ESS Switch's inability to provide information over an ISAT BVT to fully populate the DN status display.

DNs may be associated to an ISAT BVT group (via an RBV TGN) or an Attendant Multi-Line Hunt Group (via an ATT MLHG), but not both. Also, ISAT BVTs cannot be of the CCS6 (Common Channel Signaling System 6) or SS7 (Signaling System 7) type.

8. TRANSLATION REQUIREMENTS FOR REMOTE BUSY VERIFY

NOTE: The nature of this feature requires data entry in the Attendant's as well as the remote 5ESS Switch. The following tables indicate the translation requirements for the respective 5ESS Switches.

New Or Modified ODA Forms — Attendant's Switch				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202-1/2/3/4	3	2A	5.1
TIMING	5520	3	5T	8.5
RBVRTI	5950	5	5K	4.63

New Or Modified ODA Forms — Remote Switch				
Form Name	Record Number	Division	Section	RC View
LINE	5109-1/2/3	3	1I	1.6, 1.8
MLHG	5110-1/2/3	3	1J	3.5
MLHLN	5111-1/2/3	3	1K	1.6
TKGRP	5202-1/2/3/4	3	2A	5.1
TIMING	5520	3	5T	8.5
PUTFD	5605-2	4	6B	12.14

SHTN	5902	5	1C	23.20
DSLUSR	5908	5	1I	23.2, 23.8

8.1 Lines

LINE form (5109-1/2/3 Record) - New field RBV TGN enters the number of the incoming trunk group used to Remote Busy Verify the TN (DN) of this form. This TGN allows an ISAT on another 5ESS Switch to Busy Verify this DN if the TGN is associated with an analog TN.

For more information, please refer to Division 3, Section 1I of the TG-5.

MLHG form (5110-1/2/3 Record) - New field RBV TGN enters the number of the incoming trunk group used to Remote Busy Verify the LISTED TN (DN) of this form. This TGN allows an ISAT on another 5ESS switch to Busy Verify this DN if the TGN is associated with a LISTED TN.

For more information, please refer to Division 3, Section 1J of the TG-5.

MLHLN form (5111-1/2/3 Record) - New field RBV TGN enters the number of the incoming trunk group used to Remote Busy Verify the TN (DN) of this form. This TGN allows an ISAT on another 5ESS Switch to Busy Verify this DN if the TGN is associated with a TN (DN).

For more information, please refer to Division 3, Section 1K of the TG-5.

8.2 Trunks

TKGRP form (5202-1/2/3/4 Record) - New form checks support the new TRKCLS of "ATNDVFY". The trunk is "outgoing" on the Attendant's Switch, and "incoming" on the Remote Switch.

For more information, please refer to Division 3, Section 2A of the TG-5.

8.3 Miscellaneous

TIMING form (5520 Record) - New form checks support the new SERVICE (Trunk) CLASS of "ATNDVFY". The trunk is "outgoing" on the Attendant's Switch, and "incoming" on the Remote Switch.

For more information, please refer to Division 3, Section 5T of the TG-5.

8.4 BRCS

PUTFD form (5605-2 Record) - A new cross check for FEATURE FUNCTION refers to RBV TGN on the LINE, MLHG, MLHLN, SHTN, or DSLUSR forms.

For more information, please refer to Division 4, Section 6B of the TG-5.

8.5 ISDN

SHTN form (5902 Record) - New field RBV TGN enters the number of the incoming trunk group used to Remote Busy Verify the Secondary Only TN (DN) or the TN associated with a Secondary Only terminal on this form. Remote Busy Verify cannot be assigned to Primary TNs or Primary Terminals on this form. This TGN allows an ISAT on another 5ESS switch to Busy Verify this DN if the TGN is associated with a Secondary Only TN (DN).

For more information, please refer to Division 5, Section 1C of the TG-5.

DSLUSR form (5908 Record) - New field RBV TGN enters the RBV TGN of the incoming trunk group used to Remote Busy Verify the CKT TN (DN) or the CKT SWITCHING MLHG TN of this form. This TGN allows an ISAT on another 5ESS switch to Busy Verify this DN if the TGN is associated with a CKT TN (DN) or CKT SWITCHING MLHG TN.

For more information, please refer to Division 5, Section 1I of the TG-5.

RBVRTI form (5950 Record) - This is a new form used to specify routing parameters for RBV.

New field ISAT MLHG enters the ISAT Attendant MLHG on this 5ESS Switch that busy verifies TNs in a remote 5ESS Switch.

New field RTI enters the route index which normally routes a call to the remote 5ESS Switch for non-data calls.

New field REMOTE RTI enters the route index used to route across an ISAT BVT to busy verify a TN on a remote 5ESS Switch.

For more information, please refer to Division 5, Section 5K of the TG-5.

ESS 5903(01)TG-5

INCOMING CALL IDENTIFICATION
PARAMETER RECORD
5ESS SWITCH

DATE _____

ICIPF

3.43

BASE _____ CONT GR _____

5ESS UNIT _____

PAGE _____

HUN T G R P N B R	TER M GR P ID	HUNTING		PREC		FX TRK			TIE TRK			CNET TRK			REMARKS
		ICI		ICI		GRPS			GRPS			GRP			
		ICI	P R I	ICI	P R I	ICI	TGN	P R I	ICI	TGN	P R I	ICI	TGN	P R I	
009 9		LDN1	3												
		LDN2	2												
		EME R	1												

Figure 1 ICI ASSIGNMENT EXAMPLE

ESS 5901-5(01)TG-5

DIGITAL SUBSCRIBER
MULTILINE HUNT GROUP TERMINAL RECORDS
5ESS SWITCH

DATE _____

DSMLHLN

23.3

BASE _____ CONT GR _____

5ESS UNIT _____

CK T M L H G	C KT	P K T M E R M G	PK T T E R M	ICI (INCOMING CALL IDENTIFIERS)								CSD MLHG								M S A U K B	T S T L I N																		
				ICI	ICI	ICI	ICI	ICI	ICI	ICI	ICI	MAKE BUSY				STOP HUNT																							
												1	2	3	4	5	6	7	8			KEY				KEY													
																						I	I	I	I	I	I	I	I	S	M	S	B	S	S	M	S	B	S
				9	1	1	1	1	1	1	1																												

Figure 2 ICI ASSIGNMENT EXAMPLE

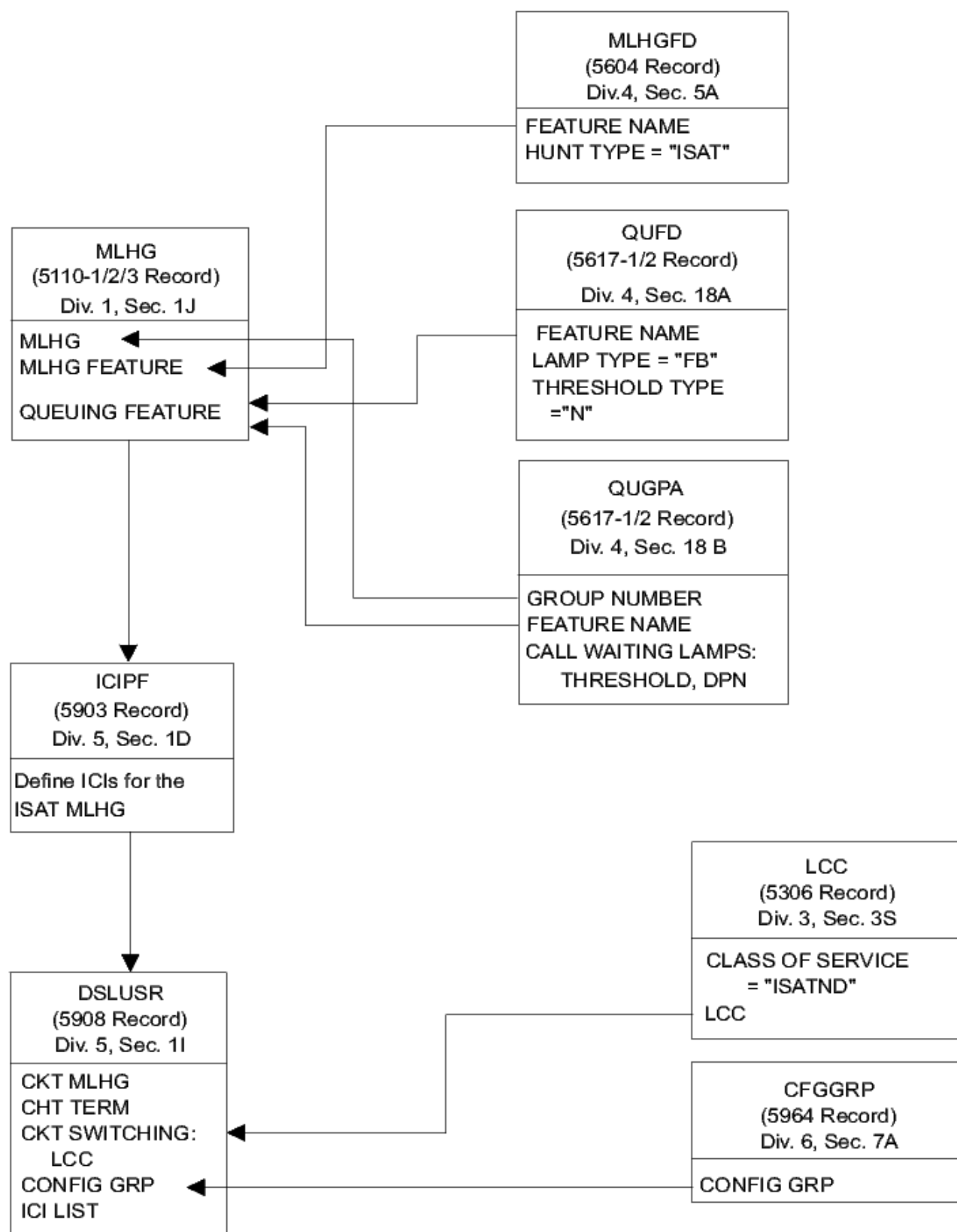


Figure 3 ISDN ATTENDANT MLHG ASSIGNMENT

SEC. 1U: BFG (BRCS FEATURE GROUPING) FEATURE DESCRIPTION

1. GENERAL

This section provides information and recommendations to the 5ESS Switch owner for the use of the BFG (BRCS Feature Grouping). BFG is available in the 5E4(2) and later Software Releases. BFG optimizes Recent Change response time and conserves Switching Module memory.

This feature description presumes that the user is familiar with implementing BRCS features. BFG cannot be used with trunks.

BFG introduces new procedures for assigning BRCS features to lines. BFG eliminates data redundancies by providing a pool of data that can be shared by a large quantity of lines that have similar subsets of BRCS features.

2. BEST FIT SELECTION

BFG employs the concept of best fit selection making it unnecessary for the user to specify, on either the LINEFA or MLHLNFA form, the exact SELECTION BFGN (BFG NAME) and SUFFIX required to provide the desired features. Entering the appropriate SELECTION BFGN, without a SUFFIX, and the desired feature names along with any applicable parameters enables the best fit selection process. If the SELECTION BFGN has been defined, that BFGN and each of its defined suffixes will be searched using best fit criteria in the attempt to select the SUFFIX.

The best fit criteria is defined to be the SELECTION BFGN and SUFFIX combination that matches the largest quantity of features and any associated parameter information for the features that are to be assigned to the line. If more than one BFGN and SUFFIX meets this criteria, the lowest numbered SUFFIX is selected. The best fit SELECTION BFGN and SUFFIX will be assigned to the subscriber data.

If a SELECTION BFGN and SUFFIX has features that were not requested to be assigned to the line, that SELECTION BFGN and SUFFIX combination will not match and it will not be selected. A line cannot "gain" features during the best fit selection process.

If a best fit match is not found, the subscriber is still placed in service with all the assigned features and applicable parameters assigned outside the BFG structure.

A best fit selection may result in assignment of a BFG that contains only a portion of the desired feature set. The assigned features that did not match the BFG defined features are assigned to the line outside the BFG structure. Features duplicated on the LINEFA or MLHLNFA and the BFG form will be built from the BFG form. Matching features from the LINEFA/MLHLNFA form will be ignored.

Depending on the Modular Feature Type, feature parameters can be defined that are either inside or outside the BFG structure. Using the flexibility of the feature parameter location, parameters can be defined to provide individualized services while still using the BFG concept.

3. BFG CONSTRUCTION

For administrative purposes it is important that the switch owner define and use a consistent naming convention for the construction of UNIQUE, as well as, SELECTION BFGNs.

To convert to BFG, it is suggested that UNIQUE BFGNs be related to USOCs (Universal Service Order Codes), Cluster names, or other switch owner-defined names that are recognized as defining features or

groups of features. For UNIQUE BFGNs, USOCs or Cluster, names can be used if they are seven characters or less in length. UNIQUE BFGNs are best suited for use with residential or small business-type subscribers. UNIQUE BFGNs are not eligible for the best fit selection process.

For SELECTION BFGNs intended for analog subscriber lines, the recommendation is that the TGID assigned to the customer be appended to "CTX" to yield a seven-character SELECTION BFGN, e.g., CTX0025. BFGN is limited to seven characters so the left-most zero of the TGID has been dropped. If the left-most TGID digit is not zero, the recommendation is that "TG" be appended to the TGID to yield a seven-character SELECTION BFGN, e.g., TG10120.

For SELECTION BFGNs intended for ISDN subscriber lines, the recommendation is that the TGID assigned to the customer be appended to "ISD" to yield a seven-character SELECTION BFGN, e.g., ISD0025. The reason for this recommendation will be discussed later.

5ODA provides the first step in the BFG transition process for both initial offices or offices that retrofit to the 5E4(2) Software Release.

The first step requires the separation of subscriber information into two categories:

1. Lines without BRCS features are not affected by BFG.
2. Lines with BRCS features are further categorized as being with or without a TGID (Terminal Group Identification Number) assigned.

All lines with BRCS features but without a TGID are placed in the category called "NONTGID".

Lines with a TGID are put into BFG categories by TGID. Because a BFG NAME is restricted to seven characters, the following BFG naming convention, for lines with TGIDs, has been adopted by ODA and the Software Release. TGIDs less than 10,000 have "CTX" appended to the TGID while TGIDs greater than 9,999 have "TG" appended to the TGID. Example: All lines in TGID 00025 are placed in CTX0025-0, all lines in TGID 00102 are placed in CTX0102-0 and all lines in TGID 10120 are placed in TG10120-0, etc.

These categories are referred to as "base" BFG categories. Only the ODA and Recent Change processes are permitted to build these base BFG categories, thus, a SELECTION BFGN with SUFFIX 0 cannot be constructed by the switch owner. Lines in base BFG categories (NONTGID, CTXXXXX-0 or TGXXXXX-0) can be transitioned to BFG using on-site processes that are described and supported by Recent Change.

4. BFG PARAMETER ASSIGNMENT

During BFG construction, a BFGN is treated like a pseudo line, so the constructed BFG must be able to pass consistency error checks. These checks include the BFG relationship between the LCC (Line Class Code) and the RAX (Rate Center) and the features entered on the BFG Construction form. Consistency is also required between the features and their associated parameters. Depending on the specific Modular Feature being assigned, BFG Construction requires the parameters to be specified either on the BFG form (5625 Record) or the appropriate feature definition form.

Refer to Figure 1 for the definitions of the parameter types associated with each Modular Feature.

BFG Modular Features are separated into the following parameter types:

- Line. Line Type Modular Features do not have parameter data associated with the BFG but only with the line. Line type features may be specified as a part of the BFG but the parameters will be defined either by the line using the LPA/MPA forms or feature definition default parameters will be used.

- Group. For Group Type Modular Features, parameter data is always required. If parameter data is not entered on the BFG form, then parameters must be specified by the default parameters of the associated feature definition form.

For Group Type Modular Features, when 1) both BFGN and suffix are specified on either the LINEFA or MLHLNFA form, or 2) the LINEFA or MLHLNFA suffix is not specified and the LINEFA/MLHLNFA name matches UNIQUE BFGN on a BFG form, then default parameters may not be assigned on the corresponding parameter (LPA or MPA) form.

- Either. During BFG Construction, Either Type Modular Feature parameters follow the same rules as group parameters, in that parameters must be defined on either the BFG form or the feature definition form. Default parameters will be used.
- Neither. Parameters do not exist for these types of features, therefore, there are no parameter requirements.
- Not Allowed. Neither the feature nor parameters for this type of feature may be specified for the BFG.

The BFG parameter entry fields, for Group and Either type Modular Features, are located on various screens of the BFG form. The 5625-1 Record (Screen 1) contains a table of Modular Feature abbreviations and the screen number where their associated parameters are located.

5. SPECIFIC BFG ASSIGNMENT

The assignment of BFGs to lines is dependent on a number of conditions that include the features, their parameter types and whether a specific BFGN is entered or if best fit selection is being attempted.

A specific BFGN is either a BFGN defined on the BFG form as a UNIQUE BFGN or it is a BFGN and SUFFIX entered on a feature assignment form that had been defined on the BFG form as a SELECTION BFGN and SUFFIX.

For the specific BFGN case, features may or may not be entered, as applicable or desired. If all the features, required for the line, are defined by the specified BFGN, the features need not be entered on the feature assignment form. If they are entered, and they exactly match the BFG defined features, they will be ignored and the features will be assigned from the BFGN.

If the line requires a feature or features, that are in addition to the features defined by the BFGN, they should be entered on the feature assignment form. In the switch data base, the additional features will reside in port-specific relations, outside BFG, and the line will also use the features defined by the BFG. A line may be assigned features inside and outside BFG but it may not exceed the feature limitations of a line without BFG. Example: A line may not have more than one ID (Individualized Dialing) feature. Therefore, a line may not have one ID feature inside BFG and another, different ID feature outside BFG.

Parameters associated with features outside BFG must be defined according to existing rules.

According to the particular Modular Feature, parameters assigned to features inside BFG may have additional dependencies.

- Line. For Line type Modular Features the parameters are always specific to the line, even when the feature is defined inside the BFG. Parameters must be entered for the line and the feature on the appropriate parameter assignment form (e.g., CFWLPA or CFWMPA) or the default parameters on the

feature definition form must be defined (e.g., CFWFD).

- **Group.** For Group type Modular Features, the line must use the parameters of the specified BFG. Therefore, specific line parameter data need not be entered. If specific parameter data is entered, it must match the BFG defined parameters or an error condition will exist.
- **Either.** For Either type Modular Features, the line may use either the BFG parameters or it may define its own parameters. Line-specific parameter data may or may not be required, depending on the requirements of the line. If line parameter data is not entered or if it is entered and it exactly matches the BFG parameter data, then the BFG data will be used and line-specific parameter tuples will not be built. If the line requires parameters that are different from the BFG parameters, then line parameters must be specified on either the parameter assignment form (e.g., IDPLPA or IDPMPA) or in the default parameters on the feature definition form (e.g., IDFD). In the switch, for Either type Modular Features, it is recognized that while the features are inside BFG, the feature parameters may be located either inside BFG, in common tuples or outside BFG, in line-specific tuples.
- **Neither.** Parameters do not exist for these features. Therefore, there are no parameter data requirements.
- **Not Allowed.** Neither the feature nor the parameters for this type of feature may be specified either inside or outside BFG.

6. BEST FIT SELECTION BFG ASSIGNMENT

To use the earlier-described best fit selection process, the SELECTION BFGN without a SUFFIX is entered on either the LINEFA or MLHLNFA form.

For this case, all the desired features must be entered on the feature assignment form. Also, all parameters associated with these features must be defined for the line on the appropriate parameter assignment form or as default parameters on the feature definition form. All normally required BRCS data, for the line, must be entered.

The selection of a BFGN and SUFFIX is, in part, dependent on the parameter type of the Modular Feature assigned.

Refer to Figure 1 to determine the parameter locations allowed for the various BRCS Modular Feature types.

- **Line.** For Line type Modular Features the parameters are always specific to the line even if the feature is inside the associated BFG. Therefore, there are no BFG parameters to be compared with the line parameters.
- **Group.** For Group type Modular Features, if the feature is defined by a BFG, the line must use the BFG parameters. If a BFGN and SUFFIX contains group parameters that differ from the parameters defined for the line, the BFGN and SUFFIX will not be selected. Example: A line has a LINEFA form that specifies a BFGN of CTX0001, a blank SUFFIX and feature /TGUUT. A TGSRLPA form has also been entered, for the same line, with a GROUP ID of 2. SELECTION BFGN CTX0001 and at least one of its suffixes must have been defined with feature /TGUUT and the GROUP ID parameter equal to 2 or none of the CTX0001 suffixes would be eligible to be selected.
- **Either.** For Either type Modular Features, the line may use either the BFG parameters or its own line parameters. If the line parameters do not match the BFG parameters, the line is still eligible for selection. Line-specific parameter tuples will be built and the additional memory required for this

condition is taken into account when determining the best fit SELECTION BFGN and SUFFIX.

- Neither. Parameters do not exist for these type Modular Features. Therefore, there are no requirements for line parameter data. The only criteria used for best fit selection is the feature.
- Not Allowed. Features of this type are not allowed for a line that has a BFG. If a feature of this type is entered for a line, the line is not eligible for BFG selection.

7. BFG (BRCS FEATURE GROUPING) SUMMARY REPORT

The BRCS Feature Group Summary Report (5626 Record) provides statistics related to subscriber feature usage as determined through ODA. This information should be used as the basis for the construction of BFGs that will provide the maximum utility. The following descriptions reference Figure 2.

The Summary Report information is divided into two basic categories. The first category reflects subscriber feature assignment information for subscribers without a TGID (Terminal Group Identification Number) assigned. These are typically POTS or small business-type service customers. Subscriber lines in the non-TGID category may use feature groups that are linked to tariffs, Universal Service Order Codes (USOCs) or other switch owner-defined groups of features.

The second category reflects feature assignments to subscribers that have a TGID assigned. Subscriber lines in the TGID category are typically Centrex groups, both large and small, and may use tariff, USOC or other switch owner-defined groups of features.

The Sample Summary Report contains a total of 14,300 subscriber lines in the non-TGID category, along with 2,089 lines in the TGID category, with 1,975 lines in TGID 00005 and 114 lines in TGID 00010. The Summary Report user should examine the USER TOTALS for these lines. Attention should be concentrated on the groups of BRCS features assigned to the lines in each category.

8. BFG CONSTRUCTION AND ASSIGNMENT

Construction of BFGs can be done using different approaches. The switch owner could simply construct a BFG for each unique USER TOTALS group on the Summary Report. For some categories this may be the best approach but additional approaches will be discussed.

After analyzing the BFG Summary Report statistics, the switch owner should be ready to make decisions on the types and quantities of BFGs to be constructed. Using the Sample Summary Report, it is apparent that UNIQUE BFGNs could be defined for use by the non-TGID subscribers.

Assuming there is a USOC package named ESV that consists of the /CFV and /CWC1 features, the suggestion is to use the USOC name as the UNIQUE BFG NAME (BFGN) on the BFG Construction form. A UNIQUE BFGN named ESV would be constructed with /CFV and /CWC1 defined as the features.

Using Figure 1 it is determined that Call Forwarding is a Line Type Modular Feature and BFG Construction parameters are not permitted. Call Waiting is a Group Type Modular Feature and access to BFG Construction or feature definition form Call Waiting parameters are required. The feature definition form default parameters could be used.

Each feature assignment form that assigns just these two features to a subscriber would have "ESV" entered as the BFGN. Since the USOC name usually appears on the Service Order, this should simplify the conversion to the use of BFG. If desired, the features (/CFV, /CWC1) could be deleted or not entered in the FEATURE Assignment section of the feature assignment form. If features are entered, ODA will do a match

to determine if all the features on the feature assignment form match all the features in the BFGN specified.

If there are no incompatibilities between the BFGN-defined features and parameters and the feature assignment features and parameters (LPA, MPA or FD), the features would be assigned from the BFGN named ESV. For this example, because of the assigned features, there cannot be parameter conflicts but in other instances, if the features all match, the associated line parameters must be examined to determine if there is compatibility with the BFGN-defined parameters.

Using similar feature and parameter assignment logic, additional UNIQUE BFGNs could be constructed for the other non-TGID types of BRCS feature groups on the Summary Report.

For the case of BRCS feature groups that have TGIDs, additional analysis should be done before determining the content and quantity of any SELECTION BFGNs constructed. Two approaches to the construction of SELECTION BFGNs will be described.

For TGID 00005, because of the large quantity of subscribers affected, construction of SELECTION BFGN CTX0005 with a SUFFIX for each feature group on the Summary Report would probably be the best approach. Defining a SUFFIX for each feature group, Suffixes (1 - 6) would be constructed.

Using the sample report data, SELECTION BFGN CTX0005, SUFFIX 1 would be constructed with features IDFEAT5 and TGSFEAT5. Since these are constructed features, feature definition forms and default parameters would, normally, have already been completed. If required, the feature definition form default parameters could be superseded by parameter data entered on the BFG Construction form.

SELECTION BFGN CTX0005, SUFFIX 2 would be constructed with features CFWEAT5, IDFEAT5 and TGSFEAT5. Similarly, Suffixes 3 through 6 would be constructed using the groups of features from the Summary Report. In each instance, using Figure 1 to determine the allowable locations for Modular Feature parameters and observing BFG requirements for parameter definition, access to the appropriate parameter data must be provided.

Another approach to BFG Construction can be shown with TGID 00010. Using the sample report, it can be determined that TGID 00010 has a wide range of features spread over a small quantity of subscribers. Examination shows that all 114 subscribers in TGID 00010 share a common group of features: /ACBC, /CPUDO, /CWACODT, /MWACH2, IDFEA10 and TGSFEA10. For TGID 00010 the switch owner may wish to conserve BFGNs while retaining a portion of the BFG benefits. Assuming common parameter requirements, a SELECTION BFGN with a single SUFFIX (CTX0010, SUFFIX 1), that specified the common group of features and the associated parameter information, could be constructed that would permit all the subscribers in TGID 00010 to be assigned using a single SELECTION BFGN and SUFFIX. TGID 00010 subscribers, that required features that were not defined by the constructed SELECTION BFGN and SUFFIX, would be assigned those features outside BFG while the remainder of their features, (/ACBC, /CPUDO, /CWACODT, /MWACH2, IDFEA10 and TGSFEA10), used BFG. This approach retains the benefits of BFG while using only one SELECTION BFGN and SUFFIX.

9. BFGN ASSIGNMENT

Using the previous examples, subscribers would be assigned to their respective BFGNs from the feature assignment forms (LINEFA, MLHLNFA). It would be necessary to place the appropriate BFGN (ESV, CTX0005 or CTX0010) in the BFGN field on these forms. The SUFFIX field would be left blank.

For UNIQUE BFGNs, this would be all the feature assignment data entry required. If a UNIQUE BFGN is entered, unless there are parameter incompatibilities, all of the features defined by that UNIQUE BFGN will be assigned to the line. Best fit selection is not applicable to UNIQUE BFGNs.

For SELECTION BFGNs, the best fit selection process would assign the appropriate SELECTION BFGN and SUFFIX to the subscribers that matched the best fit selection criteria. In each case, depending on the feature, individual line parameter data entry may or may not be required. If feature parameters are required, they must be entered so they can be used by the best fit selection process to determine if the BFG parameters match the desired line parameters.

Another way to use the constructed BFGNs would be to specify the SELECTION BFGN and SUFFIX and enter only the additional features that are not defined by the SELECTION BFGN and SUFFIX on the feature assignment form (LINEFA, MLHLNFA).

To assign all the features defined by SELECTION BFGN CTX0010, SUFFIX 1, both the SELECTION BFGN and SUFFIX would be entered on the feature assignment form. After attempting to match the feature assignment features with the SELECTION BFGN features, presuming there were no parameter inconsistencies, all the features defined by SELECTION BFGN CTX0010, SUFFIX 1 would be assigned to the subscribers. In the case of TGID 00010, for the first group of four subscribers, the additional unmatched features, CFWFEAT5 and PPFEAT4, would be assigned outside BFG.

This method is useful when features are grouped using a USOC or there is a base level of services that are assigned to all subscribers and the customer occasionally requests additional features that are not part of the USOC or base level-defined services to be assigned to specific subscribers. BFG Modular Feature parameter requirements must be met.

The point of these examples is to illustrate how input effort can be reduced and the assignment process simplified using BFG. The least-change method would be to continue to enter the features on the feature assignment forms, enter the SELECTION BFGN with a blank SUFFIX along with the desired parameters and let best fit selection take place.

As the switch owners assignment process changes, the base features can be removed from the feature assignment forms and only the appropriate SELECTION BFGN and SUFFIX, along with the appropriate parameters, entered. This method means that only the additional features, features not included in the base features defined by the BFG, need to be entered on the feature assignment forms. This method works well when the base features are packaged in a USOC or other switch owner defined grouping. Significant entry effort can be saved.

10. CLUSTER USAGE

Clusters are compatible with BFG but certain differences must be understood.

Cluster names can be used during BFG Construction to define the features assigned to the BFGN. The individual features will be derived from the Cluster Definition form and the individual features will be part of the BFGN. During ODA processing, the Cluster name will appear on the BFG Construction form, but after the ODA has been processed, only the features, not the Cluster name, will be retained in the switch data associated with the BFG.

Cluster names can be used to specify subscriber features on a feature assignment form. The Cluster-defined features will be matched with the BFGN-defined features, and if they match, the subscriber will be assigned the BFGN and if the BFGN is not a UNIQUE BFGN, the SUFFIX. The Cluster name will appear on the feature assignment forms during ODA processing but only the features, not the Cluster name, will be retained in the switch data for an individual subscriber assigned to a BFGN. The described method allows the switch owner to continue using Clusters in their assignment processes.

The advantage of using BFG is that in the switch, the type of mass changes that were possible with Cluster updates can be readily done with BFG. It is only necessary to change the feature or parameter data

associated with a BFGN, and the change is populated to all subscribers that reference that BFGN. The difference is that only one set of BFG relations in each SM (Switching Module) that contains subscribers that reference the BFGN, is updated and the numerous individual subscriber relations are untouched. The combination of Cluster and BFG retains the data entry advantages of Cluster while using the efficient data storage associated with BFG.

11. RECENT CHANGE

BFG can change how the switch will be administered when using Recent Change methods and procedures. This section will not attempt to cover all the effects of BFG on the every day administration of the office, but it will provide an overview of the transition to BFG. The user should refer to Recent Change documentation for further detailed BFG transition-related information.

During initial office ODA processing, it is recommended that the switch owner use BFG for the assignment of subscribers by constructing BFGs and entering the appropriate information on the feature and parameter assignment forms.

For offices that are retrofitting to the 5E4(2) Software Release, the short retrofit interval does not permit the switch owner to transition to BFG during ODA retrofit processing.

The ODA processes, used during both initial office and retrofit ODA processing, perform a portion of the preliminary BFG transition operations. The final transition to BFG can be done by the switch owner using Recent Change based processes.

When the ODD (Office Dependent Data) has been loaded and brought on line in the switch, the switch owner would use Recent Change Views to construct BFGNs in much the same way as has been described in this section. The ODA BFG Summary Report data along with a Recent Change on-line report that is similar to the ODA Summary Report are available as aids for this task.

The transition to BFG usage requires the separation of subscriber lines into the non-TGID and TGID categories that were previously described in the BFG Summary Report. Switch relations are built and initialized by ODA to contain references to each non-TGID and TGID type of subscriber. Recent Change transition routines perform this same function on the switch. The transition routines would be used to locate subscribers that had been entered into the switch data by Recent Change after the data had been processed by ODA.

Using the described Summary Report data, UNIQUE BFGNs would be constructed using the naming convention defined by the switch owner. Recent Change routines are available to transition the subscribers from NONTGID to the appropriate UNIQUE BFGNs. For NONTGID subscribers, a single transition pass can specify up to sixteen target UNIQUE BFGNs. The quantity of passes required would depend on the quantity of UNIQUE BFGNs constructed.

Using the described report data, SELECTION BFGNs and SUFFIXES would be constructed. After constructing SELECTION BFGNs, the switch owner would initiate a Recent Change routine that attempts to transition all CTX0005, SUFFIX 0 (base BFGN) subscribers to SELECTION BFGN CTX0005 (target BFGN). SELECTION BFGN CTX0005 and each of its defined SUFFIXs would be examined and an attempt made to match the features and parameters assigned to the subscriber with features and parameters defined by the SUFFIX.

In the office, a transition pass will be required for each TGID for which a SELECTION BFGN and some quantity of suffixes had been constructed. The SUFFIX will be picked by the best fit selection process.

Neither ODA nor Recent Change attempt to separate analog and ISDN subscribers in the base BFGN

categories. Therefore, if the switch owner has defined BFGNs, for ISDN subscribers, the first transition pass, for each TGID, should designate the ISDN BFGN (ISDXXXX) as the target. This will insure that subscribers, with a mix of analog and ISDN features, would not do a best fit selection using just the analog features and cause the ISDN features to be built outside BFG. Subscribers with only analog features would not select an ISDN BFGN but they should match an analog BFGN on a future transition pass.

Subscribers with features and parameters that match either a UNIQUE BFGN or a SELECTION BFGN and SUFFIX, are assigned to the matching BFGN. When subscribers fail to locate a BFGN match, their data is unchanged and they remain associated with their original base BFGN.

When a BFGN is initially constructed and until it is referenced by any line or terminal, the BFG data is stored in the AM (Administrative Module) only. When a BFGN match is found, the BFG data is moved from the AM to the SM and the individual relations on the SM are changed to reflect the BFGN assignment. BFG data is stored only on those SMs that have lines or terminals assigned that reference the BFG data. When subscribers use a BFGN to define their feature(s), their port and/or terminal relations are changed to reference the common BFG relations on that SM for call processing feature information. Depending on the Modular Feature type, the parameters may be line specific for they may be located in the BFG.

For subscribers with common feature and parameter requirements, the BFG capability replaces the numerous identical individual line tuples with one common set of BFG tuples thus reducing the amount of SM memory needed to support the subscribers. When subscribers are placed in service using BFG, fewer relations are accessed and fewer tuples are required to define the services and this improves Recent Change response time.

BFG (BRCS FEATURE GROUPING) PARAMETER TYPES

Modular Feature Name	Abbreviation	Parameter Type	Feature Type	Record
Account Code	ACCT	Group	Term	5625-7
Advanced Service Interface Proxy	ASI	Either	Term	5625-4
Automatic Customer Station Rearrangement	ACSR	Line	Term	
Attendant Control Voice Terminals	ACVT	Line	Term	
Authorization Code	ATH	Group	Term	5625-7
Automatic Call Back	ACB	Group	Term	5625-6
Automatic Route Selection	ARS	Either	Term	5625-6
Bulk Calling Line Identification	BCLID	Line		
Call Forwarding	CFW	Line	DN	
Call Pickup - Originating	PUO	Either	Term	5625-5
Call Pickup - Terminating	PUT	Either	DN	5625-5
Call Waiting	CWT	Group	Term	5625-8
Calling Party Number/Billing Number Display	CPNBN	Neither	DN	
DISP	DISP	Neither	Term	
Distinctive Ringing	DR	Group	DN	5625-6
Electronic Directory Service	EDS	Either	DN	5625-7
Home Intercom	HI	Neither	Term	
Individualized Dialing	ID	Either	Term	5625-2
Intercom	ICM	Line	Term	
LASS Automatic Callback	AC	Group	Term	5625-8
LASS Automatic Recall	AR	Group	Term	5625-8
LASS Computer Access Restriction	CAR	Line	DN	
LASS Customer Originated Trace	COT	Line	Term	
LASS Selective Call Acceptance	SCA	Line	DN	
LASS Selective Call Forwarding	SCF	Line	DN	
LASS Selective Call Rejection	SCR	Line	DN	
LASS Selective Distinctive Alert	SDA	Line	DN	
Line Identification	LID	Neither	DN	
Message Detail Recording	MDR	Group	Term	5625-7
Message Service System	MS	Line	DN	
Multi-Way Calling	MW	Group	Term	5625-7
Precedence & Preemption	PP	Group	DN	5625-8
Private Facility Access	PFA	Group	Term	5625-4
Speed Call	SC	Either	Term	5625-2
Terminal Group & Station Restriction	TGSR	Group	DN	5625-3

Time of Day	TOD	Not Allowed	Term	

Figure 1 BFG (BRCS FEATURE GROUPING) PARAMETER TYPES

ESS 5626(01)TG-5
(CLUSTR, LINEFA,
MLHLNFA)
(TGSRFD, TGSRLPA,
TGSRMPA)
BASE _____ CONT GR _____

BFG (BRCS FEATURE GROUPING) SUMMARY REPORT
5ESS SWITCH

DATE _____

5ESS UNIT _____

PAGE _____

SUMMARY REPORT FOR POTENTIAL BFG CONSTRUCTION

TERMINAL GROUP ID	USER TOTALS	FEATURE	FEATURE	FEATURE	FEATURE	FEATURE
	00500	CFV	CWC1	MW3WC		
	00700	/CWC1				
	01000	/CFV				
	12100	/CFV	/CWC1			
00005	00025	ACCTFT1	ARSFEAT3	CWTFEAT2	CWTFEAT3	DRFEAT2
		EDSFEAT1	IDFEAT5	MDRFEAT1	MWFEAT1	MWFEAT7
		PFAFEAT2	PPFEAT3	TGSFEAT5		
00005	00200	ACBFEAT5	ACCTFT1	ARSFEAT4	CFWFEAT5	DISFEAT5
		DRFEAT5	EDSFEAT1	IDFEAT5	MDRFEAT8	MWFEAT1
		PFAFEAT3	PPFEAT4	PUOFT8	PUTFT5	TGSFEAT5
00005	00300	/MW6WC	CWTFEAT3	CWTFEAT4	DRFEAT4	IDFEAT5
		TGSFEAT5				
00005	00400	ARSFEAT5	CFWFEAT5	IDFEAT5	PUTFT5	TGSFEAT5
00005	00450	CFWFEAT5	IDFEAT5	TGSFEAT5		
00005	00600	IDFEAT5	TGSFEAT5			
00010	00004	/ACBC	/CPUDO	/CWACODT	/MWACH2	CFWFEAT5
		IDFEA10	PPFEAT4	TGSFEA10		
00010	00032	/ACBC	/CPUDO	/CWACODT	/MWACH2	IDFEA10
		PPFEAT4	TGSFEA10			
00010	00038	/ACBC	/CPUDO	/CPUDT	/CWACODT	/DRATT
		/MWACH2	CFWFEAT3	CFWFEAT4	IDFEA10	PPFEAT2
		TGSFEA10				
00010	00040	/ACBC	/CPUDO	/CPUDT	/CWACODT	/DRATT
		/MWACH2	IDFEA10	TGSFEA10		

Figure 2 SAMPLE 5626 RECORD

SEC. 1V: APPLICATION PROCESSOR FEATURE DESCRIPTION

1. GENERAL

The AP (Application Processor) is available in 5E3 and later Software Releases. An AP is a computer, which in conjunction with either the BCP (Basic Communications Package) or the ACP (Advanced Communications Package), brings a multitude of features to the Business Customer.

The BCP is available in 5E3 and later Software Releases and employs either a 3B2/400 or 3B2/600 Computer, running on the UNIX Operating System and utilizing the BCP application software. The link between the 5ESS Switch and the AP computer is via IOP (Input/Output Processor) ports in the AM (Administrative Module) of the 5ESS Switch. An AP using the BCP package can serve a single 5ESS Switch; a single 5ESS Switch can interface with up to three APs. The 5ESS Switch and the AP(s) must be co-resident in the telephone office.

The ACP is available in 5E3 and later Software Releases. The 5E3 version employs a 3B20S Computer, running on the UNIX Operating System and utilizing the ACP application software and the INGRES data base management system. The link between the 5ESS Switch and the AP computer is via IOP ports in the AM of the 5ESS Switch. An AP using the ACP package can serve up to three 5ESS Switches; a single 5ESS Switch can interface with up to three APs. The AP(s) must be resident on the telephone company premises.

The 5E4(2) version of ACP employs a 3B15 Computer, 3B2/600 Computer or 3B20S Computer, running on the UNIX Operating System and utilizing the ACP application software and the INGRES data base management system. The link between the 5ESS Switch and the AP computer is via DSLs (Digital Subscriber Lines). An AP using the ACP package can serve up to three 5ESS Switches; a single 5ESS Switch can interface with up to 96 APs. The 5ESS Switch(es) and the AP(s) are no longer required to be co-resident in the telephone office. The IOP port linkage will be supported in 5E4(2) for those business customers who installed ACP in 5E3; in this situation, the co-residency requirement is maintained. A combination of IOP port and DSL linkages are possible in an office, but a single AP must use purely one type of linkage.

The ACP functions and access privileges are controlled by an ACP administrator. The ACP administrator in turn gives a single login to the business customer administrator. The ACP administrator determines which features are assigned to a business customer and the business customer administrator determines which features each business customer login can access.

BCP offers two services which may be purchased separately or together. The first service is TD (Traffic Data), which allows the business customer to receive a variety of reports to assist in the administration and provisioning of equipment. The second service is MDR (Message Detail Recording), which permits the business customer to collect in-depth data related to calls.

ACP offers seven services which may be purchased separately or together. The first four services are available in 5E3 and later Software Releases. The last three services are available in 5E4(2) and later Software Releases, and service both analog and ISDN (Integrated Services Digital Network) customers. The seven services are:

- ASMDR (Advanced Station Message Detail Reporting) - gives business customers the ability to collect call data on public network and private facility calls. The business customer can request various reports to be produced from data in the INGRES data base which is resident on the AP.
- TDS (Traffic Data System) - affords business customers the opportunity to specify the type and frequency of private feature/ facility measurements they wish to receive.
- ACA (Automatic Circuit Assurance) - assists business customers in isolating trunk problems in their

private network. It measures the quantity of trunk group members with calls both under and over a short holding time threshold and long holding time threshold, respectively. Additionally, the customer can specify trunk groups to be scanned for non-usage and lock-up.

- FMS (Facilities Management System) - helps the customer to administer a set of BRCS (Business and Residence Custom Services) features. The set of BRCS features is listed below. The FMS feature can also be used to handle certain functions of the ACP services ASMDR, ACA and TDS.
 - Authorization Codes
 - Account Codes
 - Facility Group Queuing
 - Automatic Route Selection
 - Facility Restriction Levels
 - Time of day
- EDS (Electronic Directory Service) - provides the business customer access to a directory for call and personnel information. An ISDN voice/data terminal, an ISDN station set with display or a modem with an asynchronous terminal may be used to gain access. EDS services are grouped into two sets, Basic and Deluxe. Basic EDS operates in stand-alone mode on the AP. Basic EDS offers:
 - Electronic Directory Terminal Session
 - Electronic Directory Administration
 - Customer Message Service System Interface

Deluxe EDS additionally offers:

- Directory Query Display
- Calling Name Display
- Autocall
- EDS engineering data

NOTE: Deluxe EDS requires that the customer has BRCS and customer premises ISDN station sets/terminals. This service is available with 5E4(2) and later Software Releases.

- CMSS (Customer Message Service System) offers the business customer individualized call coverage at a central location. Additionally, the entry, storage and retrieval of messages is provided. The five components available to the ISDN user are:
 - Autocall
 - Leave Word Calling

- Message Retrieval Display
- Print on Demand
- Message Waiting Indicator

- SMSI (Simplified Message Service Interface) enables a Vendor Message System product, used with the 1A ESS Switch, to operate with a 5ESS Switch, using the same hardware, firmware and software previously used with the Simplified Message Service interface on the 1A ESS Switch.

2. DATA REQUIREMENTS

The 5ESS Switch does not differentiate between ACP and BCP. The AP interface software and the ACP/BCP software combine to deal with the flow of data from the 5ESS Switch to the AP. The 5ESS Switch merely differentiates between the presence or absence of AP(s). The latter difference is indicated in the APPLICATIONS PROCESSOR field of the OFCOPT form (5509 Record). In 5E3, the valid choices are "Y" (for Yes) and "N" (for No). In 5E4(2) and later Software Releases, due to the introduction of DSL links between the 5ESS Switch and AP(s), the choices become more numerous:

- "NO" - There are no APs linked to the 5ESS Switch.
- "AM" - There are AP(s) linked to the 5ESS Switch, and all links are to IOP ports in the AM of the 5ESS Switch.
- "SM" - There are AP(s) linked to the 5ESS Switch, and all links are to DSLs on RISLUs/ISLUs on SMs.
- "AMSM" - There are AP(s) linked to the 5ESS Switch, and the links are a mixture of IOP ports in the AM and DSLs on RISLUs/ISLUs on SMs.

Hardware (IOP port and/or DSL) links from the 5ESS Switch to the AP(s) must now be defined and subsequently assigned to individual APs. The IOP ports that link to the APs are defined on the ECDOPT form (5706 Record). In 5E3, the fields of interest are APDL1 (AP Data Link 1) through APDL6. The valid entries are "Y" (for Yes) to indicate that the IOP port will be used to link to an AP or "N" (for No) to indicate that the IOP port will not be used to link to an AP. It is suggested that each AP should have two consecutive fields, such as APDL1 and APDL2, with an entry of "Y". Thus, the six fields could permit the definition of the IOP ports which serve three APs. However, all six IOP ports could link to a single AP.

The APCOMM form (5507 Record) is used to assign the IOP ports which link to a specific AP. The AP is defined in the field AP SITE ID. The LINK 1 through LINK 6 fields may have an entry of 1 through 6, which correspond to the APDL01 through APDL06 fields on the ECDOPT form (5706 Record), respectively.

In 5E4(2) and later Software Releases, the introduction of the Flexible IOP feature resulted in a drastic revision of the ECDOPT form (5706 Record). The fields of interest are now SDL32, SDL34, SDL36, SDL38, SDL40 and SDL42, respectively. It is suggested that each AP should have two consecutive fields, such as SDL32 and SDL34, with an entry. The desired entry for SDL32 is "APDL01"; the desired entry for SDL34 is "APDL02"; and the pattern continues through to the desired entry for SDL42, which is "APDL06". As before, the APCOMM form (5507 Record) is used to assign the IOP ports which link to a specific AP. The AP is defined in the field AP SITE ID. The LINK 1 through LINK 6 fields may have an entry of 1 through 6, which correspond to the entries "APDL01" through "APDL06" in the fields SDL32 through SDL42, respectively, on the ECDOPT form (5706 Record).

The DSL links to AP(s) are assigned on the DSLAP form (5963 Record). A maximum of 96 DSLAP forms may be entered in order to attach the system maximum of 96 APs to the 5ESS Switch via DSLs. Each DSLAP form permits a single AP, identified in the AP SITE ID field, to have a maximum of 16 DSL links to the AP. A maximum of ten APs may be linked to a single SM. The hardware definition of each DSL link assigned to an AP must take place on three forms: a) the ISLULC form (5942 Record); b) the EQPSU form (5741 Record); and c) the EQPSUPH form (5742 Record).

The AP SITE ID fields defined on the DSLAP form (5963 Record) or the APCOMM form (5507 Record) must be unique.

Now that the hardware definitions of the data links (IOP port and/or DSL) are defined and assigned to individual APs, the features of the BCP/ACP package must be selected and detailed, and the choices must be related to individual APs and business customers. Throughout the discussion of the forms involved in this process, please refer back to the GENERAL section to recall which features BCP or ACP offer.

The APCA form (5620-1 Record) is keyed by a BCID (Business Customer Identification) number and an AP Identifier (AP SITE ID). In 5E3 and later Software Releases, three features are selectable:

- Traffic Data
- Automatic Circuit Assurance
- Facilities Management

If the feature is selected by indicating "Y" (Yes), then the indicated business customer will have the feature, and the reports and/or 5ESS Switch and AP interaction will take place at the indicated AP. In 5E4(2) and later Software Releases, EPSCS (Enhanced Private Switched Communications Service) 100 Second Scan is available. The field name is HSS, and only an ACP business customer using a DSL link may enter "Y" (Yes) in this field. If any of the features are selected, then an APGFP form (5620-2 Record) must be entered for the combination of BCID and AP SITE ID. Additionally, if Facilities Management is selected, then an APFMA form (5620-3 Record) must be entered for the combination of BCID and AP SITE ID.

The APGFP form (5620-2 Record) is keyed by a BCID number, an AP Identifier (AP SITE ID), a GROUP/FACILITY TYPE and a GROUP NO/GROUP NAME. This form is used to define feature parameters for those business customers who have selected the features Automatic Circuit Assurance, Traffic Data or Facilities Management. Division 4, Section 21b of the TG-5 delineates the multitude of entries for the GROUP/FACILITY TYPE and the corresponding dependencies between this field and the GROUP NO/GROUP NAME field.

The APFMA form (5620-3 Record) is keyed by a BCID number and an AP Identifier (AP SITE ID). If an APFMA form is entered, keyed by a unique combination of BCID and AP SITE ID, then at least one APGFP form (5620-2 Record) must be entered with the same unique combination of BCID and AP SITE ID. The APFMA form is used to indicate which BRCS/ACP features the business customer will have control of through the AP. The selected BRCS features, which were enumerated in the GENERAL section, must be defined on the appropriate corresponding BRCS feature definition forms.

The APHSS form (5620-4 Record) is available in 5E4(2) and later Software Releases. It is used to indicate if EPSCS 100 Second Scan is activated on a particular trunk group. The form is keyed by GROUP TYPE, which must be set to "TRKG" and GROUP NBR, which must be a trunk group number defined in the TGN field on a TKGRP form (5202-1/2/3/4 Record) with at least one member defined on a TRUNK form (5204-1/2 Record). The BCID and AP SITE ID entries must also be entered, respectively, in the BCID and AP SITE ID fields on an APCA form (5620-1 Record). The AP SITE ID must also be entered in the AP SITE ID field on

either an APCOMM form (5507 Record) or a DSLAP form (5963 Record).

If MDR (Message Detail Recording) is applied, then another series of forms will be entered. The 5ESS Switch collects the call-related data, formats the data, then ships it via a link (IOP port or DSL) to an AP. The AP stores and processes the MDR records.

The MDRFD form (5624-1 Record) is used to define a constructed BRCS MDR feature. A single pre-constructed BRCS MDR feature is provided. The feature name is used to assign the feature to each terminal (line or trunk). The terminal must be assigned the feature on an appropriate LINEFA form (5112 Record), MLHLNFA form (5113 Record), TRUNKFA form (5205 Record), TKGRPFA form (5206 Record) or associated CLUSTR form (5600 Record) and must belong to an MDR group. The MDR group name is assigned either as a default parameter with a MDR feature on the MDRFD form or on a MDRLPA form (5624-4 Record), a MDRMPA form (5624-5 Record) or MDRTPA form (5624-6 Record).

The MDRGP form (5624-2 Record) is used to define the MDR GROUP NAME. A BCID field and an AP SITE ID field appear on this form. The BCID and AP SITE ID entries must have been defined in the BCID field and AP SITE ID field, respectively, on the APCA form (5620-1 Record). These fields will be used to determine the business customer and the AP which will receive the MDR reports. Three types of MDR record types are allowable:

- originating private
- incoming private
- public

The MDRCNT form (5624-3 Record) is used to identify up to a maximum of 25 combinations of Business Customers (BCID) and APs (AP SITE ID) that are to receive MDR reports giving the sum of originating private, incoming private, and/or public MDR records generated or lost. The types of allowable MDR reports are indicated on the MDRGP form (5624-2 Record). Each combination of BCID and AP SITE ID must also be entered in the BCID and AP SITE ID fields, respectively, on both the MDRGP form (5624-2 Record) and the APCA form (5620-1 Record).

If EDS (Electronic Directory Service) is applied, then another series of forms will be entered. These forms are available with 5E4(2) and later Software Releases.

The EDSFD form (5961-1 Record) is used to define a constructed BRCS EDS feature. Several pre-constructed BRCS EDS features are provided. The feature name is used to assign the feature to each terminal (line). The terminal must be assigned the feature on an appropriate LINEFA form (5112 Record), MLHLNFA form (5113 Record) or associated CLUSTR form (5600 Record). Only a single EDS feature is permitted for a terminal. The EDS group name is assigned either as a default parameter with a EDS feature on the EDSFD form or on an EDSLPA form (5961-3 Record) or EDSMPA form (5961-4 Record).

CND (Calling Name Display) is a Deluxe EDS feature and, thus, reserved to ISDN users. However, an analog line's name can be displayed to an ISDN user if the analog line is assigned the EDS pre-constructed feature "/EDNULL".

If the Deluxe EDS features DQD (Directory Query Display) and CND are indicated, then the ISDN user, when defined on the DSL form (5900-1/2/3/4 Record) or DSMLHLN form (5901-1/2/3/4/5 Record), must have the DISPLAY field set to "Y" (Yes).

If an EDS feature with CND and a MSS (Message Service System) feature are assigned to a terminal (line), the terminal should have the same BCID for both features. Also, if CND is used, the originating and

terminating terminals must be in the same BCID.

If the Deluxe EDS feature Autocall is used, then an ACTION must be defined whether it is invoked by a dial code or an ISDN button. Users in the Office Dialing Plan must define a dialed code on a PDIT form (5300-2 Record) with an ACTION of "AUCUSE". Users in an Individualized Dialing Plan must define a dialed code on an IDPDCA form (5601-1/2 Record) with an ACTION of "AUCUSE". Users applying an ISDN button, must define the button on the CFGGRP form (5964 Record) with an ACTION of "AUCUSE".

The EDSGP form (5961-2 Record) is used to define the EDS group name in the field EDS GRP. A BCID field and a AP SITE ID field appear on this form. The AP SITE ID entry must have been defined in the AP SITE ID field on the DSLAP form (5963 Record).

The EDSCNT form (5961-5 Record) is used to identify up to a maximum of 25 EDS groups which are to receive measurement counts. Each EDS GRP entered must also be entered in the EDS GRP field on the EDSGP form (5961-2 Record).

If Message Service System (MSS) is applied, then another series of forms will be entered. These forms are available with 5E4(2) and later Software Releases.

The MSFD form (5962-1 Record) is used to define a constructed BRCS MSS feature. Several pre-constructed BRCS MSS features are provided. The feature name is used to assign the feature to each terminal (line). The terminal must be assigned the feature on an appropriate LINEFA form (5112 Record), MLHLNFA form (5113 Record) or associated CLUSTR form (5600 Record) and should belong to an MSS group. The MSS group name is assigned either as a default parameter with a MSS feature on the MSFD form or on an MSLPA form (5962-3 Record) or MSMPA form (5962-4 Record).

The MRD (Message Retrieval Display) component of the MSS feature requires that the ISDN user, when defined on the DSL form (5900-1/2/3/4 Record) or DSMLHLN form (5901-1/2/3/4/5 Record), must have the DISPLAY field set to "Y" (Yes).

The LWC (Leave Word Calling) component of the MSS feature requires that the requesting party has the LW CALLING field set to "OUT" or "INOUT" and the target party has the LW CALLING field set to "INOUT" and that both parties (TNs) be in the same BCID.

If Leave Word Calling, Print on Demand, Deactivate Message Waiting Indicator or Autocall features are used, then an ACTION must be defined whether it is invoked by a dial code or an ISDN button. Users in the Office Dialing Plan must define a dialed code on a PDIT form (5300-2 Record). Users in an Individualized Dialing Plan must define a dialed code on an IDPDCA form (5601-1/2 Record). Users applying an ISDN button, must define the button on the CFGGRP form (5964 Record). The correct ACTIONS are:

- "LWCUSE" for Leave Word Calling
- "CLWCUSE" for Canceling Leave Word Calling
- "PODUSE" for Print on Demand
- "DCTMWI" for Deactivate Message Waiting
- "AUCUSE" for Autocall

The MSGP form (5962-2 Record) is used to define the MSS group name in the field MSS GRP. A maximum of 1023 MSS groups can be defined. The MSGP form is used in close conjunction with the MLHG form (5110-1/2/3 Record), when the MSS GRP is to be served by an attendant at a Message Service Center.

A BCID field appears on the MSGP form. The value entered in this field must also be entered in one of the fields BCID1 through BCID6 on a MLHG form; the particular MLHG form must be where the value entered in the MLHG field is the same as the value entered in the MSG SRV CNTR field on the MSGP form.

A maximum of 18 MSS GRPs, defined on MSGP forms, may have the same value entered in the MSG SRV CNTR field.

If "Y" (Yes) is entered in the DELUXE field on a MSGP form, then the value entered in the corresponding MSG SRV CNTR field must also be entered in the MLHG field on a MLHG form whose corresponding AP SITE ID field has an entry.

A member of a MSS group may call forward to any Message Service Center that serves the member's BCID.

The MLHG form (5110-1/2/3 Record) is used to define a Message Service Center. The value entered in the MLHG field, if the MLHG is to act as a Message Service Center, must appear on at least one MSGP form.

If the AP SITE ID field on the MLHG form is entered, then the value must also be entered in the AP SITE ID field on a DSLAP form (5963 Record).

The MLHG defined on the MLHG form must have a MLHG FEATURE such that the associated MLHGFD form (5604 Record) has an entry of "UCD" in the HUNT TYPE field.

Each member of a MLHG, which acts as a Message Service Center, must be defined on a MLHLN form (5111-1/2/3 Record) or DSMLHLN form (5901-1/2/3/4/5 Record) with the SHARED field set to "N" (No).

The MSCNT form (5962-5 Record) is used to identify a maximum of 25 Message Service System groups which are to receive measurements counts. Each entry in the MSS GRP LIST must be unique and defined in the MSS GRP field on a MSGP form (5962-2 Record).

The MSSCNT form (5962-6 Record) is used to identify a maximum of 25 Message Service Center Multi-Line Hunt Groups which are to receive measurements counts. Each entry in the MS MLHG LIST must be unique and defined in the MSS GRP field on a MSGP form (5962-2 Record).

If SMSI is applied, then the same series of forms will be entered as those that are entered for MSS. These forms are available with 5E4(2) and later Software Releases.

SEC. 1W: CCS7 ISDN-UP ENHANCEMENTS

1. CCS7 CONTROL TYPE

1.1 Feature Description

For 5E8 and later, if an outgoing ISUP7 trunk is selected to route out of an office, but the associated SS7 dynamic routing (i.e., signaling links, signaling transfer point) to the far point code is marked TFP (Transfer Prohibited), before attempting to re-route it should be determined if the current trunk should be skipped or the call should be canceled. The determination should be based on the network topology.

1.2 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP form (5202 Record) - This form is used to define characteristics of the trunk groups. The CONTROL TYPE field must be set for ISUP7. For ISUP7 trunks, either "SKIP" or "CANCEL" must be entered in the field. If the trunks are not ISUP7, this field must be blank.

2. RECODE 3.1kHz INFORMATION TRANSFER CAPABILITY

2.1 Feature Description

For 5E8 and later, calls originated from analog phones at an originating end office are assigned a bearer capability of "3.1kHz audio". Calls that are received by a local office via an INBAND signaling speech trunk are also assigned a bearer capability of "3.1kHz audio". In the toll network, "3.1kHz audio" is not assigned as a bearer capability to analog originators or to calls received via INBAND signaling speech trunks. If a 5E8 toll office receives a call via an INBAND signaling speech trunk, or if an analog origination is made from a 5E8 toll switch, the call is assigned the same bearer capability as in 5E7, i.e., "SPEECH".

An office must be able to restrict the sending of "3.1kHz audio" as a bearer capability in order to remain backward compatible with offices that do not support that bearer capability.

2.2 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
TKGRP	5202	3	2A	5.1

2.3 Translations

OFCOPT form (5509 Record) - This form is used to define the global office parameters. The RCD 3PT1 ITC field entry determines if the bearer capability is recoded. When a call with a bearer capability of "3.1kHz audio" is routed out of a LEC switch over an ISUP7 trunk and the RCD 3PT1 ITC field on the TKGRP form is blank, then the OFCOPT form indicator is referenced.

TKGRP form (5202 Record) - This form is used to define the characteristics of a trunk group. The RCD 3PT1 ITC field is the trunk group indicator which is referenced for Recode 3.1kHz Information Transfer Capability. In order to remain backward compatible with earlier Software Releases that do not support 3.1kHz audio,

offices must restrict the sending of the 3.1kHz audio as a bearer capability. This is done by entering "SPEECH" in the RCD 3PT1 ITC field for the trunk group.

3. ROUTING BASED ON BEARER CAPABILITY

3.1 Feature Description

For 5E9(1) and later, the Routing Based on Bearer Capability provides flexible routing for "speech" and "3.1kHz audio" calls. "3.1 kHz audio" calls equate to voiceband data, such as facsimile and modems, therefore, it is important to maintain the absolute integrity of the bit stream. No speech treatments, such as TASI (Time Assignment Speech Interpolation) and LBRV (Low Bit Rate Voice) encoding, should be applied to a "3.1 kHz audio" call. A call with the bearer capability of "3.1 kHz audio" should only be routed out of a switch over the following types of trunks:

- MF voice trunks
- ISUP voice trunks
- ISUP 56K data trunks
- ISUP R64K data trunks
- ISUP 64C data trunks.

"Speech" calls continue to be routed out of a switch over the "speech" facilities, i.e., trunks which have "speech" treatments, unless upgrade routing has been provisioned, i.e., routing over 3.1 kHz trunks which included MF and ISUP voice, ISUP 56K, R64K, or 64C trunks.

3.2 Feature Assignment

When a call is being routed, screening determines whether the call is terminating in this office or is to be routed out to another office. This feature is concerned with calls routing out of this office.

Screening must determine if a separate route is required for a "speech" call in the following cases:

- the dialed data and screen index indicate a route type of hunt, which generally means the NXX dialed is not in this office.
- the dialed data and screen index indicate a route type of DN translation which means the dialed number is in this office, but it is not the end office, e.g.:
 - the whole hundreds group of the dialed DN is not in this office. The route index provided the route out of the office. This is typically for PBXs that are served by this office.
 - some subset of the hundreds group of the dialed DN is not in this office. This is typically for small PBXs that are served by this office.
 - the terminating class of services of the dialed DN indicates an INWATS trunk or a special DN that routes out of the office.

Therefore, for each of these screening cases, if the bearer capability indicates "speech", then the data routing mechanism is used to get the "speech" route to the trunk that has "speech" treatments. The speech alternate route is assigned on the RTIDX form (5303 Record). "Speech" trunks which have speech treatment are assigned on the TKGRP form (5202 Record).

Calls that bypass screening, such as ARS or PFA, do not reach the code added for this feature. The global

parameter SPEECH TRK GRPS allows checking for any "speech" trunk provisioned in this office. If no "speech" trunks are provisioned, a segregated route is not needed, and therefore, there is no impact on this office. The global parameter for "speech" trunks in this office is indicated on view 8.15, it is a text only field on the OFCOPT form.

3.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1 8.5
RTIDX	5303	3	3P	10.2
TKGRP	5202	3	2A	5.1

3.4 Translations

OFCOPT form (5509 Record) - This form assigns the office options and parameters. The SPEECH TRK GRP field is a Recent Change / Verify only field which displays the number of trunk groups in the office that have speech treatments applied to them.

RTIDX (5303 Record) - This form defines each route index in a 5ESS Switch. The SPEECH ALT RI field assigns the route index for "speech" calls that is used when a call has a bearer capability of "speech."

TKGRP (5202 Record) - This form defines each trunk group on a 5ESS Switch. The SPEECH TRMTS field indicates if speech treatments have been assigned to this trunk group.

SEC. 1X: SERVICE SWITCHING POINT 800 FEATURE DESCRIPTION

1. FEATURE DESCRIPTION

The SSP 800 feature is available with 5E4(2) and later Software Releases. SSP 800 can be implemented in 5ESS Switch EAEO (Equal Access End Offices), AT (Access Tandems) or Tandems.

This feature enables these offices to interface with the Switch Owners' databases, using the SS7 (Signaling System 7) TC (Transaction Capabilities) protocol, to implement Number Services of which the 800 Service is initially being provided.

Once an 800 call reaches an SSP, the SSP sends a query message to the Switch Owner's database, referred to as an SCP (Service Control Point). Screening is performed at the SCP and a reply message is returned to the SSP containing information to be used in processing the call. The call may be routed either to an IC (InterLATA Carrier) or within the LATA (Local Access Transport Area).

The SSP 800 feature requires the 5ESS Switch to interface with the CNI (Common Network Interface) ring in order to connect to the CCS7 (Common Channel Signaling 7) network for communication with the SCP.

1.1 ASP Interactions

The SSP 800 feature may also be accessed via ASP (Advanced Services Platform). For 5E6 - 5E7, calls for such a feature originate as ASP calls and are not recognized as SSP 800 calls until a call type of "QUERY" is obtained from digit translations and the corresponding code index is associated with a SERV TYPE of "NS800" on a DISERV form (5321 Record).

For 5E8 and later a trigger, which is obtained from digit analysis in place of the query call type, points to an NSTRIG form (5324 Record) with APPLICATION of "800" to indicate an SSP 800 call.

At this point, the call is recognized as an SSP 800 call and enters the regular flow of such a call in Item D of the following scenario (note that by this time, the conversion to 00X has already been done by ASP).

Further information regarding ASP, including the translations required to implement it, can be found in the feature description section for ASP, Division 2, Sections 4A51 and 4A126.

1.2 SSP 800 Call Access Tandem Scenario

The following call scenario describes the interaction of various ODA forms with the SSP 800 feature implemented in an AT office for trunk originations only. For line originations in an AT (Access Tandem), see "SSP 800 End Office Form Flow", Figure Figure 2. See Figure 1 for Access Tandem Form Flow.

- A. A caller dials an 800 number. Depending on the type of EO (End Office), signaling will be TRADITIONAL, CAMA or EA (EQUAL ACCESS) into the AT.
- B. The EO may convert the 800 digits to an 00X code to indicate the originating LATA/NPA or coin only traffic. Preliminary digit analysis is set up in the INDIT form (5309 Record) to interpret the 800/00X codes from a non-conforming EO or 0ZZ codes from an EA office.
- C. For the non-conforming case, digit analysis continues in the LDIT form (5300-3 Record) with a CALL TYPE of "NS800". For equal access signaling, the 0ZZ codes are translated with a CI CALL TYPE of "AVT" which would normally advance the call to the CDIM form (5300-6 Record) with the 3-digit carrier ID. However, in the NS case, the CDIM form will not be defined. An ICF form (5305 Record) is defined

with a carrier type of "PSEUDO". From either the CALL TYPE of "NS800" on the LDIT form or the CARRIER TYPE of "PSEUDO" on the ICF form, the switch recognizes it has an 800 NS call.

- D. The OFCOPT form (5509 Record) is checked to make sure that "Y" is entered in the SERV SWITCH PT field. Also, a LATA number on the OFCOPT form must be defined for this office. If this call originated via ASP (Advanced Services Platform), this step is the point at which the SSP 800 call flow is entered.
- E. If the 800 code has been converted to 00X, the ONPA form (5312 Record) is read to obtain the appropriate originating NPA/LATA and also checks the coin indicator.
- F. At this point the switch creates a query message to be sent to the SCP database via the CCS7 network. The query message consists of the following:
- The dialed 800 number,
 - Calling TN (see Figure 3),
 - Originating LATA (see Figure 3),
 - Coin Indicator (see Figure 3), or
 - SSN (Subsystem Number).

This SSN is a number in the range 232-252 or 254 which is defined on the DSAPP form (5537 Record) for each application requiring access to an external database.

- G. The SCP will return one of the following:
- Announcement code,
 - Error code,
 - Reject message,
 - Normal routing message, or
 - An 800 number.
- H. A normal routing message will include a true routing TN, a Carrier ID and a billing structure code.
- I. The INH SCP NPA DEL field on the OFCOPT form is checked to determine if the NPA in the returned routing number should be deleted prior to post-query digit analysis. If "Y" is entered, the NPA is not deleted and digit analysis will be performed on the full 10-digit routing number. If "N" is entered, see Item J.

The switch checks the IMPLD NPA field on the OFCOPT form and, if necessary, the IMPLD NPA from the LDIT FORM corresponding to the NXX in the routing TN to see if the NPA in the routing TN is the same as the IMPLIED NPA. If it doesn't find a match between the NPA returned from the SCP and the IMPLIED NPA, then the full 10-digit number from the SCP will be used in digit analysis to route the call. If a match is found, then the NPA is dropped and the remaining 7-digit number will be used.

The Carrier ID received from the SCP is used to access the ICF form to determine the CARRIER TYPE. If the CARRIER TYPE is "PSEUDO" or "LEC", the routing DN is expected to be intraLATA and routes to the Local Exchange Carrier. If the CARRIER TYPE is not "PSEUDO" or "LEC", the routing DN could be either interLATA or intraLATA and routes to the Interexchange Carrier.

- J. The DAS used to do post-query digit analysis is determined from the SCP 800 DAS field on the OFCOPT form. If a value is entered in the SCP 800 DAS field, that value is used. Otherwise, the DAS from the originating TKGRP form (5202 Record) is used. The INDIT from the TKGRP DAS is used prior to using the LDIT. Digit analysis is performed on the 7- or 10-digit routing number resulting in an intraLATA or interLATA call. The SCP may also return an 800 number (800 turn around); for this case, digit analysis is not done. (This special case is described in Item M.)
- K. IntraLATA calls, where CI CALL TYPE on the LDIT form is "INTRA" or "NONCI", and CARRIER TYPE on the ICF form is "PSEUDO" or "LEC", may be intraswitch calls or interswitch calls that route to the LEC. If an office code is entered on the LDIT form, it indicates that the call terminates to a line in this office. Otherwise, the NS CDI is checked on the ICF. If the NS CDI is entered, it is used to access the RAR form. If NS CDI is not entered, the CDI field on the LDIT form is used to access the RAR form. The RTI used to access the RTIDX form will be the last known RTI found on either the LDIT form, the ICF form (NS RTI), or the RAR form. The RAR form provides the final place to override all previously found RTIs.

IntraLATA calls, where CI CALL TYPE on LDIT is "INTRA" and CARRIER TYPE on ICF is "IC" or "CONSOL", route to the interexchange carrier using NS CDI and NS RTI.

- L. For interLATA calls where the TYPE OF CI CALL on the LDIT form is "INTER", "IDDD", or "WZ1", the ICF is checked to verify that CARRIER TYPE is "IC", "INC", or "CONSOL". If the TYPE OF CI CALL is "INTER", then NS CDI and NS RTI are used to route the call to the carrier. If the TYPE OF CI CALL is "IDDD" or "WZ1", then INTL CDI and INTL RTI are used to route the call to the international carrier. If necessary, a special RTI may be entered on the resulting RAR form to override a previously known RTI.
- M. For the special case when the SCP returns an 800 number, digit analysis is not done. The SCP is required to return an interLATA carrier ID. If no carrier ID is returned or the "PSEUDO" carrier is returned, the call is routed to reorder. If a valid carrier is supplied and DIG ROUTING is "N" on the ICF form, the call is routed based on the DOMES CDI and DOMES RTI. If DIG ROUTING is "Y", the CARRIER CDI and CARRIER RTI on the CDIM form (5300-6 Record) overrides the DOMES CDI and DOMES RTI on the ICF form. If necessary, a special RTI may be entered on the resulting RAR to override a previously known RTI.
- N. If the SCP returns an announcement code, this code is used to access the SSPANN form (5535 Record) to determine the ANNC RTI and TGN used to return an appropriate announcement to the originator.
- O. In order to provide proper billing, the SCP also returns a billing structure code which is used to access the SCFAM form (5536 Record) which will define the structure code set needed to properly bill this call.

1.3 SSP 800 Call End Office Scenario

The following call scenario describes the interaction of ODA forms with the SSP 800 feature implemented in a 5ESS End Office. See Figure 2 for SSP 800 End Office form flow. The End Office scenario applies to line originations in a 5ESS Switch EAEO (Equal Access End Office) or an AT (Access Tandem).

- A. The caller dials an 800 number. The 800 digits are translated in the originator's LDIT with a CALL TYPE of "NS800". This results in a query to the SCP database consisting of the following:
- Dialed 800 number
 - Calling DN
 - Originator's LATA from the OFCOPT form (5509 Record)
 - Coin Indicator based on CLASS OF SERVICE on the originator's LCC form (5306 Record).
- B. An SCP response is returned. From this point on, the call processing is the same as in the Access Tandem Scenario with the following exceptions:
1. If no SCP 800 DAS is found on the OFCOPT form (5509 Record), the DAS from the originator's LCC form is used.
 2. Trunk groups defined on the RTIDX forms may route directly to End Offices, carriers, or via an Access Tandem.
- C. For 800 queries that result in an intraLATA terminating DN, the use of the NS CDI defined for the "PSEUDO" carrier is shown in the following scenario:

The SCP returns the PSEUDO carrier ID and a 10 digit intraLATA DN where the NPA matches the IMPLIED NPA on the OFCOPT form or the LDIT form. If INH SCP NPA DEL is "N", the NPA is deleted and a 7 digit number is run through digit analysis. Normally for intraLATA calls, the LDIT CDI would be used to access screening (RAR). If this were done, the call could fail as in the case where the subscriber is required to dial a prefix (1 + 7 digits). However, for 800 calls where the PSEUDO carrier ID is returned from the SCP, call processing instead uses the NS CDI assigned on the PSEUDO carrier's ICF to access screening. If "REGL" is entered for both RAR RTI and NS RTI (blank on view 10.3), the LDIT RTI can still be used to route the call.

1.4 Important Notes

- SCP data and 5ESS Switch data must be consistent, e.g., SCP routing numbers must be defined in digit analysis.
- For a call from an EAEO, the CARRIER ID specified for the 800 call in the EAEO must not be defined on the CDIM form in the 5ESS Switch AT. Otherwise, the call will never be recognized as an 800 NS call.
- Part of the SCP Query message must consist of the following information:
 - ORIGINATION NPA
 - ORIGINATION LATA

Figure 3 shows the ODA forms that are used to collect this information for each signaling mode.

2. TRANSLATION REQUIREMENTS FOR ACCESS TANDEM

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1
LDIT	5300-3	3	3C	9.3
CDIM	5300-6	3	3E	9.7
ICF	5305	3	3R	10.3
INDIT	5309	3	3V	9.5
ONPA	5312	3	3Y	8.8
OFCOPT	5509	3	5I	8.1
SSPANN	5535	3	5AI	10.17
SCFAM	5536	3	5AJ	10.18
DSAPP	5537	3	5AK	8.17

2.1 Trunk Translations

TKGRP Form (5202 Record) - Enter data as required for FAR END NPA, FAR END LATA, FAR END NXX and COIN fields.

2.2 Routing And Charging Translations

LDIT Form (5300-3 Record) - For non-conforming EO, enter a CALL TYPE of "NS800" for incoming digits 800 or 00X.

For EAEO, digit interpretation is not performed on 800 and 00X digits and therefore, no LDIT form entries are required.

Additional records are defined as required for routing numbers returned by the SCP database.

Since the SCP will always return at least 10 digits, specify IMPLIED NPA data for codes dialed on a 7-digit basis and if the IMPLIED NPA is other than the NM DEFAULT NPA on the OFCOPT form.

CDIM Form (5300-6 Record) - When an 800 number is returned from the SCP, this form is used to obtain the carrier specific Code Indexes and Route Indexes for any carrier that has DIG ROUTING set to "Y" on the ICF form. If a CDIM form is not defined, the DOMES CDI/RTI from the ICF form will be used to route the call.

ICF Form (5305 Record) - For 800 calls originating from EAEOs, the carrier defined in the 0ZZ + XXX digit string must have a CARRIER TYPE of "PSEUDO".

ICF forms are also required for all carriers defined in the SCP database with NS CDI/NS RTI entries for domestic carriers and INTL CDI/INTL RTI entries for international carriers.

INDIT Form (5309 Record) - For 800 calls from non-conforming EOs, enter required steering digits with LDIT equal to "Y". For 800 calls from EAEOs, enter the 0ZZ codes with TYPE OF CI CALL field equal to "AVT" and the LDIT field equal to "N". INDIT forms are also needed to specify steering digits as required for SCP routing numbers.

ONPA Form (5312 Record) - If 00X is received from the EO, these special codes are defined on this form to indicate any of the following:

- The NPA of the originator
- The LATA number of the originator

- Coin origination

2.3 Miscellaneous Translations

OFCOPT Form (5509 Record) - Two parameters, COMMON CHAN SIG and SERV SWITCH PT fields must be set to "Y". Also enter an NM DEFAULT NPA (IMPLIED NPA).

SSPANN (5535 Record) - For each announcement code defined in the SCP database, enter an SSPANN form.

SCFAM Form (5536 Record) - The SCP database will return a call code used to bill this 800 call. Enter these call codes on the SCFAM form specifying a structure codes family used to create the billing record.

DSAPP Form (5537 Record) - For the "NS800" application, enter a TRANS TYPE and a SUB SYS NBR.

3. TRANSLATION REQUIREMENTS FOR END OFFICE

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
LDIT	5300-3	3	3C	9.3
ICF	5305	3	3R	10.3
INDIT	5309	3	3V	9.5
ONPA	5312	3	3Y	8.8
DISERV	5321	3	3AH	8.17
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1
SSPANN	5535	3	5AI	10.17
SCFAM	5536	3	5AJ	10.18

3.1 Routing And Charging Translations

LDIT Form (5300-3 Record) - Enter a CALL TYPE of "NS800" for incoming digits 800.

Additional records are defined as required for routing numbers returned by the SCP database.

Since the SCP will always return at least 10 digits, specify IMPLIED NPA data for codes dialed on a 7-digit basis and if the IMPLIED NPA is other than the NM DEFAULT NPA on the OFCOPT form.

ICF Form (5305 Record) - Required for all carriers defined in the SCP database with NS CDI/NS RTI entries specified for domestic carriers and INTL CDI/INTL RTI entries specified for international carriers.

INDIT Form (5309 Record) - If this end office is a tandem to other end offices, INDIT forms are required for the incoming steering digits (800/00X) similar to the Access Tandem case. Also, INDIT forms are required to specify steering digits for SCP routing numbers.

ONPA Form (5312 Record) - If this EO is a tandem to other EOs and the digits 00X are received, these special codes are defined on this form to indicate any of the following:

- The NPA of the originator
- The LATA number of the originator
- Coin origination

DISERV Form (5321 Record) - For 5E6 - 5E7, when SSP 800 calls are to be triggered via an Advanced Services Platform dialing plan, then the DISERV form is used to identify SSP 800 calls by setting SERV TYPE to "NS800". See Division 2, Sections 4A51 and 4A126 for details on ASP.

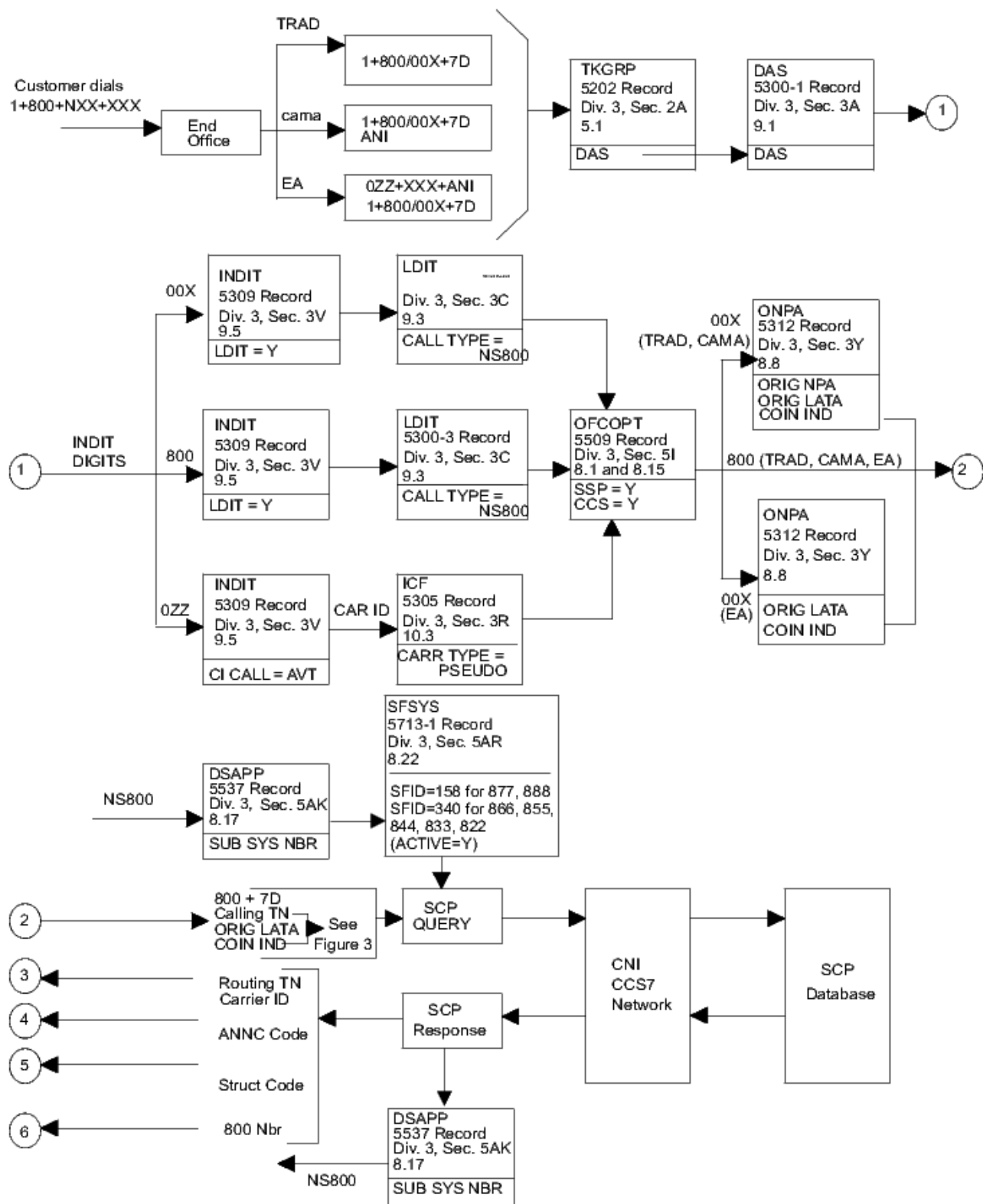
DISERV Form (5321 Record) - For 5E8 and later, when SSP 800 calls are to be triggered via an Advanced Services Platform dialing plan, then the NSTRIG form is used to identify SSP 800 calls by setting APPLICATION to "800". See Division 2, Sections 4A51 and 4A126 for details on ASP.

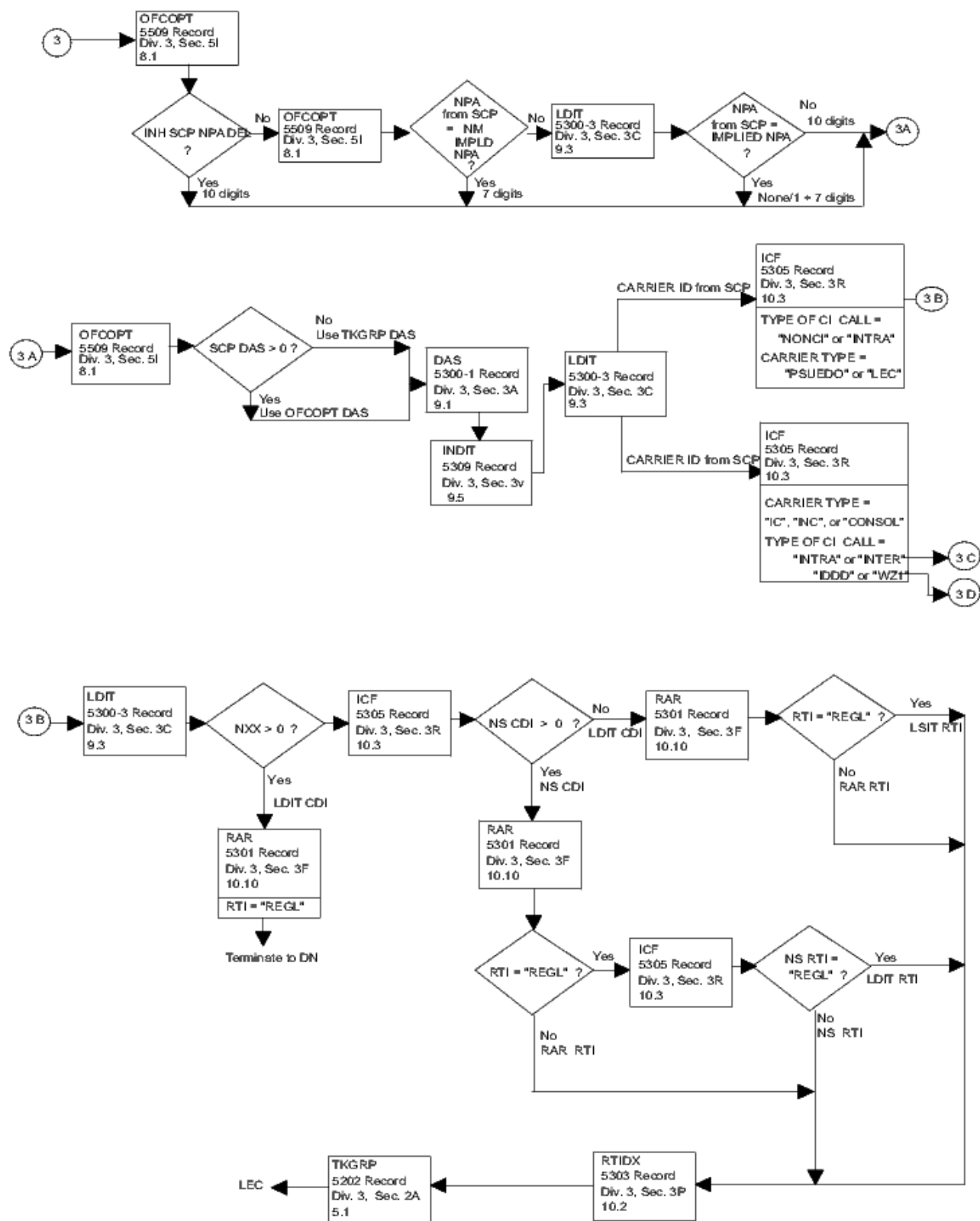
3.2 Miscellaneous Translations

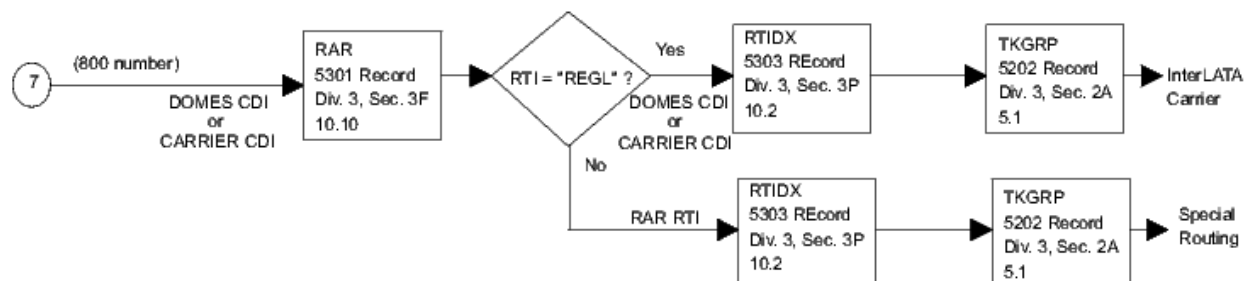
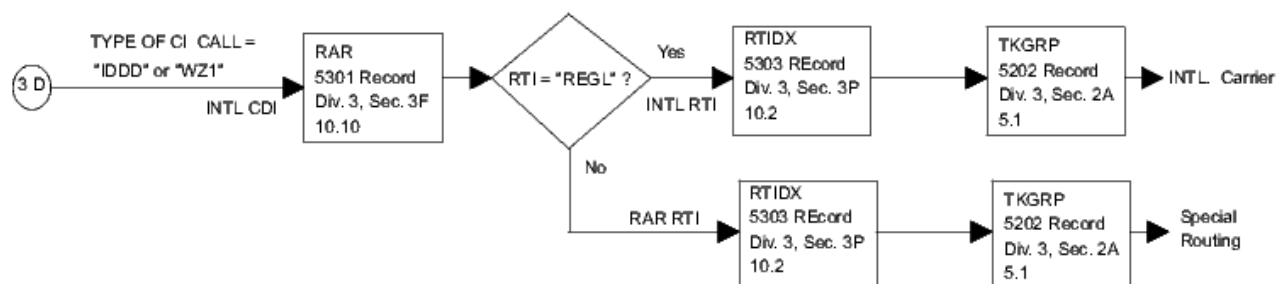
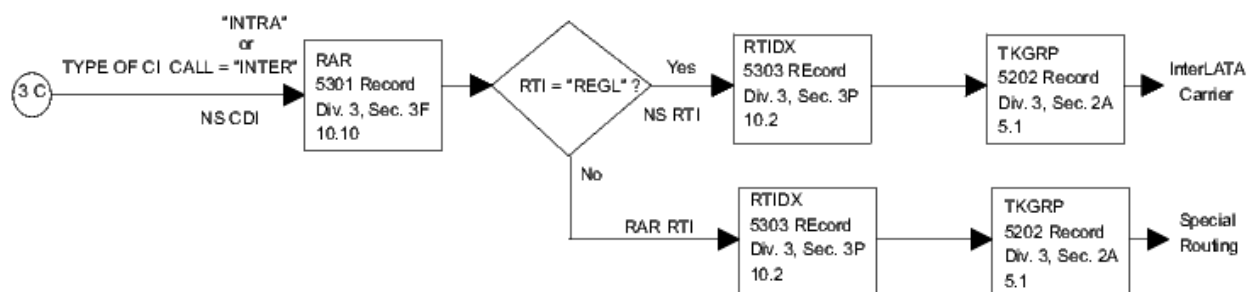
OFCOPT Form (5509 Record) - Two parameters, COMMON CHAN SIG and SERV SWITCH PT must be set to "Y". Also enter the NM DEFAULT NPA (IMPLIED NPA).

SSPANN Form (5535 Record) - For each announcement code defined in the SCP database, enter an SSPANN form.

SCFAM Form (5536 Record) - The SCP database will return a call code used to bill this 800 call. Enter these call codes on the SCFAM form specifying a structure code family used to create the billing record.







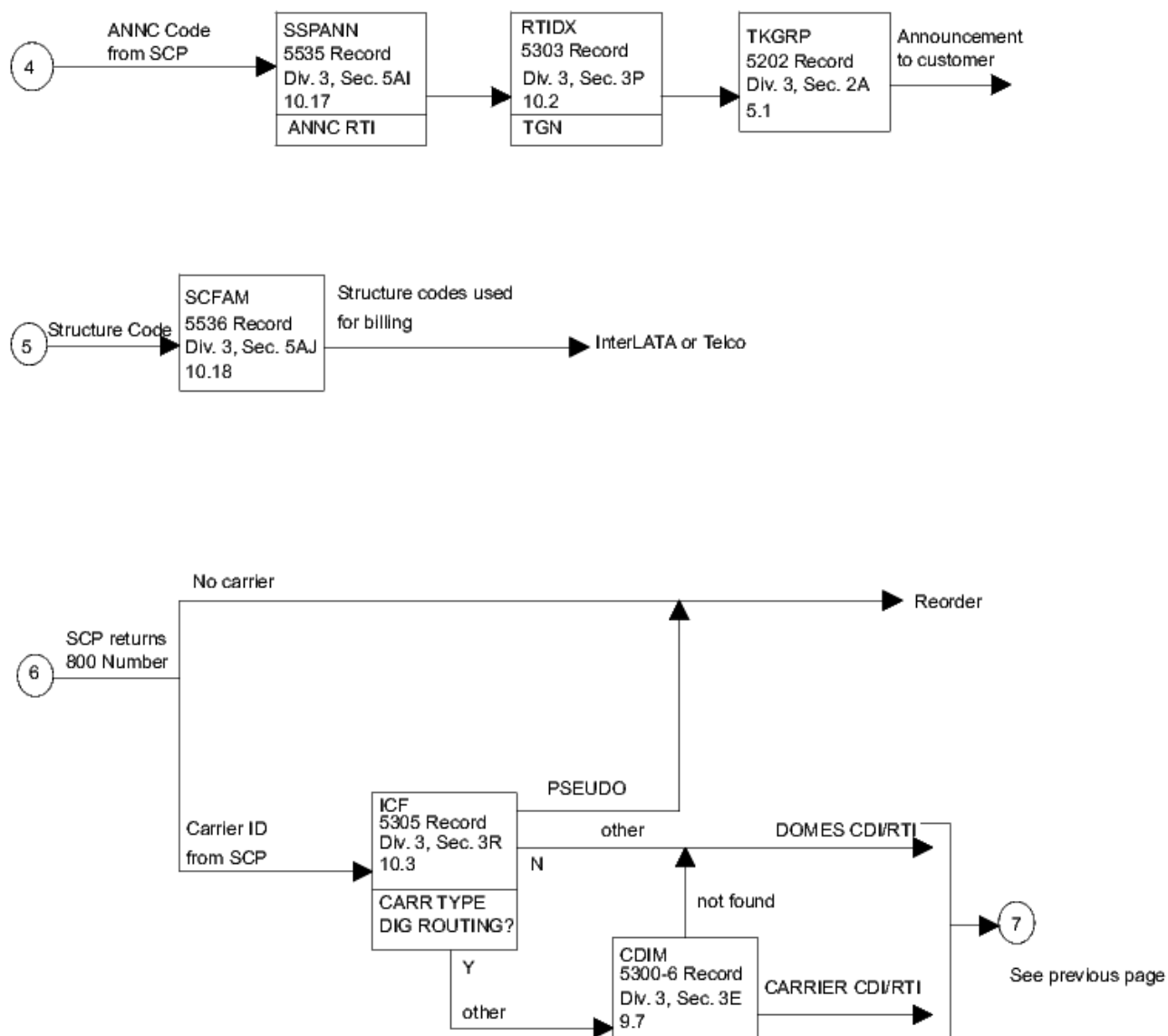
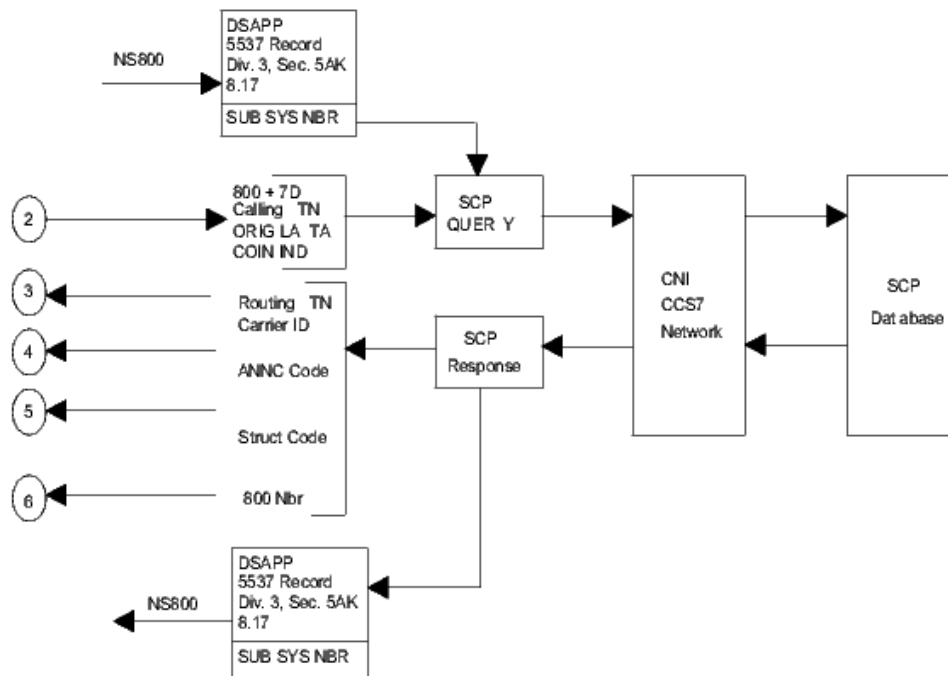
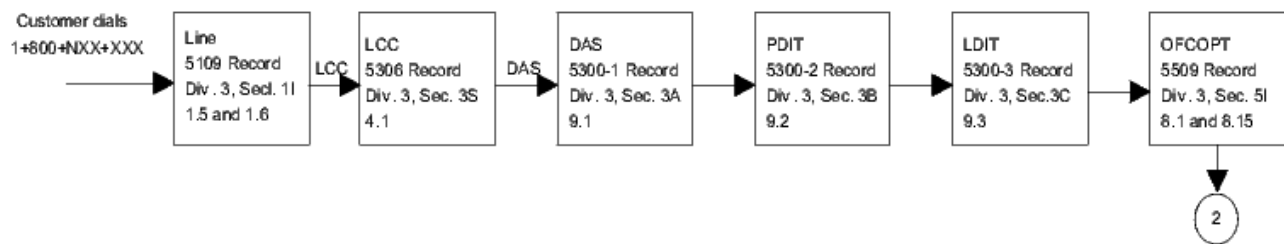
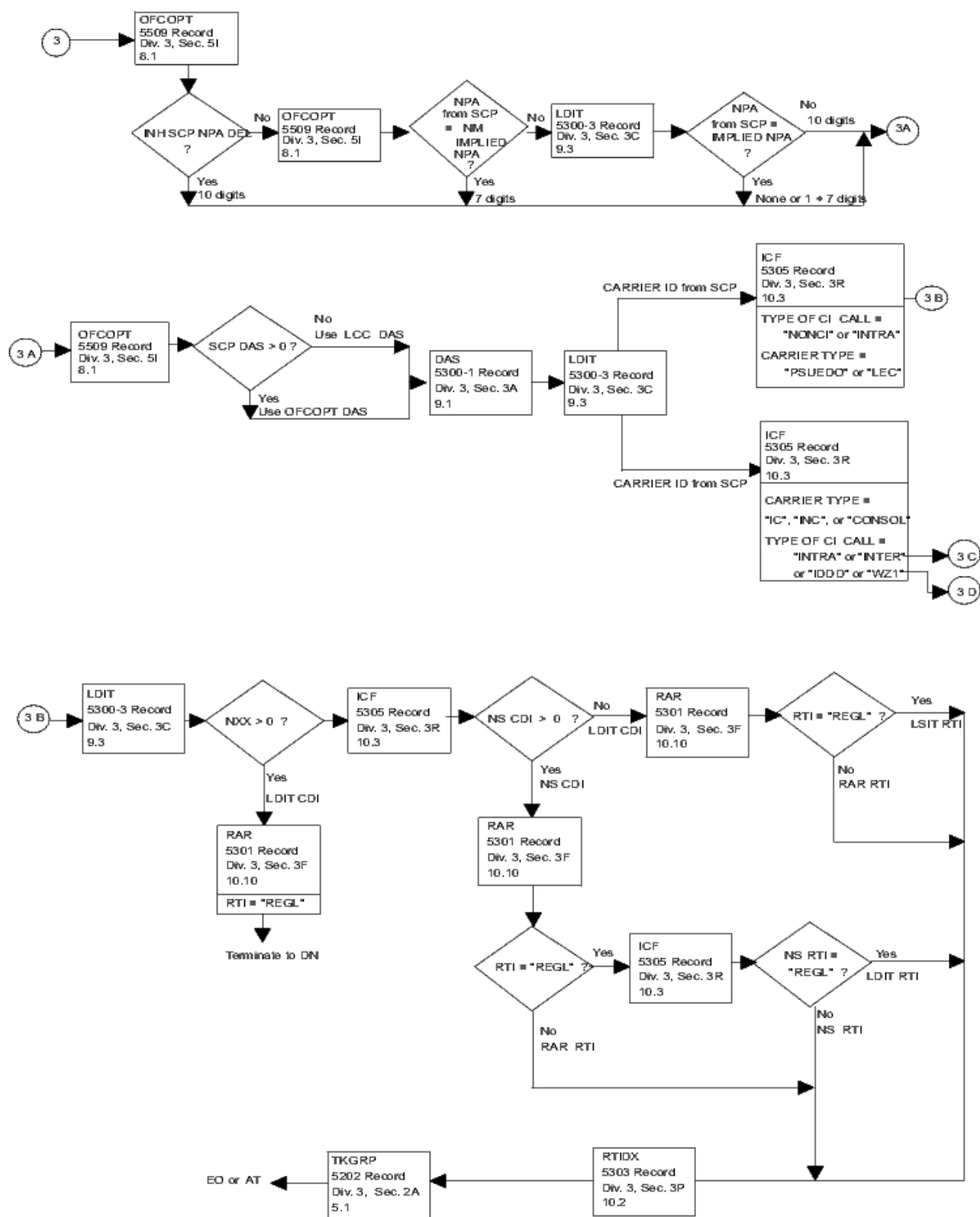
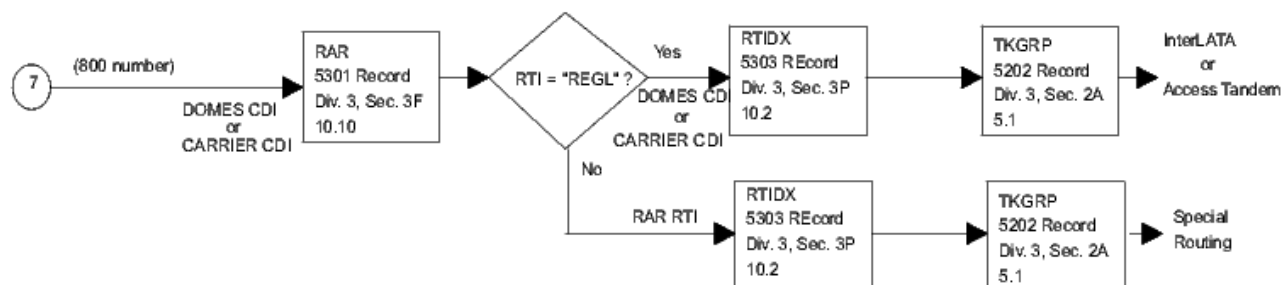
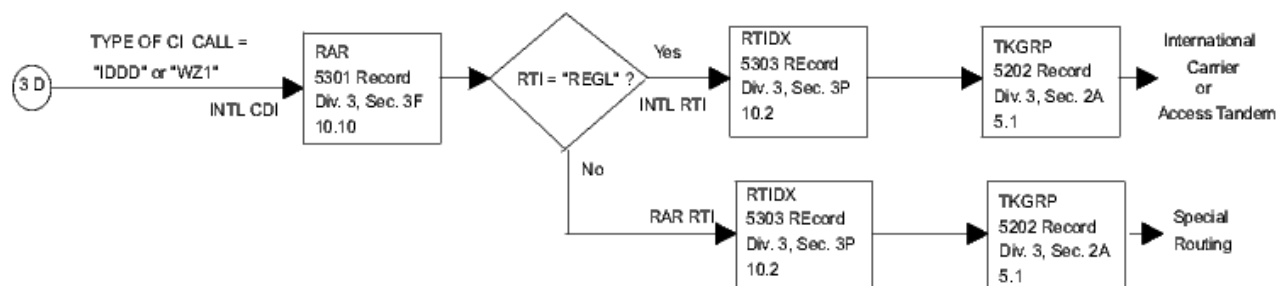
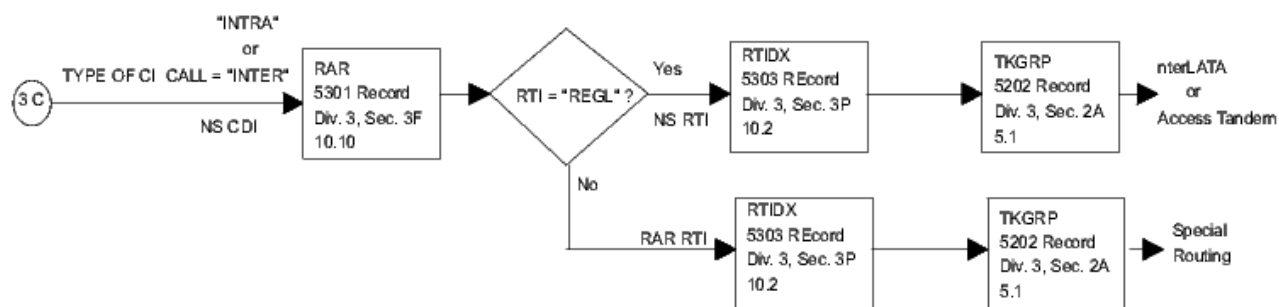


Figure 1 SSP 800 ACCESS TANDEM FORM FLOW







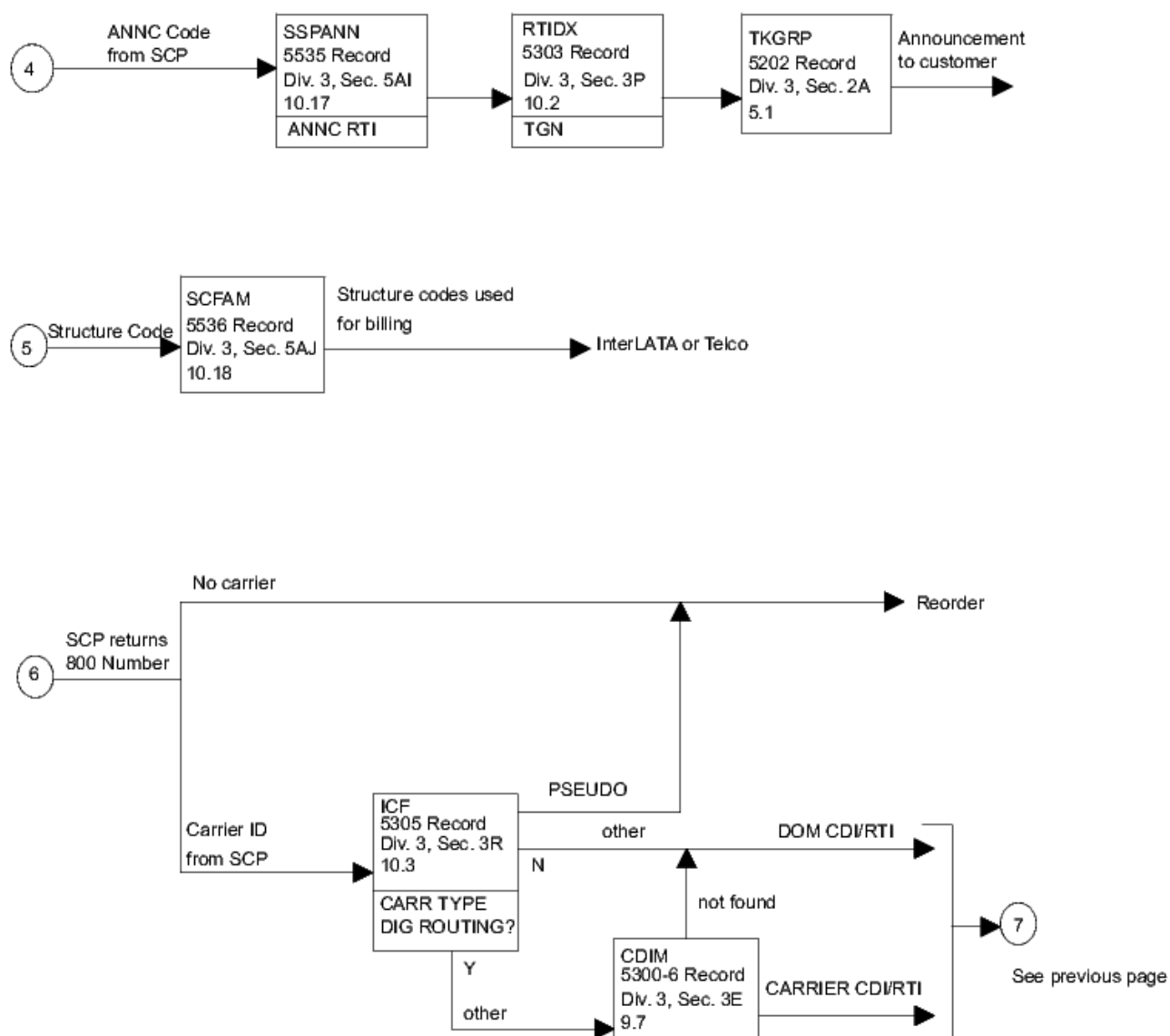


Figure 2 SSP 800 END OFFICE FORM FLOW

SIGNALING	ORIG NPA	ORIG NXX	ORIG LATA	COIN INDICATOR
EA-10digitANI-00X	ANI	ANI	ONPA	ONPA
EA-10digitANI-800	ANI	ANI	TKGRP	TKGRP
EA-3digitANI-00X	ANI	blank	ONPA	ONPA
EA-3digitANI-800	ANI	TKGRP or blank	TKGRP	TKGRP
TRAD-00X	ONPA	TKGRP or blank	ONPA	ONPA
TRAD-800	TKGRP	TKGRP or blank	TKGRP	TKGRP
CAMA-7digitANI-00X	ONPA	ANI	ONPA	ONPA
CAMA-7digitANI-800	TKGRP	ANI	TKGRP	TKGRP
CAMA-No ANI-00X	ONPA	TKGRP or blank	ONPA	ONPA
CAMA-No ANI-800	TKGRP	TKGRP or blank	TKGRP	TKGRP

Figure 3 SIGNALING MODE AND RELATED ODA FORM

SEC. 1Y: LOCAL AREA SIGNALING SERVICES

1. LOCAL AREA SIGNALING SERVICES FOR 5E5 AND LATER

1.1 Feature Description

LASS (Local Area Signaling Services) features are available in 5E5 and later Software Releases. The LASS features are AC (Automatic Callback), AR (Automatic Recall), COT (Customer Originated Trace), ICLID (Individual Calling Line Identification), CND (Calling Number Delivery) and PCP (Per Call Privacy).

The LASS features are available for intra-switch calls and inter-switch calls provided there is CCS7 connectivity between the originating and terminating switches.

The ICLID feature was available in the 5E4(2) Software Release but it was only available for intra-switch calls. In the 5E5 Software Release, ICLID information can be provided for intra-switch calls and inter-switch calls.

1.2 Feature Assignment

LASS allows the switch owner to offer the Automatic Callback, Automatic Recall, Customer Originated Trace and ICLID Per Call Privacy features to all customers on a generally available basis per office or on a subscription basis per office.

1.3 Generally Available

A feature made generally available in a 5ESS Switch allows all customers in the 5ESS Switch access to the feature. A user can be denied access to the feature by entering "N" in the AC ALW, AR ALW, COT ALW or PCP ALW fields on the DSLUSR, LINE or MLHLN forms. On a generally available basis, default values for the office are defined on the LASSOP form. A user may subscribe to a customized version of a LASS feature if the generally available feature does not meet the users needs.

1.4 Subscription

A feature made available on a subscription basis allows users to subscribe to a feature. If any one of the LASS features is provided on a subscription basis, then the AC ALW, AR ALW, COT ALW or PCP ALW fields on the DSLUSR, LINE or MLHLN forms are not looked at by the 5ESS Switch, therefore the default values should be used.

1.5 Office Status

In initial offices, 5ODA makes the Automatic Callback, Automatic Recall, Customer Originated Trace and ICLID Per Call Privacy features unavailable to all customers. Changing the office status of a LASS feature to generally available or subscription must be done on the RC View 8.18.

1.6 Automatic Callback

AC (Automatic Callback) allows a calling terminal to automatically place a call to the last incoming call made to the calling terminal. If the call cannot be completed immediately because the called terminal is busy, the called and calling terminals are monitored until they both become idle. Once the called and calling terminals are idle, the calling terminal is given ringback with distinctive ringing. If the calling terminal answers the ringback, a call is automatically placed to the called terminal.

AC is available to analog terminals and ISDN terminals.

AC allows a calling terminal to activate multiple camp-ons to different terminals.

1.7 AC Call Scenario

The following is a call scenario showing the interaction between forms. If Automatic Callback is generally available on a 5ESS Switch (indicated on RC View 8.18 with "GENAVAIL" in the AC field), then the DSLUSR, LINE or MLHLN form where the calling TN is defined should have the AC ALW field set to "Y" to indicate that the feature is available to the calling TN. The generally available feature for the office is defined in the AC GA FEAT field on the LASSOP form. The AC feature does not have to be assigned to individual users using appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc.) unless the user subscribes to a customized version of Automatic Callback.

If Automatic Callback is provided on a subscription basis (indicated on RC View 8.18 with "SUBSCR" in the AC field), then the AC ALW field on the DSLUSR, LINE or MLHLN form is not looked at by the switch. The feature will be assigned to individual users using the appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc.).

Party-A was the last incoming call received at Party-B. Party-B wants to callback Party-A using the Automatic Callback feature. Party-B goes off-hook, enters a dialed code (defined on the PDIT and/or IDPDCA form with an ACTION of "ACUSE") or depresses a feature button (defined on the CFGGRP form with an ACTION of "ACUFB") and an appropriate response is returned.

Possible responses are:

- Audible alerting - Called party is alerted immediately because the called station is found to be idle.
- Short-term denial - Reorder tone is given to the user to indicate that network resources are temporarily exhausted or the called party has a feature active that causes the Automatic Callback attempt to be denied (e.g., Call Forwarding Variable). A subsequent attempt by the user to activate the feature may succeed.
- Long-term denial - An announcement is returned indicating that the Automatic Callback feature is not allowed to the user. The route index to the announcement is defined in the LNG TRM DNY RTI field on the LASSOP form.
- Confirmation - An announcement is returned indicating that the Automatic Callback feature has been activated. The route index to the announcement is defined in the AC CNFRM RTI field on the LASSOP form.

Once a confirmation announcement is returned, the AC Delayed Processing (camp-on) phase is initiated. Both the calling and called terminals are being monitored for simultaneous idle status. If both the calling and called terminals are idle before the maximum duration timer for busy/idle scanning expires (defined in the TIMEOUT field on the LASSOP form), then the calling terminal is given ringback alerting with distinctive ringing (defined in the RNGBK TYPE field on the LASSOP form or LSACFD form). Otherwise, AC activation is canceled when both the calling and called terminals are not idle before the maximum duration timer for busy/idle scanning expires (defined in the TIMEOUT field on the LASSOP form).

Ringback alerting is initiated to the calling terminal. The duration of the ringback alerting is defined in the RNG CYCLE field on the LASSOP form. If the initial ringback is not answered, then there may be multiple ringback attempts to the calling party (defined in the MAX RNGBK and RNGBK WAIT fields on the LASSOP form). If the calling party answers the ringback attempt, then an attempt will be made to ring the called party. If the called party is idle then both parties are connected.

If the called party is busy, then an announcement is returned to the calling party indicating that the called party is busy after the ringback attempt (defined in the PTY BUSY RTI field on the LASSOP form). The AC activation is complete.

Automatic Callback may be canceled at any time during the Delayed Processing phase. The user goes off-hook, enters a dialed code (defined on the PDIT and/or IDPDCA form with an ACTION of "ACCANC") or depresses a feature button (defined on the CFGGRP form with an ACTION of "ACCFB") and a cancellation announcement is returned (defined in the AC CNCL RTI field on the LASSOP form). Deactivation of Automatic Callback cancels all multiple camp-on activations of Automatic Callback.

A list of telephone numbers for a 5ESS Switch that cannot be camped on when Automatic Callback is activated are called choke numbers. These numbers are defined on the LASSCK form.

A prefix of 1 may be required by offices when dialing a NPA or an NXX. If an office selects to use a prefix, there may be some exceptions where a prefix cannot be used. If an office chooses not to use a prefix, there may be some exceptions where a prefix is needed. This is defined on the LASSPFX form.

1.8 Automatic Recall

AR (Automatic Recall) allows a calling terminal to automatically place a call to the last outgoing call made from the calling terminal or to camp on to the last outgoing call after receiving busy treatment. Camp-on allows the switch to monitor both the called and calling terminals until they become idle. Once the called and calling terminals are idle, the calling terminal is given ringback with distinctive ringing. If the calling terminal answers the ringback, a call is automatically placed to the called terminal.

AR is available to analog terminals and ISDN terminals.

1.9 AR Call Scenario

The following is a call scenario showing the interaction between forms. If Automatic Recall is generally available on a 5ESS Switch (indicated on RC View 8.18 with "GENAVAIL" in the AR field), then the DSLUSR, LINE or MLHLN form where the calling TN is defined should have the AR ALW field set to "Y" to indicate that the feature is available to the calling TN. The generally available feature for the office is defined in the AR GA FEAT field on the LASSOP form. The AR feature does not have to be assigned to individual users using appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc) unless the user subscribes to a customized version of Automatic Recall.

If Automatic Recall is provided on a subscription basis (indicated on RC View 8.18 with "SUBSCR" in the AR field), then the AR ALW field on the DSLUSR, LINE or MLHLN form is not looked at by the switch. The feature will be assigned to individual users using the appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc).

Party-A calls Party-B and receives busy treatment. To activate the Automatic Recall feature: Party-A goes off-hook, enters a dialed code (defined on the PDIT and/or IDPDCA form with an ACTION of "ARUSE") or depresses a feature button (defined on the CFGGRP form with an ACTION of "ARUFB") and an appropriate response is returned.

Possible responses are:

- Audible alerting - Called party is alerted immediately because the called station is found to be idle.
- Short-term denial - Reorder tone is given to the user to indicate that network resources are temporarily exhausted or the called party has a feature active that causes the Automatic Recall attempt to be denied

(e.g., Call Forwarding Variable). A subsequent attempt by the user to activate the feature may succeed.

- Long-term denial - An announcement is returned indicating that the Automatic Recall feature is not allowed to the user. The route index to the announcement is defined in the LNG TRM DNY RTI field on the LASSOP form.
- Confirmation - An announcement is returned indicating that the Automatic Recall feature has been activated. The route index to the announcement is defined in the AR CNFRM RTI field on the LASSOP form.

Once a confirmation announcement is returned, the AR Delayed Processing (camp-on) phase is initiated. Both the calling and called terminals are being monitored for simultaneous idle status. If both the calling and called terminals are idle before the maximum duration timer for busy/idle scanning expires (defined in the TIMEOUT field on the LASSOP form), then the calling terminal is given ringback alerting with distinctive ringing (defined in the RNGBK TYPE fields on the LASSOP form or LSARFD form). Otherwise, AR activation is canceled when both the calling and called terminals are not idle before the maximum duration timer for busy/idle scanning expires (defined in the TIMEOUT field on the LASSOP form).

Ringback alerting is initiated to the calling terminal. The duration of the ringback alerting is defined in the RNG CYCLE field on the LASSOP form. If the initial ringback is not answered, then there may be multiple ringback attempts to the calling party (defined in the MAX RNGBK and RNGBK WAIT fields on the LASSOP form). If the calling party answers the ringback attempt, then an attempt will be made to ring the called party. If the called party is idle then both parties are connected.

If the called party is busy, then an announcement is returned to the calling party indicating that the called party is busy after the ringback attempt (defined in the PTY BUSY RTI field on the LASSOP form). The AR activation is complete.

Automatic Recall may be canceled at any time during the Delayed Processing phase. The user goes off-hook, enters a dialed code (defined on the PDIT and/or IDPDCA form with an ACTION of "ARCANC") or depresses a feature button (defined on the CFGGRP form with an ACTION of "ARCFB") and a cancellation announcement is returned (defined in the AR CNCL RTI field on the LASSOP form).

A list of telephone numbers for a 5ESS Switch that cannot be camped on when Automatic Recall is activated are called choke numbers. These numbers are defined on the LASSCK form.

1.10 Customer Originated Trace

The COT (Customer Originated Trace) feature allows an end user the ability to request an automatic trace of the last call received. The call trace information is provided to an authorized agency, such as the telephone company or a law enforcement agency, not the end user. Once COT has been activated an announcement is returned to the end user providing information on any further action that might be required regarding the trace including the telephone number of the agency (defined in the AGENCY field on the LASSOP form).

Customer Originated Trace is available to analog terminals and ISDN terminals.

1.11 COT Call Scenario

The following is a call scenario showing the interaction between forms. If Customer Originated Trace is generally available on a 5ESS Switch (indicated on RC View 8.18 with "GENAVAIL" in the COT field), then the DSLUSR, LINE or MLHLN form where the calling TN is defined should have the COT ALW field set to "Y" to indicate that the feature is available to the calling TN. The generally available feature for the office is

defined in the COT GA FEAT field on the LASSOP form. The COT feature does not have to be assigned to individual users using appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc) unless the user subscribes to a customized version of Customer Originated Trace.

If Customer Originated Trace is provided on a subscription basis (indicated on RC View 8.18 with "SUBSCR" in the COT field), then the COT ALW field on the DSLUSR, LINE or MLHLN form is not looked at by the switch. The feature will be assigned to individual users using the appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc).

After hanging up on a call, the customer can activate COT by going off-hook, entering a dialed code (defined on the PDIT and/or IDPDCA form with an ACTION of "COTUSE") or depresses a feature button (defined on the CFGGRP form with an ACTION of "COTFBP") and an appropriate response is returned.

Possible responses are:

- Successful Activation - A message/announcement is returned indicating a successful activation of the COT request and provides information on any further action the user should take. The route index to the announcement is defined in the ACTIVATE RTI field on the LASSOP form.
- Trace not Available - A message/announcement is returned indicating that the call has already been traced or invalid data about the call is stored in the switch (e.g., originating and terminating switches are not connected by CCS7 trunks). The route index to the announcement is defined in the TRC NA RTI field on the LASSOP form.
- Buffer full - A message/announcement is returned indicating that the COT message buffer is full and the user should attempt the trace again later. The route index to the announcement is defined in the NO RESRC RTI field on the LASSOP form.
- Short-term denial - A message/reorder is returned indicating that network resources are exhausted. A subsequent attempt by the user to activate the feature may succeed.
- Feature denial - A message/reorder is returned indicating that the Customer Originated Trace feature is not available to the user.

1.12 Individual Calling Line Identification

ICLID (Individual Calling Line Identification) allows calling party information to be delivered to ISDN terminals or analog terminals. Two ICLID features are available: Calling Number Delivery and Per call Privacy.

1.13 Calling Number Delivery

CND (Calling Number Delivery) allows the called party to receive calling information on incoming calls. To activate the feature: the user goes off-hook, enters a dialed code (defined on the PDIT and/or IDPDCA form with an ACTION of "CNDACT") or depresses a feature button (defined on the CFGGRP form with an ACTION of "CNDFBP") and a confirmation tone is returned. When the feature is active, the station set display will show the calling information on the incoming call. The CND feature is activated until the feature is deactivated.

Calling Number Delivery may be deactivated. The user goes off-hook, enters a dialed code (defined on the PDIT and/or IDPDCA form with an ACTION of "CNDDCT") or depresses a feature button (defined on the CFGGRP form with an ACTION of "CNDFBP") and a confirmation tone is returned.

NOTE: For information concerning which SLCs are compatible with the ICLID feature, refer to

256-015-300, CCS7 Operation Administration and Maintenance.

1.14 Call Privacy

All-call Privacy allows the calling party to prevent delivery of their TN to the called party for all calls. The calling party can deactivate all-call privacy on a per-call basis, allowing the calling TN to be displayed to the called party.

A terminal may not subscribe to all-call privacy, therefore the TN of the calling party will be displayed to the called party for all calls. The calling party may activate TN privacy on a per-call basis, not allowing the calling TN to be displayed to the called party.

This feature was available in the 5E4(2) Software Release for intra-switch calls but with 5E5 and later Software Releases, this feature can also be used with inter-switch calls.

1.15 PCP Call Scenario

The following is a call scenario showing the interaction between forms. If Per Call Privacy is generally available on a 5ESS Switch (indicated on RC View 8.18 with "GENAVAIL" in the PCP field), then the DSLUSR, LINE or MLHLN form where the calling TN is defined should have the PCP ALW field set to "Y" to indicate that the feature is available to the calling TN. The generally available feature for the office is defined in the PCP GA FEAT field on the LASSOP form. The PCP feature does not have to be assigned to individual users using appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc) unless the user subscribes to a customized version.

If Per Call Privacy is provided on a subscription basis (indicated on RC View 8.18 with "SUBSCR" in the PCP field), then the PCP ALW field on the DSLUSR, LINE or MLHLN form is not looked at by the switch. The feature will be assigned to individual users using the appropriate line assignment forms (i.e., LINEFA, MLHLNFA, BFG, etc).

There are two types of privacy features:

- All-Call Privacy - A user with PRIVACY set to "Y" on the corresponding LINE, DSLUSR or MLHLN form will prevent their TN from being displayed on the called party's terminal. The user may send the TN on a per-call basis by subscribing to the Display feature with TN privacy (defined on the DISPPD form with TN PRIVACY set to "Y"). Once the feature is assigned, the user may enter a Dial Code or depress a feature button with an ACTION of "DNPUSE" on the corresponding PDIT, IDPDCA and/or CFGGRP forms to allow the TN to be displayed.
- Per-Call Privacy - A user with PRIVACY set to "N" on the corresponding LINE, DSLUSR or MLHLN form will allow their TN to be displayed on the called party's terminal. The user may prevent their TN from being sent on a per-call basis by subscribing to the Display feature with TN privacy (defined on the DISPPD form with TN PRIVACY set to "Y"). Once the feature is assigned, the user may enter a Dial Code or depress a feature button with an ACTION of "DNPUSE" on the corresponding PDIT, IDPDCA and/or CFGGRP forms to prevent the TN from being displayed.

1.16 Translation Requirements

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26A	12.9
CFGGRP	5964	6	7A	12.5

DSAPP	5537	3	5AK	8.17
DSLUSR	5908	5	1I	23.2
IDPDCA	5601-1/2	4	2B	9.13
IDPRDCA	5601-11	4	2K	9.27
IDPRICM	5601-12	4	2L	9.26
LASSCK	5946	5	5G	8.19
LASSOP	5945	5	5F	8.21
LASSPFX	5947	5	5H	8.20
LINE	5109-1/2/3	3	1I	1.5
LSACFD	5970-1	6	13A	12.47
LSACLPA	5970-2	6	13B	1.47
LSACMPA	5970-3	6	13C	3.47
LSARFD	5971-1	6	14A	12.48
LSARLPA	5971-2	6	14B	1.48
LSARMPA	5971-3	6	14C	3.48
LSCOTFD	5972	6	15	12.49

1.17 Line Translations

LINE form (5109 Record) - AC ALW, AR ALW, COT ALW and PCP ALW fields indicate which features are available on the line for the generally available basis.

MLHLN form (5111 Record) - AC ALW, AR ALW, COT ALW and PCP ALW fields indicate which features are available on the line for the generally available basis.

1.18 Routing And Charging Translations

PDIT form (5300-2 Record) - LASS dial codes for the Office Dialing Plan are defined on the form. The ACTIONS are:

Valid ODP ACTIONS	
ACTION	Description
ACCANC	Automatic Callback deactivation
ACUSE	Automatic Callback activation
ARCANC	Automatic Recall deactivation
ARUSE	Automatic Recall activation
CNDACT	Calling Number Delivery activation
CNDDCT	Calling Number Delivery deactivation
COTUSE	Customer Originated Trace activation
DNPUSE	Per-Call Privacy activation/deactivation

1.19 Miscellaneous Translations

DSAPP form (5537 Record) - This form is used to specify information for CCS7 trunks. An application of "LASS" must be defined with its corresponding subsystem number.

1.20 BRCS Translations

IDPDCA form (5601 Record) - LASS dial codes for the Individual Dialing Plan are defined on the form. The ACTIONS are:

Valid IDP ACTIONS	
ACTION	Description
ACCANC	Automatic Callback deactivation
ACUSE	Automatic Callback activation
ARCANC	Automatic Recall deactivation
ARUSE	Automatic Recall activation
CNDACT	Calling Number Delivery activation
CNDDCT	Calling Number Delivery deactivation
COTUSE	Customer Originated Trace activation
DNPUSE	Per-Call Privacy activation/deactivation

IDPRDCA form (5601-11 Record) - This form supports the interaction between AC and intra-office intercom dialing. It takes the public TN from the network and associates a reverse intercom range (REV ICM RANGE field) with the number.

IDPRICM form (5601-12 Record) - This form takes the public TN, deletes and prefixes the appropriate digits to reconstruct the appropriate intercom dialing sequence.

BFG form (5625 Record) - AC RNGBK TYPE and AR RNGBK TYPE fields were added for Automatic Callback/Automatic Recall to define the distinctive ringing pattern for ringback alerting.

1.21 ISDN/Packet Switching Translations

DSLUSR form (5908 Record) - AC ALW, AR ALW, COT ALW and PCP ALW fields indicate which features are available on the line for the generally available basis.

LASSOP form (5965 Record) - Defines office parameters for LASS features. This form contains default parameters for AC/AR, COT and ICLID PCP.

LASSCK form (5946 Record) - Defines the choke numbers that cannot be camped on when AC/AR is activated.

LASSPFX form (5947 Record) - The prefix of "1" can be required by offices when dialing a NPA or an NXX. If an office selects to use a prefix, there may be some exceptions where a prefix cannot be used. If an office chooses not to use a prefix, there may be a few office codes where a prefix is needed. Used with the Automatic Callback feature.

1.22 ISDN BRCS Translations

CFGGRP form (5964 Record) - LASS button features for the ISDN station set are defined on the form. The ACTIONS are:

Valid ISDN Button ACTIONS	
ACTION	Description
ACCFB	Automatic Callback deactivation
ACUFB	Automatic Callback activation
ARCFB	Automatic Recall deactivation
ARUFB	Automatic Recall activation
CNDFBP	Calling Number Delivery activation/deactivation
COTFBP	Customer Originated Trace activation
DNPUSE	Per-Call Privacy activation/deactivation

DISPFD form (5965 Record) - This form is used to define the display and privacy features allowed on a terminal.

LIDFD form (5966 Record) - This form is used to define whether the calling number will be displayed at a terminal.

LSACFD form (5970-1 Record) - This form is used to define a constructed Automatic Callback feature. Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line).

LSACLPA form (5970-2 Record) - This form is used to assign line parameters to a TN, if they are different from the parameters defined on the LSACFD form.

LSACMPA form (5970-3 Record) - This form is used to assign line parameters to a MLHG/TERM, if they are

different from the parameters defined on the LSACFD form.

LSARFD form (5971-1 Record) - This form is used to define a constructed Automatic Recall feature. Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line).

LSARLPA form (5971-2 Record) - This form is used to assign line parameters to a TN, if they are different from the parameters defined on the LSARFD form.

LSARMPA form (5971-3 Record) - This form is used to assign line parameters to a MLHG/TERM, if they are different from the parameters defined on the LSARFD form.

LSCOTFD form (5972 Record) - This form is used to define a constructed Customer Originated Trace feature.

Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line).

2. 5E7 LASS ENHANCEMENTS

With 5E7 the following features were added to enhance the current LASS features. For information on LASS SLE, see Division 2, Section 1Z.

2.1 LASS Announcements For Activation Toward CFV

With 5E7 and later, when an Automatic Recall or Automatic Callback is attempted on a line with Call Forwarding active, a short-term denial announcement rather than reorder tone can be provided from a recorded announcement facility (e.g., 13A).

To receive the announcement rather than reorder tone, the CF ACTIVE DNY RTI field must be specified on the LASSOP form (5945 Record)

2.2 LASS AR/AC Dual Timer Queuing Activation

With 5E6 and earlier, when a LASS AR or AC activation request is made to the same DN as previously requested, the 5ESS Switch treats the request like a new activation. The previous activation is removed from the queue and a new activation is placed at the end of the queue.

With 5E7 and later, the customer will be allowed to maintain their position in the queue with a reactivation request to the same DN rather than a new request. At the initial activation of the feature, both the T1 timer (initialized via the TIMEOUT field on the LASSOP form, 5945 Record) and the T13 timer (initialized by the MAX CAMP TIME field on the LASSOP form) will be set instead of only one (T1 timer). The T1 timer limits how long a camp-on will remain active toward a particular TN. It can continually be reset if the originator requests activation while the T1 and T13 timers have not expired. The new T13 timer will limit the total length of time a camp-on can exist through activations and reactivations of AC or AR on the same TN.

2.3 LASS AR/AC AMA Reactivation

When a LASS Automatic Recall or Automatic Callback activation is made, the switch can not distinguish if this is an initial activation or a reactivation for AMA billing purposes. With this enhancement, AMA recordings of activations and reactivation will be made so that reactivations can be billed.

2.4 LASS Concurrent Activation Limit and Per Line Queue Size Limit

The 5ESS Switch does not currently limit the number of AR or AC activations by a given line or the number of queue slots that a given terminating line may have to hold AR or AC activation requests. With this enhancement the switch owner will be able to allow a customer to have up to 30 AR (AR ORIG CAMP LIM field on the LASSOP form) requests active at a time and up to 30 AC (AC ORIG CAMP LIM field on the LASSOP form) requests at the same time. A limit will also be placed on the number of AR and AC requests (TERM CAMP LIM field on the LASSOP form) that can be active against any terminating DN. This limit can be set up to 20 combined queued requests. A request that exceeds this limit will be provided reorder tone.

2.5 LASS AR/AC Activation Towards a MLHG with Queuing

The user of AR or AC is allowed to invoke it against MLHG DNs. Prior to 5E7 the 5ESS switch treats the MLHG as idle only if there is an idle hunt group member. If the DN specified for the AR or AC is allowed to use the queue for AR or AC activations, then the 5ESS Switch treats the MLHG as idle with respect to AR or AC activations if there is an idle member, or if there is an available queue position.

2.6 LASS Screen List Editing Compliance

This feature will provide further compliance of the LASS Screen List Editing feature with Bellcore requirements. This feature will impact the following:

- new announcements available by providing new HEADER IDs on the ANNHD form (5531 Record) and new PHRASE IDs on the PHRASE form (5534 Record).
- new DISPLAY IDs on the DISPMSG form (5980 Record) are provided to provide all LASS displays.
- RC View 8.65 is modified to allow the switch owner to change all LASS displays in 5E6.

NOTE: FEATURE ID 536 must be activated on RC View 8.22 to provide the new announcements and displays. This activation is used only to switch from the 5E6 set of announcements to 5E7, after the switch is up.

2.7 2-Level Activation For LASS AC And COT

The 2-Level activation feature enhances the activation procedure for two 5E5 LASS features, COT and AC. The second level of activation provides the end user an opportunity to cancel the feature activation.

2-level switch owners with ISDN terminals are allowed to edit display messages for LASS AC, and COT activations. Also, Inspect Displays for LASS feature buttons only may be modified.

2-Level Activation of COT provides the subscriber with an announcement following the normal activation by dial code (or feature button) indicating that a trace of the last incoming call is being requested and this request will result in an additional cost to the subscriber. The actual amount of the trace can be provided in the announcement by entering the cost in the COT COST field on the LASSOP form. Otherwise, the amount of the trace is not included. The subscriber can dial 1 to proceed with the trace or disconnect to cancel the trace request. The subscriber can interrupt the announcement at any time by dialing or by going onhook.

2-Level Activation of AC provides the subscriber with an announcement indicating that a call back activation will be made to the LICDN (Last In Coming Directory Number). Also, the announcement may include the time and date by entering the AC VOICE BACK field on the LASSOP form. After the announcement has been provided, the subscriber can then dial 1 to proceed with the call back or disconnect to cancel the call back request.

Feature Assignment: To provide 2-Level COT and AC on the switch, the following must be defined:

- COT ACT LVL and AC ACT LVL must have 2 entered on the LASSOP form.
- The FIXRT form must have a FIXED ROUTE TYPE of "2LEVEL" assigned.
- The ANNAPL form must have an APPLICATION of "2LEVEL" to provide default data for the announcement forms (PHRASE, ANNHD, and ANNDG).
- The DISPMSG form may be used to modify the displays.
- The EQRAP form must have a MICROCODE of 5D142A20 assigned and installed in pack 1 of the RAF.

2.8 5E7 LASS Enhancements Translation Requirements

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LASSOP	5945	5	5F	8.21
TKGRP	5202-1/2/3/4	3	2A	5.1
FIXRT	5301-1	3	3G	10.1
ANNAPL	5529	3	5AC	8.64
ANNHD	5531	3	5AE	8.61
ANNDG	5532	3	5AF	8.60
PHRASE	5534	3	5AH	8.63
DISPMSG	5980	6	23	8.65
EQRAP	5822	8	36	20.10, 20.22

LASSOP form (5945 Record) - COT ACT LVL and AC ACT LV must have 2 entered.

TKGRP form (5202 Record) - TRK DIR must be "RAF", TRKCLS must be "RAFDTA", SVC GRP must be "RAS", and QUEUE ALLOWED "N".

FIXRT form (5301 Record) - FIXED ROUTE TYPE must be "2LEVEL".

ANNAPL form (5529 Record) - APPLICATION must be "2" or "2LEVEL", and at least one associated ANNHD form and one ANNDG form must exist.

ANNHD form (5531 Record) - FEATURE ID 536 must be activated on RC VIEW 8.22 to receive the new 5E7 LASS HEADER IDs. Otherwise, the LASS HEADER IDs marked as "5E6 and later" in the default data will be supplied to the end user. APPLICATION must be "2" or "2LEVEL", and at least one associated ANNAPL form and one ANNDG form must exist. Also, new PHRASES entries of 16387 (Date), 16388 (Time), and 16389 (Number of dollars and cents) are valid.

ANNDG form (5532 Record) - APPLICATION must be "2" or "2LEVEL", and at least one associated ANNHD form and one ANNAPL form must exist.

PHRASE form (5534 Record) - FEATURE ID 536 must be activated on RC View 8.22 to access LASS phrases 411 through 443. Otherwise, the LASS HEADER IDs marked as "5E6 and later" in the default data will be supplied to the end user. APPLICATION must be "2" or "2LEVEL". Also, new PHRASES entries of 16387 (Date) and 16388 (Time) are valid.

DISPMSG form (5980 Record) - Displays are available for SLE, Inspect feature (for LASS feature buttons only), and 2-Level activations of AC and COT. When FEATURE ID 536 is activated on RC View 8.22, the SLE displays marked as 5E7 and later and the SLE displays marked with an asterisk will be provided from

the 5E7 default data. Otherwise, the SLE displays marked as 5E6 and later will be provided. DISP TYPE must be entered, as well as DISP ID. DISPLAY's entry must conform to the entries for DISP TYPE and DISP ID.

EQRAP form (5822 Record) - The entry for APPLICATION must correspond to the type of announcements supported by the announcement storage circuit packs (TN1053 and TN1054). For the 2-Level feature, use List 22, an APPLICATION of "BRCS-2LV", PACK1 of "5D142A20", and a SERVICE TYPE (EQRA) of "DTA".

3. BULK CALLING LINE IDENTIFICATION

BCLID is a LASS feature available for 5E8 and later providing call-related information on incoming calls for BRCS/Centrex, Multi-Line Hunt Group, and PBX customers. BCLID provides data only for calls from outside BRCS/Centrex Groups, MLHGs, or PBXs. PBX customers must either have DID (Direct Inward Dialing) capability or be part of an MLHG.

The call-related information (also referred to as the BCLID message) includes:

- The calling DN - set to "P" if the LASS privacy indicator is set, and set to "O" if unavailable.
- The calling line multistatus - set to "M" (for multi), if the true calling DN cannot be identified (that is, for multi-party, PBX, etc.); otherwise set to "T" for the true DN. This indicator is set to "B" if the billing number is provided instead of the calling number.
- The date (day and month) - provided as an option.
- The time the call was received - hours, minutes, and seconds.
- The called DN - replaced by the port/terminal number and group identifier of the called party, if in a Multi-Line Hunt Group.
- The busy/idle status of called DN - if it cannot be determined that the called DN is busy (e.g., PBX), the status is always set to idle.

For interoffice calls, BCLID requires use of Common Channel Signaling so that the calling party information can be provided by the originating switch. Information is transmitted from the terminating switch shortly after each call is received over an API (Application Processor Interface) link. The link terminates to either:

- a DISDNI (Digital Integrated Services Digital Network Interface) connected to an AP (Application Processor), or
- a 3A translator connected to CPE (Customer Premise Equipment) such as computer terminals, minicomputers, magnetic-tape devices or related equipment.

The AP or CPE translates and provides display or storage of transmitted BCLID data. The transmission of this data does not affect completion of any calls.

BCLID can be provisioned on a subscription-only basis, with BFGs (BRCS Feature Groups). BCLID can also be assigned on a per Trunk Group or per DN/line basis. Billing for BCLID can be on a flat rate or on a usage-sensitive basis.

The end customer does not have the ability to activate or deactivate the BCLID feature. The LEC activates or deactivates BCLID service using the BCLIDGP form. This activates/deactivates all BCLID customers using

this BCLID group.

3.1 BCLID Interfaces with Existing Capabilities

The following text details feature interactions for BCLID having impact on translations. For other interactions, see the **5ESS Switch LASS Feature Document, 235-190-130**.

For Lines and MLHG's, the following CLASSES OF SERVICE on the LCC form (5306 Record) support BCLID: "INDIV", "ATND", "ISDN", "ISATND", "4WINDIV", "PBX", "CHGCALL", "SATSTLN", "CALLBK", "HOTPBX", and "HOTMOTL".

For Trunks, the following TRKCLSs support BCLID: "PF", "PFLASH", "PFITT", "PBXDID", "EDSL" and "EDSLSM".

3.1.1

3.1.2 Automatic Customer Station Rearrangement

If ACSR (Automatic Customer Station Rearrangement) is used to move a station set to another location within the Switch, and the DNs for the station set have BCLID assigned, the assignment of BCLID, the active/inactive status of BCLID, and the billing must remain unchanged by the move.

3.1.3 Multi-Line Hunt Groups (Voice and Data)

BCLID must be assigned directly to MLHG 1.

When termination is made to an MLHG member, the MLHG group is checked to see if BCLID is assigned to it. If so, a BCLID message is sent.

A BCLID message is sent for every termination to an MLHG member, regardless of whether the termination is the result of dialing a Hunted DN, Individual DN, or Non Hunt DN.

If the termination is the result of a hunt, the MLHG is considered busy (for the busy/idle status of the BCLID message) only when all members of the MLHG are busy, or when the MLHG has been made artificially busy (as with a group make busy key). When the MLHG is busy, the member number in the BCLID message is zero.

If the termination is not the result of a hunt, the busy/idle status of an individual DN applies. A Non Hunt DN can have BCLID individually in order to get BCLID messages for Non Hunted calls.

If the BCLID customer wishes to record BCLID information only for calls that originate outside the TG (Terminal Group), (which is identified by the default value of <169>Y<170> for INTER GRP ONLY on the BCLIDFD form), the customer must assign a TG feature to MLHG 1. The 5ESS Switch software then records a BCLID message when the TGID (Terminal Group ID) of the originating party is <->non-existent, or does not match the TGID of the TG feature for MLHG 1.

When the called DN to be recorded in the BCLID message is an MLHG DN, the DN is replaced with a <->two-digit MLHG ID associated with the MLHG, and the MLHG member number for the call termination. The MLHG ID has no real association with the MLHG's defined in the Switch, but is just a way to aid in identifying a BCLID customer.

The following scenario is an example of how the MLHG ID could avoid confusion:

Suppose a customer owns two different MLHGs and both are assigned to BCLID. BCLID messages may or may not be received on the same AP.

But if the customer decides to receive the messages generated by both MLHGs on the same AP, then the MLHG ID can be assigned differently for both MLHGs, to identify which MLHG the message comes from.

Circular Hunt, Uniform Call Distribution Hunt, Precedence Hunt, ISAT (ISDN Attendant) Hunt, and MUPH (Multiple Position Hunt), are treated the same as Regular Hunting.

3.1.4 Series Completion

For BCLID to be assigned to an SC (Series Completion) list, each DN in the list must be assigned the feature, or be assigned a BFG that subscribes to the BCLID feature.

If the BCLID customer wishes to record BCLID information only for calls that originate outside the SC list, the customer must assign a TG feature to each DN of the Series Completion list. The 5ESS Switch software then records a BCLID message when the TGID of the originating party is non-existent or does not match the TGID of the TG feature for the SC list.

When a call is made to an SC DN, an attempt is made to each member of the list until an idle member is found that can receive the call. Only one BCLID message is generated for each termination to an SC DN even though multiple attempts are made.

3.1.5 Terminal Group and Station Restriction (Voice and Data)

In Unrestricted Originating TGS (Terminal Group and Station Restriction), for BCLID to be assigned to a TG, each DN for the group must be assigned the feature, or each DN for the group must be assigned a BFG that subscribes to the BCLID feature.

Unrestricted Terminating, Semirestricted Originating, Semirestricted Terminating, Fully Restricted Originating, and Fully Restricted Terminating TGS are the same as Unrestricted Originating.

User-Side PRI (Primary Rate Interface) Implementation - (5E6)

A PBX configured as a PRI trunk group may be assigned BCLID.

For an incoming call that originates from an incoming PRI trunk and terminates to a BCLID customer, the calling DN/billing DN, calling DN privacy, and calling line DN multi-status indicator are obtained from the PRI SETUP message.

A "T" appears in the BCLID message as the calling DN multistatus indicator if the calling DN is unique, and an "M" appears if the calling DN is non-unique. When a call is made to a BCLID customer and the billing DN has been passed with no calling DN, a "B" appears in the BCLID message as the calling DN multistatus indicator.

If no calling or billing DN is sent in the PRI SETUP message, an "O" appears in the BCLID message as the calling DN. If the calling DN privacy sent shows the calling DN is private, a "P" appears in the BCLID message as the calling DN.

If less than a 10 digit calling/billing DN is passed by the PRI, the missing digits are replaced by blanks in the BCLID message. If more than 10 digits are passed, only the first 10 are used.

Multipoint

BCLID works with Multiple Users and Terminals Per ISDN BRI the same as with single-user ISDN BRIs.

BCLID is assigned to the DN, so calls to all users and terminals with that DN generate a BCLID message.

Calls terminating to multipoint DNs record the called DN as idle if there is any call appearance available to receive the call.

ISDN Multibutton Key System Services

When a DN appears as an MCA (Multiple Call Appearance) on a terminal, and that DN subscribes to BCLID, calls terminating to that DN record the called DN as idle if there is any call appearance available to receive the call.

BCLID can only be assigned to the MLHG group itself. Therefore, if a MLHG has Multiple DNs, those DNs may not be assigned BCLID.

3.2 5E8 BCLID Translation Requirements

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MLHG	5110	3	1J	3.5
TKGRP	5202	3	2A	5.1
BCLIDFD	5629-1	4	29A	12.62
BCLIDGP	5629-2	4	29B	4.62
BCLIDLPA	5629-3	4	29C	1.62
BCLIDMPA	5629-4	4	29D	1.62
LASSOP	5945	5	5F	8.21

See Figure 1 for the form flow for this feature.

MLHG form (5110 Record) - The MLHG form defines Multi-Line Hunt Group information.

The new field BCLID MLHG ID is a two-character number that can be sent as part of a BCLID message to the CPE, to identify Multi-Line Hunt Group customers generating the BCLID message.

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information entered is common to the entire group. Trunk information for an individual member is entered on a TRUNK form.

The new field BCLID FEATURE contains the BCLID feature name. The new field BCLID GRP contains the name of the BCLID Group this trunk is associated with.

BCLIDFD form (5629-1 Record) - This is a new form. The BCLIDFD form defines various combinations of options available with the BCLID feature.

FEATURE contains the BCLID feature name.

AMA REC indicates whether BCLID billing is usage-sensitive or flat rate. INTER GRP ONLY indicates if BCLID messages are sent to the CPE only for Inter-Terminal Group calls or for all calls. INCL DATE indicates whether the date is included in the BCLID message.

BCLID GRP contains the BCLID group name.

BCLIDGP form (5629-2 Record) - This is a new form. The BCLIDGP form defines the group information associated with the BCLID feature.

BCLID GRP contains the BCLID Group name, BCID a Business Customer Identification, and AP SITE ID the

Application Processor ID associated with this BCLID Group.

ALT AP SITE ID contains the optional alternate Application Processor ID used as an alternate destination AP for BCLID messages when the primary AP is unavailable.

GRP ACTIVE indicates whether BCLID records any of the incoming calls to this group.

BCLIDLPA form (5629-3 Record) - This is a new form. The BCLIDLPA form defines BCLID Line Parameters; it is used when a BCLID constructed feature is assigned to a non-Multi-Line Hunt line and the desired parameters are different from the default parameters on the BCLIDFD form.

TN contains the Telephone Number of the BCLID customer. FEATURE contains the BCLID feature name for which the BCLID group parameter is to be assigned. BCLID GRP contains the BCLID group name.

BCLIDMPA form (5629-4 Record) - This is a new form. The BCLIDMPA form defines BCLID Multi-Line Hunt line parameters; it is used when a BCLID constructed feature is assigned to a Multi-Line Hunt line, and the desired parameters are different from the default parameters on the BCLIDFD form.

MLHG is the Multi-Line Hunt Group of the line. MEMB is defaulted to 0001. FEATURE contains the BCLID feature name for which the BCLID group parameter is to be assigned. BCLID GRP contains the name of the BCLID group.

LASSOP form (5945 Record) - The LASSOP form is an ODA input form used to supply global office options and parameters for the LASS features.

The new field BILLING CYCLE specifies the interval for collection of BCLID AMA records of 1, 2, 3, 4, 6, 8, 12, or 24 hours, applying only for BCLID customers with usage-sensitive billing.

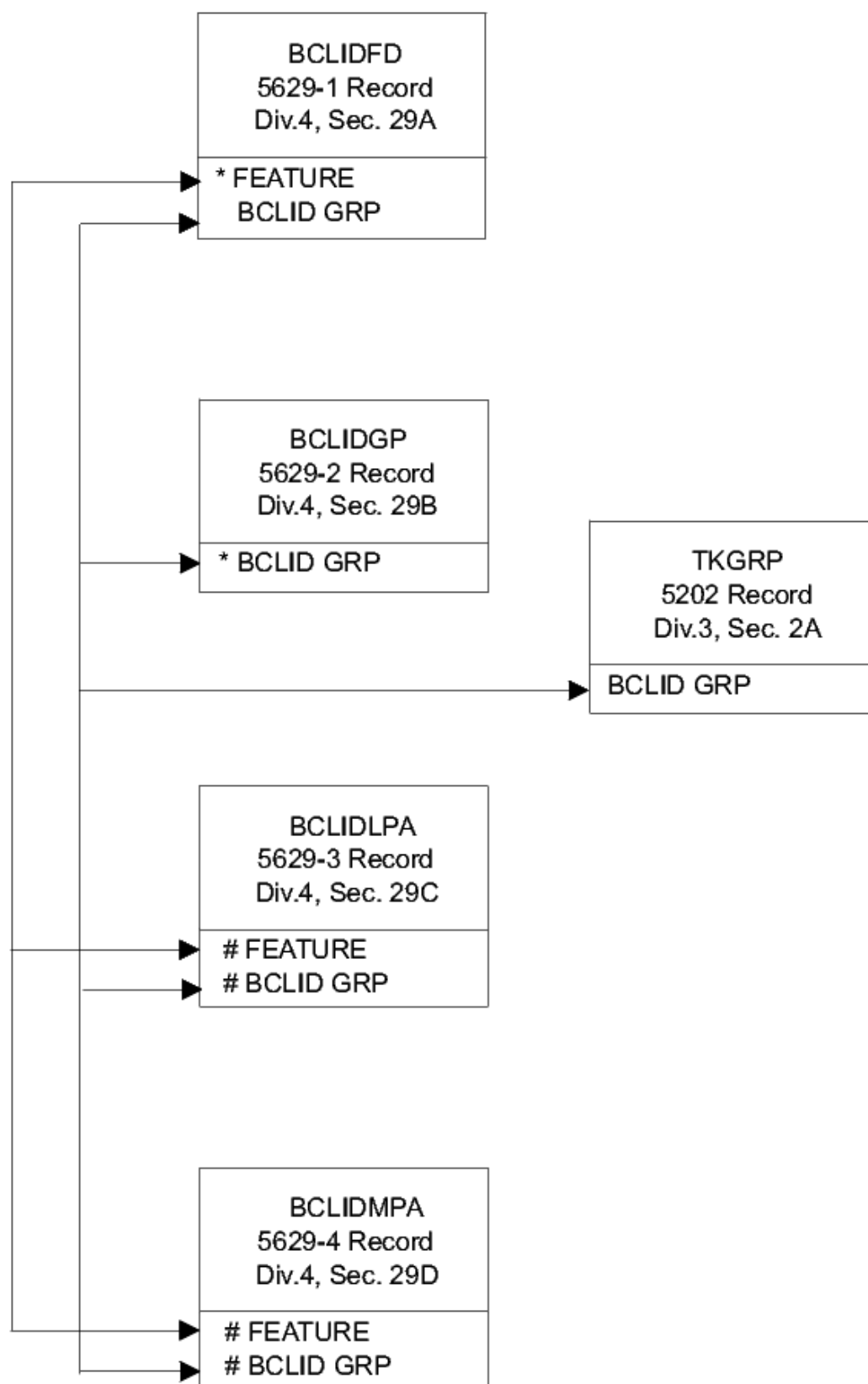


Figure 1 FORM FLOW - BULK CALLING LINE IDENTIFICATION

SEC. 1Z: LASS SELECTIVE FEATURES

1. INTRODUCTION

LSF (LASS Selective Features) are available in 5E6 and later Software Releases. The LSF are: SCA (Selective Call Acceptance), CAR (Computer Access Restriction), SCF (Selective Call Forwarding), SCR (Selective Call Rejection) and SDA (Selective Distinctive Alert).

The LSF are available for:

- intraswitch calls.
- interswitch calls provided there is CCS7 (Common Channel Signaling 7) connectivity or PRI connectivity between the originating and terminating offices.

For a detailed description of LASS (Local Area Signaling Services) Features, see AT&T 235-190-130.

2. LASS SELECTIVE FEATURES

2.1 LASS Selective Call Acceptance

Selective Call Acceptance allows residential and business subscribers to restrict which incoming voice calls will be allowed to terminate, based on the TNs entered in the Screening List.

For all terminating calls, the TN of the calling party is compared to the TNs entered in the Screening List. Only the TNs that match a TN on the Screening List will be allowed to terminate.

Calls that are not accepted will be sent to an announcement or may be forwarded to an alternate TN (forward to DN) depending on the user's selection at activation time.

The Screening List is created by the user during an SLE (Screen List Editing) session which is accessed via a dial code. The TNs entered in the Screening List may be 7- or 10-digit telephone numbers. For business users with IDPs (Individualized Dialing Plans), a 1- to 7-digit extension may be entered. The user may activate/deactivate the SCA feature via feature button or during the SLE session.

A user cannot be assigned the SCA feature and the CAR feature.

2.2 LASS Computer Access Restriction

Computer Access Restriction allows a business or residential subscriber to restrict the access of calling parties to the user's computer, based on the TNs entered in the Screening List. This provides the user control over who can access the computer.

For all terminating calls, the TN of the calling party is compared to the TNs entered in the Screening List. Only the TNs that match a TN on the Screening List will be allowed to terminate.

Calls that are not accepted will be sent to an announcement or may be forwarded to an alternate TN (forward to DN) depending on the user's selection at activation time.

The Screening List is created by the user during an SLE session which is accessed via a dial code. The TNs entered in the Screening List may be 7- or 10-digit telephone numbers. For business users with IDPs, a 1- to 7-digit extension may be entered. The user may activate/deactivate the CAR feature via feature button or during the SLE session.

A user cannot be assigned the CAR feature and the SCA feature.

2.3 LASS Selective Call Rejection

Selective Call Rejection allows residential and business users to select which incoming voice calls will be rejected, based on the TNs entered in the Screening List.

For all terminating calls, the TN of the calling party is compared to the TNs entered in the Screening List. Only the TNs that match a TN on the screening list will be rejected and sent to either a harsh or gentle announcement.

The Screening List is created by the user during an SLE session which is accessed via a dial code. The TNs entered in the Screening List may be 7- or 10-digit telephone numbers. For business users with IDPs, a 1- to 7-digit extension may be entered. The user may activate/deactivate the SCR feature via feature button or during the SLE session.

2.4 LASS Selective Call Forwarding

Selective Call Forwarding allows residential and business users to restrict which incoming voice calls will be forwarded to an alternate TN (forward to DN), based on the identity attribute of the calling party.

For all terminating calls, the TN of the calling party is compared to the TNs entered in the Screening List TNs. Only the TNs that match a TN on the screening list will be forwarded.

The Screening List is created by the user during an SLE session which is accessed via a dial code. The TNs entered in the Screening List may be 7- or 10-digit telephone numbers. For business users with IDPs, a 1- to 7-digit extension may be entered. The user may activate/deactivate the SCF feature via feature button or during the SLE session.

2.5 LASS Selective Distinctive Alert

Selective Distinctive Alert allows residential and business users to select which incoming voice calls will be given a distinctive ring, based on the TNs entered in the Screening List.

For all terminating calls, the TN of the calling party is compared to the TNs entered on the Screening List TNs. Only the TNs that match a TN on the screening list will be given distinctive ringing.

TNs that do not match a TN on the screening list will be given the traditional ringing tone.

The Screening List is created by the user during an SLE session which is accessed via a dial code. The TNs entered in the Screening List may be 7- or 10-digit telephone numbers. For business users with IDPs, a 1- to 7-digit extension may be entered. The user may activate/deactivate the SDA feature via feature button or during the SLE session.

3. LASS SLE SESSION

The SLE session is accessed via the appropriate LSF dial code (defined on PDIT and/or IDPDCA forms (5601-1/2 Record)). The session interactively guides users in editing Screening Lists TNs, activating an LSF, deactivating an LSF and updating the terminating treatment of the calling parties, through announcements for both analog and ISDN users. For ISDN users with terminals that have display capabilities, a display message may be provided along with the announcement.

Screen List TNs may be entered as a 7- or 10-digit TN or 1- to 7-digit extension TNs for users in an IDP group. In addition, the last calling party TN may be added to or removed from the Screening List. If a calling party has TN privacy, the added entry will be considered private and will not be voiced back or displayed to the SLE user.

All TNs may be validated before adding them to the Screen List to ensure that the calls will be screened properly during feature activation. Interoffice CCS7 connectivity, interoffice PRI connectivity, or an intraoffice TN must be provided before a TN can be validated or screened successfully. The VALIDATE LIST ENTRY must be set to "Y" on the LASSOP form (5945 Record) to provide interswitch TN validation.

4. FEATURE ASSIGNMENT

Since the LSFs are set to "UNAVAIL" by ODA, they must be turned on via RC/V view 8.18 after the switch is in service. The LSFs are turned on per SM (Switching Module) by entering "GENAVAIL" or "SUBSCR" in the corresponding LSF field. When "GENAVAIL" is entered, a default LSF (assigned on the LASSOP form) may be assigned to a particular user via a line definition form or another LSF may be assigned to a user via the corresponding feature assignment form.

4.1 Generally Available

On a GA (Generally Available) basis, the default LSFs for the office are defined on the LASSOP form by entering a preconstructed or constructed feature name in the appropriate LSF GA FEAT field.

If a constructed feature is entered on the LASSOP form, it must be defined on the associated feature definition form (e.g., LSCAFD form (5975 Record)).

The LSF does not have to be assigned to an individual line, using the traditional BRCS line assignment forms (i.e., LINEFA (5112 Record), BFG (5625 Record) or associated CLUSTER form (5600 Record)). Although, each user must have "Y" entered in the appropriate LASS Selective Feature GA field (SCA GA ALW, SCF GA ALW, SCR GA ALW and/or SDA GA ALW fields) on the DSLUSR or LINE forms in order to receive a particular LSF.

- **NOTE:** The appropriate LSF fields must be set to "GENAVAIL" on RC/V view 8.18 before the switch can provide Generally Available LSFs.
- **NOTE:** Multiline Hunt Lines may not be assigned Generally Available LSFs.
- **NOTE:** CAR is only provided on a subscription basis.

4.2 Subscription

When the Generally Available default LSF does not meet the users needs another LSF may be assigned to a line or a Multiline Hunt line. The LSF (i.e., SCA, CAR, SCR, SCF, SDA) must be assigned to an individual user's TN, which is defined on the LINE form (5109 Record), DSLUSR form (5908 Record) or MLHLN form (5111 Record), using the appropriate line assignment form, LINEFA form (5112 Record), MLHLNFA form (5113 Record), associated BFG form (5625 Record) or an associated CLUSTER form (5600 Record).

- **NOTE:** The appropriate LSF fields must be set to "GENAVAIL" or "SUBSCR" on the RC/V view 8.18 before the switch can provide subscription LSFs.

4.3 Dial Codes

The dial codes are used by the user to access the SLE session. The switch must provide at least 2 dial codes per LSF for the ODP and each IDP that allows LSFs. The pair of dial codes is needed to provide the proper announcements to users with or without access to the pound sign and asterisk buttons on their phones.

The dial codes are defined on the PDIT form (5300-2 Record) for the ODP and/or IDPDCA form (5601-1/2 Record) for users with an IDP. An ACTION of "LSFSYM" may be used by all users but provides announcements asking for pound sign and asterisk buttons to be entered rather than digit keys on the user's phone. An ACTION of "LSFNOSYM" may be used by all users but provides announcements asking for digit keys to be entered rather than pound sign and asterisk buttons on the user's phone. Each of the ACTIONS must have a corresponding LSF entered in the FEATURE field.

For IDP groups which have asterisks and/or pound signs in their Individualized Dialing Plan, the SLE SYMBOL field must be entered on the IDPGP form (5601-4 Record) to allow the appropriate symbols to be entered with an extension or Forward to DN during an SLE session.

4.4 Feature Buttons

LSF feature buttons may be defined for ISDN users to toggle between LSF activation and deactivation. The feature button does not allow the user to begin an SLE session. The feature buttons must be defined on the CFGGRP form (5964 Record) with an ACTION of "SCAFB", "SCFFB", "SCRFB" and/or "SDAFB" and the corresponding FEATURE field must be assigned the appropriate LSF name, defined on the LSCAFD/LSCARFD (5975 Record/5979 Record), LSDAFD (5978 Record), LSCFFD (5976 Record) and/or LSCRFD forms (5977 Record).

■ **NOTE:** "SCAFB" is used for both SCA and CAR.

4.5 DSU2-RAF-DTA Announcements

The LASS SLE session provides announcements (standard input data provided by ODA) on the following forms: ANNHD (5531 Record), ANNDG (5532 Record) and PHRASE (5534 Record).

■ **NOTE:** The LASS APPLICATION must be entered on the ANNAPL form (5529 Record) before Standard Input Data will be provided for the ANNHD form (5531 Record) and ANNDG form (5532 Record).

The announcements are invoked by the user dialing an access code. The access code alerts the switch that a LASS fixed route type (defined on the FIXRT form (5301-1 Record) with a value of "SLE") is needed. The fixed route type determines which route index, defined on the RTIDX form (5303 Record) is needed to route the call over the trunk (TKGRP form (5202 Record), and TRUNK form (5204 Record)) to the DSU2-RAF (Digital Service Unit Model 2 - Recorded Announcement Function). The DSU2-RAF and its announcement packs are defined on the EQRA form (5821 Record) and EQRAP form (5822 Record).

4.6 13A Announcements

The 13A announcements are needed to provide SCA, CAR, and SCR rejection announcements to the calling parties that fail the LSF screening. The route indexes are assigned on the LASSOP form and must be defined on the RTIDX form. The route index is used to access the announcement trunks (TRUNK and TKGRP forms).

4.7 ISDN Display Messages

The ISDN display messages may be displayed (standard input data provided by ODA on the DISPMSG form (5980 Record)) to the user during an SLE session, if the following attributes are assigned:

- A. The user is defined on the DSLUSR form and the DISPLAY field has a value of "Y", indicating the terminal has display capabilities.
- B. The user has a CLASS OF SERVICE set to "ISDN" on the associated LCC form (5306 Record).

NOTE: The Standard Input Data must reside on the originating SM of the LASS SLE user. Also, an ISDN user must reside on the SM before the Standard Input Data is provided by ODA.

5. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.1, 1.2, 1.3, 1.4, 1.5, 1.6
MLHLN	5111	3	1K	3.2
LINEFA	5112	3	1L	1.8, 1.11, 1.12
MLHLNFA	5113	3	1M	3.8, 3.11, 3.12
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5
PDIT	5300-2	3	3B	9.2
FIXRT	5301-1	3	3G	10.1
RTIDX	5303	3	3P	10.2
ANNAPL	5529	3	5AC	8.64
ANNHD	5531	3	5AE	8.61
ANNDG	5532	3	5AF	8.60
PHRASE	5534	3	5AH	8.63
DSAPP	5537	3	5AK	8.17
CLUSTR	5600	4	1A	12.2
BFG	5625	4	26A	12.9
IDPDCA	5601-1/2	4	2B	9.13
IDPGP	5601-4	4	2D	9.10
DSLUSR	5908	5	1I	23.2
LASSOP	5945	5	5F	8.21
CFGGRP	5964	6	7A	12.5
LSCAFD	5975	6	18	12.55
LSCARFD	5979	6	22	12.54
LSDAFD	5978	6	21	12.58
LSCFFD	5976	6	19	12.56
LSCRFD	5977	6	20	12.57
DISPMMSG	5980	6	23	8.65
LSSLE	5981	6	24	4.48
EQRA	5821	8	35	19.10
EQRAP	5822	8	36	20.10, 20.22

5.1 Line Translations

LINE form (5109 Record) - This form is used to define the LASS user. The SCA GA ALW, SDA GA ALW, SCF GA ALW and SCR GA ALW fields indicate which features are available on the line for the generally available basis.

MLHLN form (5111 Record) - This form defines a member of a hunt group which has an LSF assigned. The feature may be assigned to terminal 1 or a terminal which has the NONHUNT field set to "Y".

NOTE: Generally Available LSFs are not available to members of a hunt group.

LINEFA form (5112 Record) - This form is used to assign the LSF to a line (defined on the LINE or DSLUSR form) on a subscription basis.

MLHLNFA form (5113 Record) - This form is used to assign the LSF to a terminal (defined on the MLHLN or DSLUSR form) on a subscription basis.

5.2 Trunk Translations

TKGRP form (5202 Record) - This form defines the DSU2-RAF and 13A Announcement Trunk Groups. The following fields must be entered to receive the LASS SLE announcements:

Field	Value
TRK DIR	"RAF"
TRKCLS	"RAFDTA"
SVC GRP	"RAS"

The following fields must be entered to receive 13A announcements for SCA, CAR, and SCR rejection announcements:

Field	Value
TRK DIR	"ANN"
TRKCLS	"ANNCMNT"
HUNT TYPE	"FIFO"

The route indexes are assigned on the LASSOP form and should be defined on the RTIDX form.

TRUNK form (5204 Record) - This form defines the RAF EN for each trunk member that will provide DSU2-RAF announcements. Also, the TEN's are defined for 13A announcements.

For RAF EN assignments, the RAF's channel numbers should be assigned sequentially beginning at channel 2 leaving holes where stuffing pattern 1, 2, or 3 indicates (see stuffing patterns in Division 3, Section 2Q). The stuffing pattern is determined by RAF unit and DATA GROUP. The lowest numbered RAF unit (defined on the EQRA form) per DATA GROUP (data interface 0 or 1) should receive stuffing pattern 1, the next lowest should receive pattern 2, the next lowest should receive pattern 3, the next lowest would then receive pattern 1, and etc. (See Division 8, Section 22 for information on Time Slot engineering.

5.3 Routing and Charging Translations

PDIT form (5300-2 Record) - LASS dial codes for the Office Dialing Plan are defined on the form.

Valid ACTION Entries	
Entry	Definition
LSFSYM	The LSF action prompts the user for asterisks and pound signs during an SLE session.
LSFNOSYM	The LSF action prompts the user for digits rather than the pound sign and asterisk during an SLE session.

FIXRT form (5301-1 Record) - This form defines the FIXED ROUTE TYPE of "SLE" which selects the route index needed to access the DSU2-RAF Announcement Trunk group. The ROUTE INDEX must be defined on the RTIDX form.

RTIDX form (5303 Record) - This form defines the ROUTE INDEX which is used to access the DSU2-RAF and 13A Announcement Trunk Groups. The TGN must be defined on the TKGRP form.

5.4 Miscellaneous Translations

ANNAPL form (5529 Record) - The Announcement Application view determines what type of announcements will be provided for a particular SM. An APPLICATION with a value of "LASS" must be entered for the SMs where the DSU2-RAF for LASS announcements is attached.

ANNHD form (5531 Record) - The Announcement Header Phrase List form contains phrase identifications that comprise announcement headers. A standard set of data is provided by ODA as each office is built and normally no data need be entered by the ODA system users.

ANNDG form (5532 Record) - The Announcement Digit Inflection Scheme form contains the inflection

commands and phrase identifications that comprise a template for digit strings. A standard set of data is provided by ODA as each office is built and normally no data need be entered by the ODA system users.

PHRASE form (5534 Record) - The Announcement Phrase List form defines the phrases that comprise announcements. A standard set of data is provided by ODA as each office is built and normally no data need be entered by the ODA system users.

DSAPP form (5537 Record) - This form is used to specify information for CCS7. The application "LASS" should be assigned.

5.5 BRCS Translations

CLUSTER form (5600 Record) - This form allows the LSFs to be assigned to a user by grouping features together under a CLUSTER NAME.

BFG form (5625 Record) - This form allows the LSFs to be assigned to a user by grouping features together under a BFG NAME.

IDPDCA form (5601 Record) - LASS dial codes for the Individual Dialing Plans are defined on this form. The corresponding ACTIONS are:

Valid ACTION Entries	
Entry	Definition
LSFSYM	The LSF action prompts the user for asterisks and pound signs during an SLE session.
LSFNOSYM	The LSF action prompts the user for digits rather than the pound sign and asterisk during an SLE session.

IDPGP form (5601-4 Record) - This form is used to define an IDP group. The SLE SYMBOL field determines which symbols (i.e., '*', '#') an IDP user may use during an SLE Session.

5.6 ISDN/Packet Switching Translations

DSLUSR form (5908 Record) - The SCA GA ALW, SDA GA ALW, SCF GA ALW and SCR GA ALW fields indicate which features are available on the line for the generally available basis.

LASSOP form (5945 Record) - Defines office parameters for LASS features. This form contains default parameters for LSFs.

5.7 ISDN BRCS Translations

CFGGRP form (5964 Record) - This form defines the LASS feature buttons which activate/deactivate the LSFs.

Valid ACTION Entries	
Entry	Definition
SCAFB	LASS Selective Call Acceptance and Computer Access Restriction Feature Button
SCFFB	LASS Selective Call Forwarding Feature Button
SCRFB	LASS Selective Call Rejection Feature Button
SDAFB	LASS Selective Distinctive Alert Feature Button

LSCAFD form (5975 Record) - This form is used to define a constructed SCA feature. Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line). All users (defined on the LINE, DSLUSR or MLHLN form) that are assigned this feature must have a CLASS OF SERVICE with a value of "ISDN", "INDIV", "4WINDIV" or "PBX" defined on the LCC form.

LSCARFD form (5979 Record) - This form is used to define a constructed CAR feature. Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line). All users (defined on the LINE, DSLUSR or MLHLN form) that are assigned this feature must have a CLASS OF SERVICE with a value of "ISDN", "INDIV", "4WINDIV" or "PBX" defined on the LCC form.

LSDAFD form (5978 Record) - This form is used to define a constructed SDA feature. Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line). All users (defined on the LINE, DSLUSR or MLHLN form) that are assigned this feature must have a CLASS OF SERVICE with a value of "ISDN", "INDIV" or "PBX" defined on the LCC form.

LSCFFD form (5976 Record) - This form is used to define a constructed SCF feature. Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line). All users (defined on the LINE, DSLUSR or MLHLN form) that are assigned this feature must have a CLASS OF SERVICE with a value of "ISDN", "INDIV", "4WINDIV" or "PBX" defined on the LCC form.

LSCRFD form (5977 Record) - This form is used to define a constructed SCR feature. Several preconstructed features are provided. The feature name is used to assign the feature to each terminal (line). All users (defined on the LINE form, DSLUSR form or MLHLN form) that are assigned this feature must have a CLASS OF SERVICE with a value of "ISDN", "INDIV", "4WINDIV" or "PBX" defined on the LCC form.

DISPMSG form (5980 Record) - This form provides the messages that are displayed to the user during an SLE Session. A standard set of data is provided by ODA as each office is built and normally no data need be entered by the ODA system users.

- **NOTE:** For retrofits, an ISDN user must be defined on the SM before the display messages will be loaded into the SM.

LSSLE form (5981 Record) - This form is used by the ODA system users to manually provide LASS Screen List entries to users that may not have the ability to activate an SLE Session which creates screen list entries.

5.8 Engineering Assignments

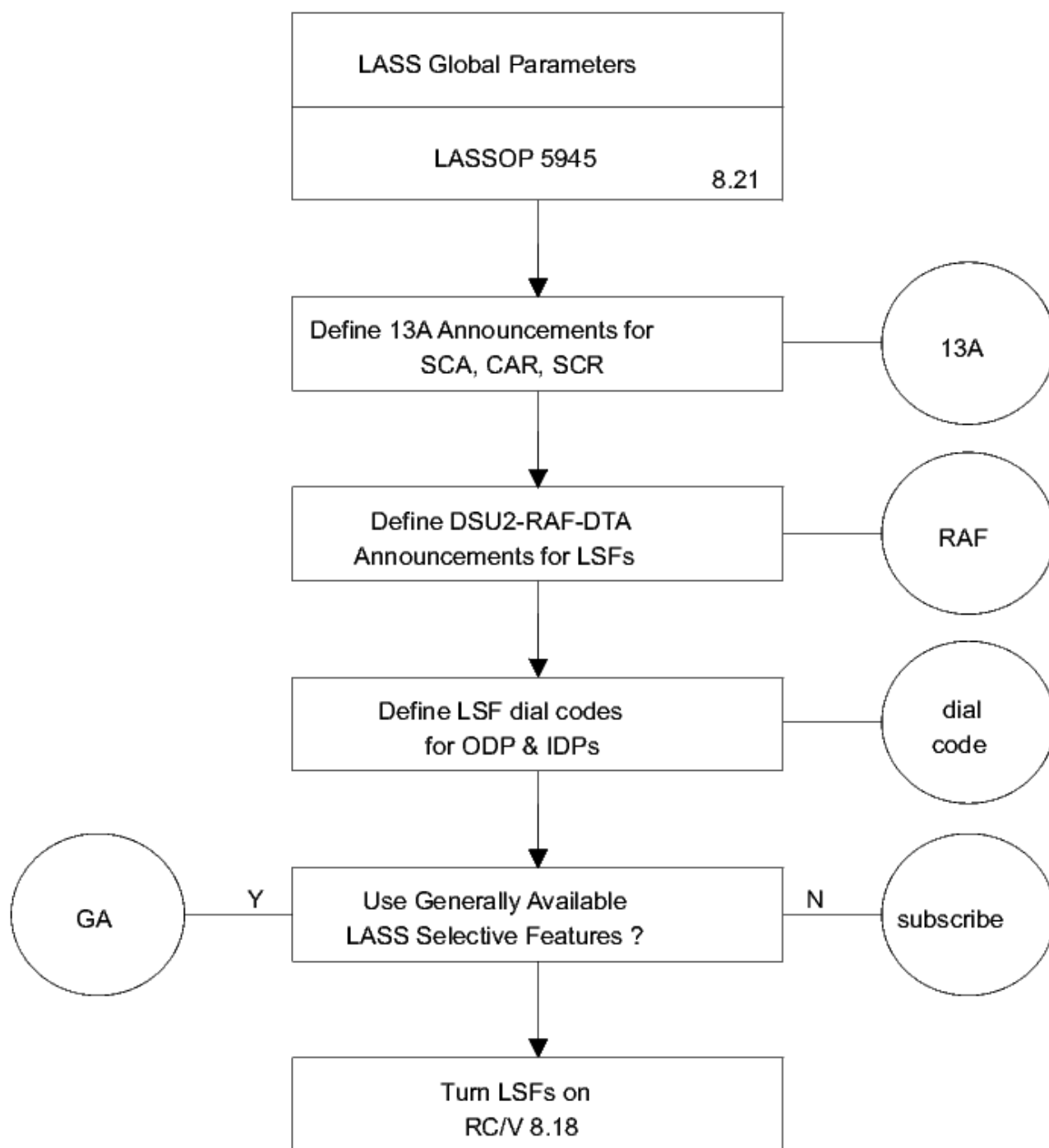
EQRA form (5821 Record) - This form defines the RAF (Recorded Announcement Function) unit. The RAF SERVICE TYPE must have a value of "DTA" for Dial Through Announcements.

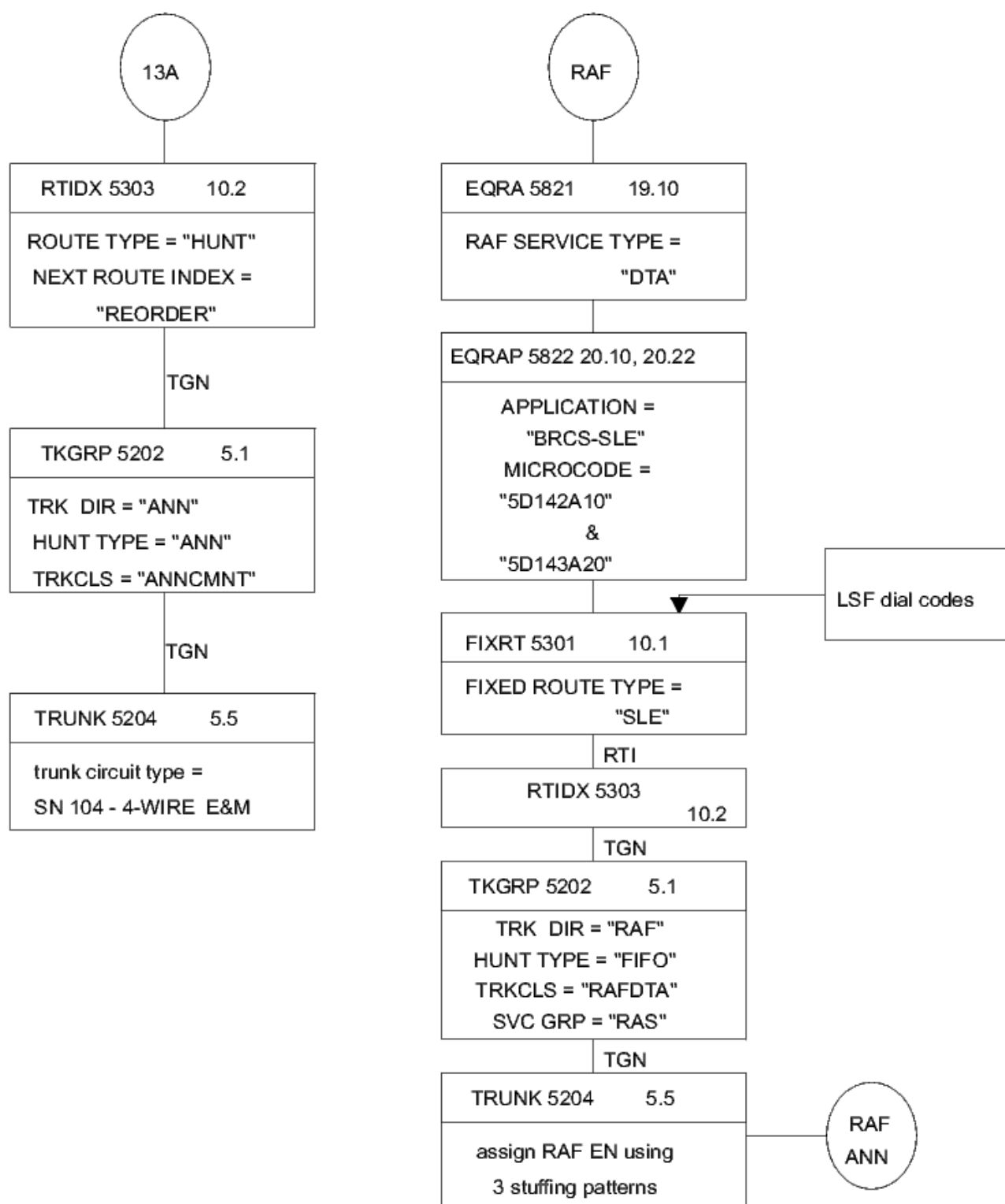
The RAF circuit packs must be defined on the EQRAP form. Also, an associated TRUNK form must be entered with a RAF EN defined.

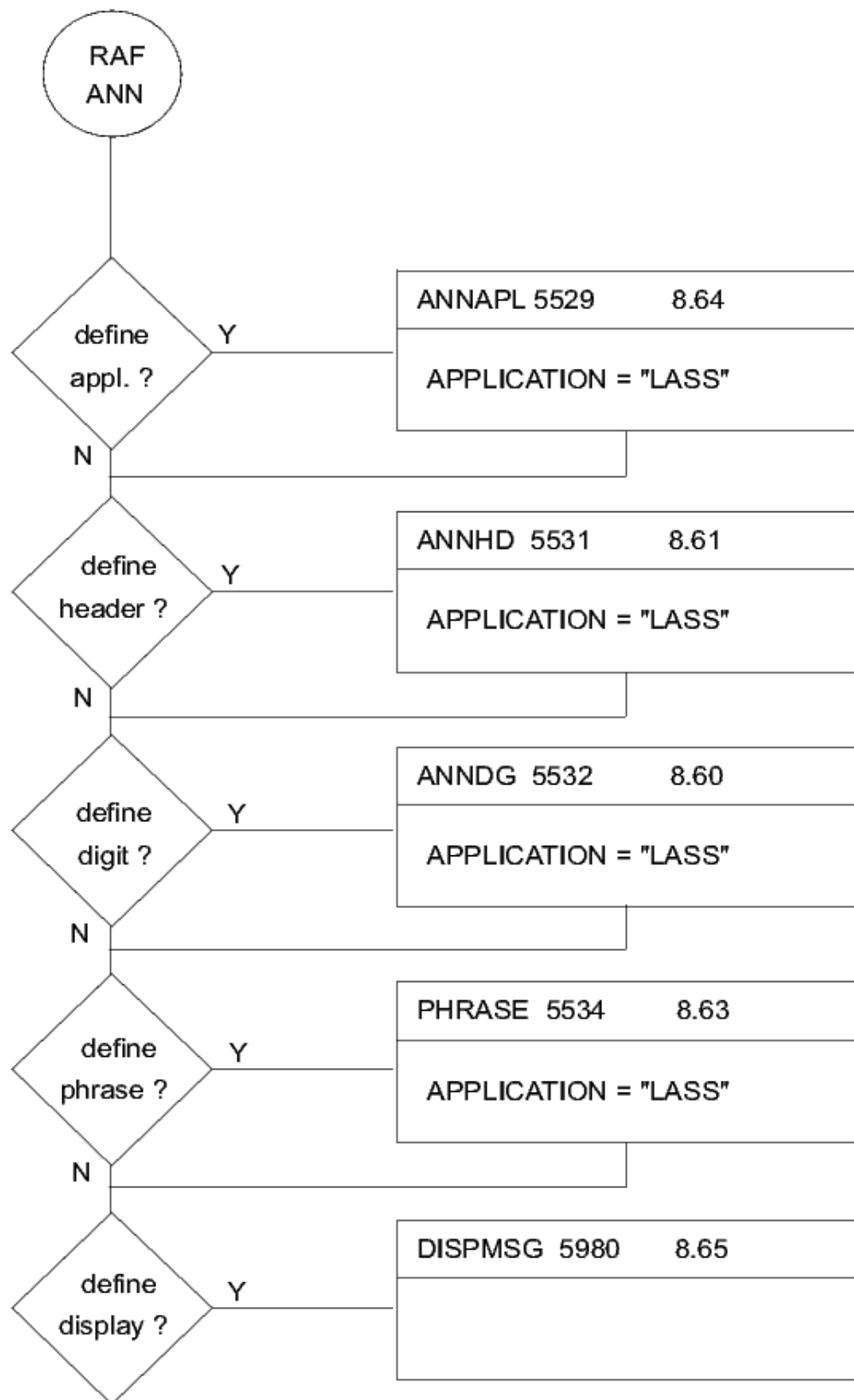
EQRAP form (5822 Record) - This form defines the RAF circuit packs. The SM must be defined on the EQIM form (5700-1 Record). The following fields must be entered:

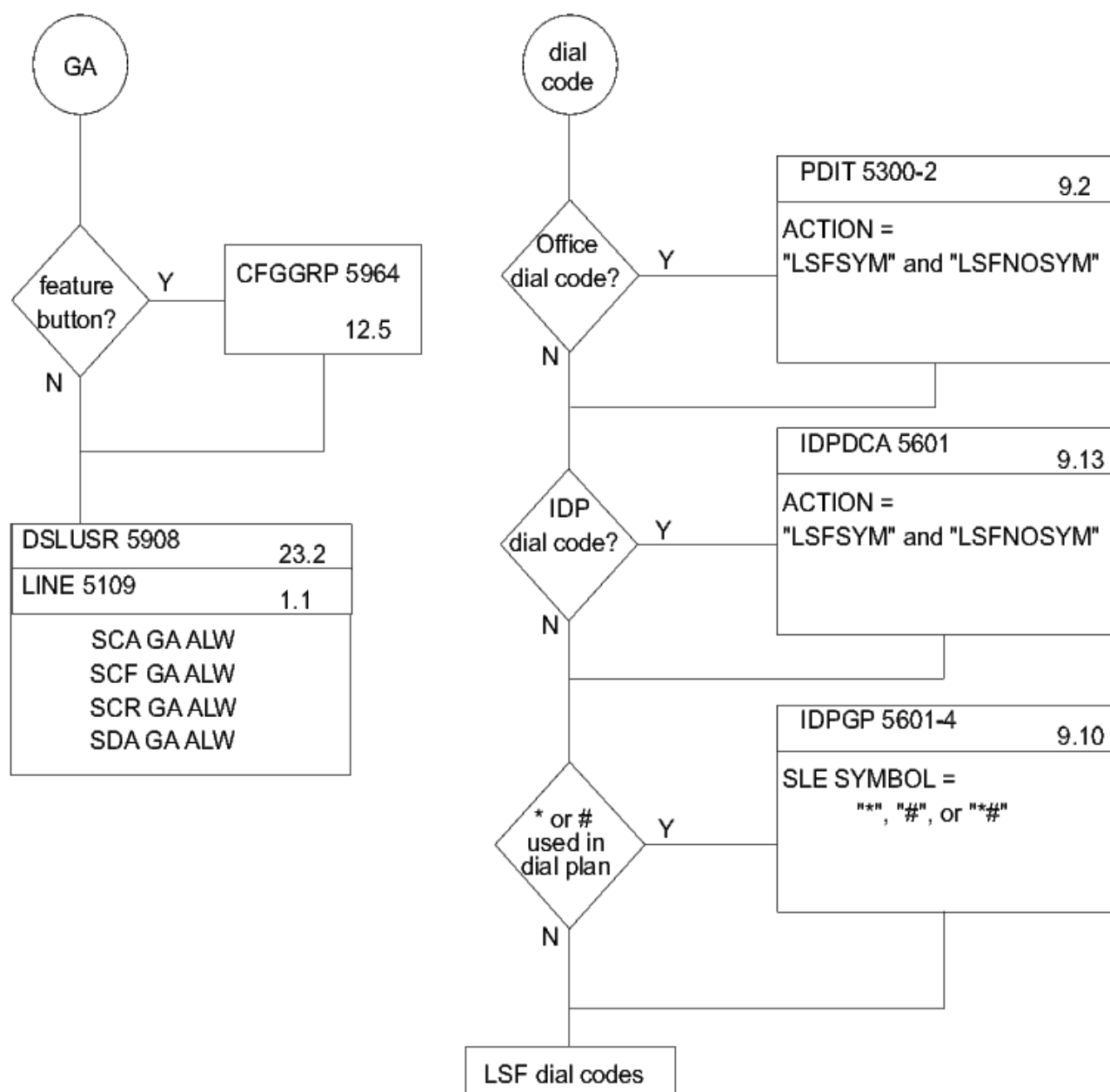
Field	Pack1	Pack2
APPLICATION	BRCS-SLE	—
MICROCODE	5D142A10	5D143A20

Also, pack 3 may be included for customized announcements with a MICROCODE of 5D155xxx, where x will be provided on the pack.









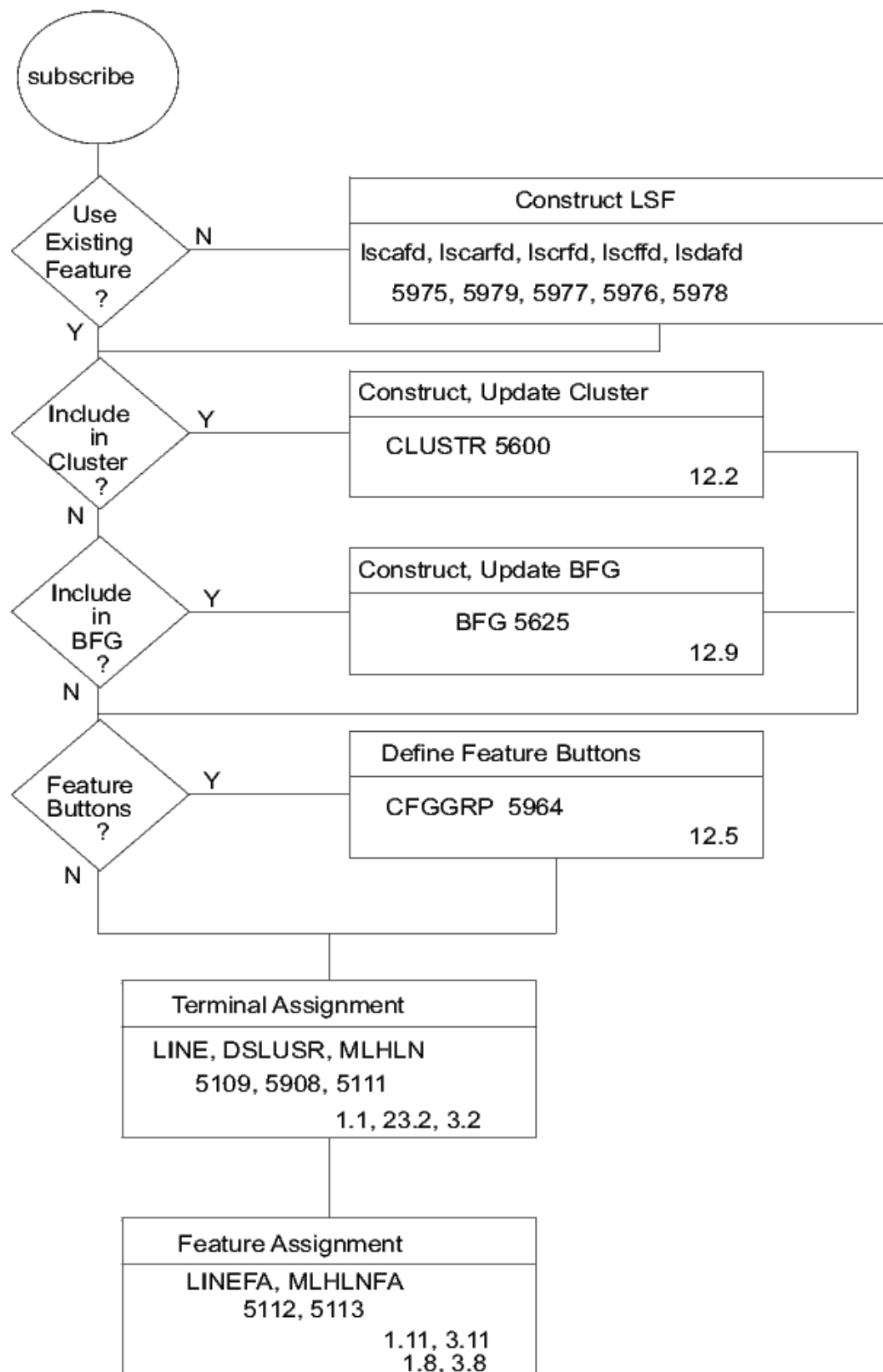


Figure 1 LASS SELECTIVE FEATURES FORM FLOW

SEC. 1AA: MULTIPOINT DIGITAL SUBSCRIBER LINE FEATURE DESCRIPTION

1. GENERAL OVERVIEW

The MP-DSL (Multipoint Digital Subscriber Line) feature is available with 5E5 and later Software Releases. The feature gives the ISDN (Integrated Services Digital Network) customer the ability to optimize the utilization of DSL resources. Prior to the 5E5 Software Release, a single DSL (also referred to as a Basic Rate Interface) could provide service to a single user. The MP-DSL feature allows a single DSL to provide service to a maximum of eight users.

Each DSL is comprised of two B-channels and one D-channel.

The B-channels operate at 64 kb/s (kilobits per second) and can carry Circuit Switched Voice, Circuit Switched Data or Packet Switched Data using the X.25 protocol. A B-channel can only be used for one of the three services, by one user, at any given point in time. It is extremely important to realize, when engineering DSL usage, that there will be contention for B-channel services. The application of shared telephone numbers (numbers which appear at more than one terminal) and multiple telephone numbers (more than one number at the same terminal) must also be factored into contention considerations.

The D-channel operates at 16 kb/s and can carry packet switched data using the X.25 protocol and signaling using the Q.931 protocol.

2. FUNDAMENTAL CONCEPTS

There are several fundamental concepts and companion terminology associated with the MP-DSL feature.

2.1 ISDN Terminals

The TERMINAL is the ISDN set connected to the DSL. The abilities of the TERMINAL have major ramifications for the variety of MP-DSL that is applied, as explained in the VARIETIES OF DIGITAL SUBSCRIBER LINE SERVICE section.

TERMINALS employed in the 5E4(2) Software Release ISDN scenario are unable to "identify" themselves to the MP-DSL initialization software. These terminals are referred to as non-EPID (End Point Identification) TERMINALS or BITs (Base Initializing TERMINALS).

TERMINALS which can "identify" themselves to the MP-DSL initialization software are referred to as, conversely, EPID TERMINALS. EPID TERMINALS are either NIT (Non-Initializing TERMINALS) or FIT (Fully Initializing TERMINALS). A FIT TERMINAL is identified by a SPID (SERVICE PROFILE IDENTIFICATION), which will be explained later in this section. A NIT TERMINAL can be identified by the 5ESS Switch via the combination of a directory number and the services of which it partakes. NIT TERMINALS cannot support multi-line hunt group members, key systems, multiple directory numbers, permanent virtual circuits, feature buttons, the EDS (Electronic Directory Service) feature or the MSS (Message Service System) feature.

The USER is basically inseparable from the TERMINAL. The 5ESS Switch software is incapable of determining "who" is using the TERMINAL, just as in the POTS voice world, the software cannot ascertain "who" picked up the handset and desired service, but rather that a phone connected to a particular port has gone off-hook. The word USER is applied throughout the MP-DSL feature documentation.

2.2 USOP

The USOP (USER SERVICE ORDER PROFILE) is generated by the 5ESS Switch software. It includes an

internally derived customer identification, the directory number or numbers associated with a USER, the call appearances associated with the USER, the ISDN packet and/or circuit services the USER has provisioned, the billing directory number associated with the USER, and the features to which the USER has subscribed. The 5ESS Switch uses the USOP to internally recognize a USER.

2.3 SPID

The SPID (SERVICE PROFILE IDENTIFICATION) is used by the 5ESS Switch to determine which USOP on a DSL is "bound" to which USER on that DSL.

2.4 SPID - 5E8 and Earlier

For 5E8 and earlier, the SPID is constructed from the Telephone Numbers/MLHG memberships that are related to a USER. These Telephone Numbers/MLHG memberships are entered on a DSLUSR form (refer to the DSL AND DSLUSR INPUT FORMS section). The DSLUSR form has seven optional key fields: CKT TN; DPKT TN; ODB TN; CKT MLHG and CKT TERM; and, DPKT MLHG and DPKT TERM (refer to Division 5, Section 1H for a complete explanation of these fields).

The SPID is based on an EPDN (Extended Primary DN). The algorithm which generates a SPID determines the EPDN, from the DSLUSR form entries, in the following hierarchical manner:

- If the CKT TN is entered, it is suffixed with a 0 to produce the EPDN.
- If the CKT MLHG and CKT TERM combination are entered and a CKT MLHG TN (not an optional key field) is entered, the CKT MLHG TN is suffixed with a 0 to produce the EPDN.
- If the CKT MLHG and CKT TERM combination are entered, but a CKT MLHG TN is not entered, the CKT MLHG and CKT TERM are concatenated to produce the EPDN.
- If the ODB TN is entered, it is suffixed with a 0 to produce the EPDN.
- If the DPKT TN is entered, it is suffixed with a 0 to produce the EPDN.
- If the DPKT MLHG and DPKT TERM combination are entered and a DPKT MLHG TN (not an optional key field) is entered, the DPKT MLHG TN is suffixed with a 0 to produce the EPDN.
- If the DPKT MLHG and DPKT TERM combination are entered, but a DPKT MLHG TN is not entered, the DPKT MLHG and DPKT TERM are concatenated to produce the EPDN.

Additionally, the SPID has two other sub-components. First, the SPID marks if the EPDN was built from a Telephone Number (suffixed by 0) or from the concatenation of an MLHG and TERM. Second, the SPID marks if the EPDN is related to a Packet function or a Circuit function.

The SPID can be programmed into the firmware of a TERMINAL (FIT only) or can be entered by the USER when accessing certain services. The 5ESS Switch uses the SPID to externally recognize a TERMINAL, which is CPE (Customer Premises Equipment). The customer can see a SPID via the ODA output-only Record 5908-A or the Recent Change view 23.1. Examples of the construction of and display of a SPID are in order.

Example: The EPDN is produced from a CKT TN of 5551234. Thus, the EPDN is 55512340. It is built from a TN and is related to a Circuit function.

Example: The EPDN is produced from a DPKT MLHG of 1000 and a DPKT TERM of 2000. There is no DPKT

MLHG TN. Thus, the EPDN is 10002000. It is built from an MLHG and is related to a Packet function.

Example 1 will be displayed, on Recent Change view 23.1, as "0155512340". The first digit (0) indicates that the EPDN came from a TN and the second digit (1) indicates that it is related to a Circuit function.

Example 2 will be displayed, on Recent Change view 23.1, as "1310002000". The first digit (1) indicates that the EPDN came from a MLHG and the second digit (3) indicates that it is related to a Packet function.

2.5 SPID Feature Definition - 5E9(1) and Later

For 5E9(1) and later, the SPID is no longer computed by the system but must be provisioned and administered by the service provider, e.g., the Telephone Company.

The Bellcore specification for National ISDN defines the SPID with two parts: the USPID (User Service Profile Identifier) and the TID (Terminal Identifier). For the National ISDN Standard Interface, the TID, which is the last two digits of the SPID, is specified by the subscriber's ISDN administrator and, with the USPID, is programmed by the end-user into the non-volatile memory of the terminal; the AT&T Custom interface does not use the TID.

Although the TID is not maintained on the switch, the USPID is. The USPID is a variable length numeric identifier which must be entered on every DSLUSR form on which an OE is entered. USPIDs must be assigned by the service providers for custom and standard interface users and must uniquely identify each user.

The USPID assigned for point-to-point, restricted multi-point, and multi-point users on custom DSLs may vary in length from 1-10 digits. To maintain cross-release compatibility, the USPID for a custom DSL user may never exceed 10 digits in length.

For standard DSLs the USPID may be 1-18 digits in length.

Besides appearing on the DSLUSR form (5908 Record), the USPID also appears on the 5908A and 5908B output-only records described in Division 5, Section 1K. The 5908A Record is sorted by the Office Equipment number, while the 5908B Record is ordered by USPID.

When an office retrofits from the 5E8 to the 5E9(1) Software Release, SPIDs that were automatically generated in earlier releases will be carried forward and stored in the new USPID field. They need not be entered by the service providers.

2.6 Additional SPID Feature Definition Information - 5E12 and Later with NPA-NXX Growth (SFID198) provided.

There are no changes to the underlying rules for provisioning USPIDs on the switch. However, note the following discussion on how USPIDs are formed, and the implications for the service provider.

A User Service Order Profile Identifier (USPID) is assigned for each User Service Order Profile (USOP) assigned on an ISDN line. The USPID, the provisioned portion of the SPID, is chosen by the service provider when the USOP is assigned to the ISDN line, and is (1) entered via a RC view into the switch and (2) programmed into the CPE's SPID. Each USPID MUST BE UNIQUE on the switch. For Custom ISDN, the USPID is the same as the SPID and can be from one to ten digits long. For National ISDN, the USPID can be from one to eighteen digits long, and the SPID includes the USPID plus a two-digit TID. Although the SPID can be up to 20 digits long in National ISDN, the National ISDN Council has recommended the use of a fourteen-digit SPID which provides for a ten-digit DN.

A common algorithm used by the service provider to assign USPID values, especially for Custom ISDN, produces a ten-digit USPID that includes the seven-digit DN (i.e. without the NPA). When the NPA-NXX Growth special feature is active, depending on the information encoded in the additional three digits, using seven-digit DNs may no longer produce unique USPIDs. The service provider must adopt a different algorithm for creating SPIDs, taking into consideration the ten-digit limitation for Custom USPIDs, and all currently assigned Custom and National USPIDs (i.e., USPIDs already programmed in the CPE's SPID cannot be changed without also reprogramming the CPE).

Thus since the seven-digit DN is no longer a guarantee of a unique DN on the switch, service providers should examine the algorithms they use for generating SPIDs, with the expectation of changing the algorithms to insure the SPIDs are unique.

2.7 SPID Translation Requirements - 5E9(1) and Later

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
DSLUSR	5908	5	1I	23.2
—	5908A/B	5	1K	23.2

DSLUSR form (5908 Record) - This form is used to define the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, D-channel packet attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases.

For 5E9(1) and later, the USPID field was added to allow the switch owner to provision part of the SPID, which identifies a terminal to the switch during initialization. It is a unique identifier for each DSL user in the office. The USPID may be 1 - 18 characters in length, with the restrictions stated above.

5908A/B Records - These records are output-only records that list all DSL users in the office. The 5908A records are sorted by Office Equipment number; the 5908B record is sorted by USPID.

2.8 Relationships

There is a one-to-one correspondence between a USER, a USOP, a TERMINAL and a SPID. The four are related together. The TERMINAL (non-EPID or EPID), the USOP and, for 5E8 and earlier, the SPID, do not appear on any ODA input forms, though some or all sub-components of the USOP and the SPID appear. The reason they are presented in this ODA-specific document is for the sake of clarity and understanding.

The word "bound" has been used. The MP-DSL software must be able to determine the "bind" between the USER, the USOP, the TERMINAL and the SPID in order to identify the requester of services and what services the requester has provisioned. The DSL facilities are being shared by a maximum of eight USERS; their individual identities and attributes must be clearly distinguishable to the 5ESS Switch.

3. AUTOMATIC CUSTOMER STATION REARRANGEMENT AND DEFAULT SERVICE

Two additional important concepts are the ACSR (Automatic Customer Station Rearrangement) feature and the Default Service feature.

3.1 ACSR

ACSR allows a USER to move the TERMINAL to another DSL and still maintain all the directory numbers, ISDN services and features associated with the USER (e.g. the USOP). The DSL that the USER moves to must belong to the same ACSR Group as the DSL the USER was with originally.

ACSR also allows the USER to remain at the same TERMINAL, but have a new USOP "bound" to that TERMINAL.

The ACSR software conducts an interactive session with the USER to achieve the desired result in either of the two cases. This interactive session is invoked applying circuit switched voice service. Thus, the USER must have circuit switched voice service provisioned and a circuit telephone number defined.

The combination of an ACSR group and a Default Service feature allow the customer to provision a DSL, with an ACSR group and a Default Service feature, but not define any USERS of the DSL. The USERS can be added later through ACSR and Default Service. This is very valuable in a scenario that involves imminent growth or movement. Refer to the table in the AVAILABLE SERVICE COMBINATIONS section for additional information related to this case.

3.2 Default Service

The ACSR feature always requires that the DSL has Default Service. Default Service permits a USER at a TERMINAL that the 5ESS Switch cannot identify (a non-EPID TERMINAL or a TERMINAL in a multi-user environment with a mismatched SPID) to be given access to ACSR services and to 911 services.

ACSR can be assigned to a DSL and to an individual USER. A DSL can be in only one ACSR Group. A USER can be in only one ACSR Group. A USER that is in an ACSR Group cannot be defined on a DSL that is not in an ACSR Group. A USER that is not in an ACSR Group can use a DSL that is in an ACSR Group. If a USER that is in an ACSR Group wishes to use a DSL that is in an ACSR Group, then the two ACSR Groups must be one and the same.

ACSR cannot be used in conjunction with Permanent Packet B-Switching (to be explained later), voice members of a multiline hunt group or with modem pooling.

Default Service is always associated with a DSL. It is never associated with an individual USER.

4. VARIETIES OF DIGITAL SUBSCRIBER LINE SERVICE

There are three varieties of the MP-DSL feature in 5E5 and later Software Releases.

4.1 Point-to-Point (Single Point) DSL

The first variety, Point-to-Point (or Single Point) DSL can have only one "active" USER. An active USER can receive DSL services. A maximum of eight USERS can be "provisioned". A "provisioned" USER has DSL services and features assigned, but the USER cannot receive service until it becomes an active USER.

Point-to-Point DSL can handle EPID or non-EPID TERMINALS, though the 5ESS Switch software cannot identify the TERMINAL. If a USER wishes to change the USOP bound to the TERMINAL, then the DSL must have an ACSR Group and Default Service.

Point-to-Point DSL is required for an AP (Application Processor). The DSL links to the AP are defined on the DSLAP form (5963 Record).

Point-to-Point DSL is required for an Attendant. An Attendant can only use the B1 channel.

Point-to-Point is required for OSPS (Operator Services Position System) DSLs. DSLs for OSPS applications are defined on the OSPSDSL form (5411 Record).

Point-to-Point DSL is the default for a 5ESS Switch retrofitting from the 5E4(2) Software Release to the 5E5

Software Release.

Point-to-Point DSL would be the choice of a customer who does not see a need to have more than a single USER on a DSL or does not wish to acquire EPID TERMINALS.

4.2 Restricted Multipoint DSL

The second variety, Restricted Multipoint DSL, can also have only one active USER. A maximum of eight USERS can be provisioned.

Restricted Multipoint DSL would be the choice of a customer who anticipates growth in their DSL usage and will upgrade all their non-EPID TERMINALS to EPID TERMINALS.

Restricted Multipoint DSL can handle a mixture of EPID and non-EPID TERMINALS if the DSL has Default Service. The first USER will be associated with a USOP, but every subsequent USER will receive the Default Service. If the DSL does not have Default Service, subsequent USERS will never receive any service.

ACSR can be used to update the active USOP. If ACSR is invoked from a non-EPID TERMINAL, then the active USOP will be changed to the new USOP. If ACSR is invoked from an EPID TERMINAL, then the DSL will migrate to a "pure" Multipoint DSL (to be explained later in this section) and USOPs can be added. Thus, a Restricted Multipoint DSL can be used, with ACSR, to move to a "pure" Multipoint DSL; the reverse is not possible.

Restricted Multipoint DSL cannot be used for an AP Application Processor) or for an Attendant.

4.3 Multipoint DSL

The third variety, Pure Multipoint DSL, can have a maximum of eight USERS, all of which can be provisioned as active USERS.

Pure Multipoint DSL should employ only EPID TERMINALS.

Pure Multipoint DSL cannot be used for an AP (Application Processor) or for an Attendant.

Pure Multipoint DSL would be the choice of a customer who uses multiple terminals and must optimize the available DSL resources.

The type of card used for the DSL affects the quantity of USERS. The DSL's LCEN (Line Card Equipment Number) is assigned in the DSL OE field on a DSL form (5907-1 Record). If the LCEN is defined on an ISLULC form (5942 Record) with the TYPE field set to "TLC" (T-card), then a maximum of two active users may use the DSL.

If the LCEN is defined on an ISLULC form (5942 Record) with the TYPE field set to "PULC" or "ULC" (U-card), then a maximum of eight active users may use the DSL.

5. PERMANENT AND DEMAND B-CHANNEL USAGE

An additional concept associated with the DSL feature is the variable use of the B-channels. One or both B-channels can be dedicated to Packet Switched Data using the X.25 protocol. This is accomplished by entering "X25" in the B1 SERV and/or the B2 SERV fields on the DSL form. Any other use of the B-channel, either Circuit Switched Voice or Circuit Switched Data is prohibited. B-channels which are dedicated to Packet Switching are referred to as PPB1 (Permanent Packet B1) and PPB2 (Permanent Packet B2) B-channels.

One or both B-channels can be made available to all the USERS of a DSL. This is accomplished by entering "DMD" in the B1 SERV and/or B2 SERV fields on the DSL form. The USERS may employ the B-channel for Circuit Switched Voice, Circuit Switched Data or Packet Switched Data using the X.25 protocol. B-channels which are available to all the USERS on a DSL are referred to as Demand B-channels.

6. DSL AND DSLUSR INPUT FORMS

A discussion of the combination of services available with DSL must be preceded by an explanation of the two ODA input forms, available with 5E5 and later Software Releases, that are the foundation for implementing the MP-DSL feature. Names of fields on the input forms will appear in parentheses in the explanation of the input forms.

6.1 DSL Form

The DSL input form (5907 Record) is used to define the physical aspects of the DSL, including its port (DSL OE), its Integrated Services Channel Number (ISCN) on a Packet Switch Unit, its associated Peripheral Interface Data Bus (PIDB), Time Slot (D TIMESLOT) and Quarter Time Slot (QTR TS).

The DSL input form is also used to indicate the service desired on the single D-channel (D SERV) and the two B-channels (B1 SERV and B2 SERV).

Additionally, the DSL input form is used to define the attributes of one or both B-channels, if either or both are to be Permanent Packet B-channels.

6.2 DSLUSR Form

The DSLUSR input form (5908 Record) is used to provision a maximum of eight USERS of the DSL. The critical link between the DSL input form and the eight possible associated DSLUSR input forms is the port of the DSL (OE). The DSLUSR input form is also used to define the attributes of Circuit Switched Voice and Circuit Switched Data (under the CKT SWITCHING header) for any available Demand B-channel, the attributes of D-channel Packet Switching (under the D-CHANNEL PACKET SWITCHING header) and the attributes of On Demand B-channel X.25 Packet Switching (under the ON DEMAND B-CHANNEL header) for each provisioned USER. There are not separate sections for On Demand B-channel for each B-channel because On Demand B-channel operation employs whichever B-channel is available when a request for service appears.

7. PROVISIONING B-CHANNEL USAGE

It is critical to comprehend the interplay between the DSL and DSLUSR input forms relative to B-channel usage.

If the customer opts to define, on the DSL input form, the B1-channel as Permanent Packet, then one of the USERS provisioned on a DSLUSR input form can indicate that they are "associated" with the channel. When a USER is "associated" with a Permanent Packet B-channel, the USER is allowed to Move, Copy or Swap (Recent Change operations) the Permanent Packet B-channel services to the destination DSL. The Permanent Packet B-channel services are an attribute of the DSL, not an attribute of the USER. In a Pure Multipoint environment, only one of the USERS on a DSL can have this "association". The USER would do so in the PPB1 USR field. Any USER, if they wished to avail themselves of B2-channel services, on a Demand basis, would define the attributes under the CKT SWITCHING header (for Circuit Services) and/or under the ON DEMAND B-CHANNEL header (for Packet Services). The USERS would share the B2-channel since the B1-channel is dedicated to Permanent Packet usage.

If the customer opts to define, on the DSL input form, the B2-channel as Permanent Packet, then one of the

USERS provisioned on a DSLUSR input form can indicate that they are "associated" with the channel. The USER would do so in the PPB2 USR field. Any USER, if they wished to avail themselves of B1-channel services, on a Demand basis, would define the attributes under the CKT SWITCHING header (for Circuit Services) and/or under the ON DEMAND B-CHANNEL header (for Packet Services). The USERS would share the B1-channel since the B2-channel is dedicated to Permanent Packet usage.

If the customer opts to define both B-channels as Permanent Packet, on the DSL input form, then the USERS provisioned on the DSLUSR input form cannot define the attributes under the CKT SWITCHING header (for Circuit Services) and under the On Demand B-channel header (for Packet Services) because there are no B-channels to use. A USER could use the PPB1 USR and/or the PPB2 USR fields to indicate they are "associated" with one or both of the Permanent Packet B-channels.

If the customer opts to not define either B-channel as Permanent Packet, on the DSL input form, then any USER provisioned on the DSLUSR input form can define the attributes under the CKT SWITCHING header (for Circuit Services) and under the ON DEMAND B-CHANNEL header (for Packet Services), but they cannot indicate they are "associated" with a B-channel in the PPB1 USR and PPB2 USR fields.

The four scenarios just explained made no mention of D-channel usage. The USERS, in all four scenarios, may define attributes under the DPKT header (for Packet Services) on the DSLUSR form.

Note that a customer who wished to use both B-channels for Permanent Packet, which would be indicated on the DSL input form, and had no other need for additional services on the DSL, does not have to enter any DSLUSR input forms.

This case is the most pronounced example of the fact that the concept of a Permanent Packet B-channel and the concept of a USER, a PPB1 USR and a PPB2 USR are unrelated. A USER is defined by virtue of entering a DSLUSR form, regardless of which services the USER chooses. A maximum of eight DSLUSR forms can be entered for each DSL. Defining a Permanent Packet B-channel on a DSL form has no bearing whatever on the number of USERS. It is best to think of the Permanent Packet B-channel as a device that is waiting to be exercised. The attributes that are associated with the Permanent Packet B-channel are stored by the 5ESS Switch; the concern is not "who" is using the Permanent Packet B-channel, but rather that the proper services are provided for the device.

It was noted earlier that the ACSR feature was not applicable to Permanent Packet B-channels. When a USER invokes ACSR, the USER is either binding their USOP to a different TERMINAL or the USER is binding a different USOP to the current TERMINAL. A USOP is devoid of meaning in the case of a Permanent Packet B-channel. A USER associated with a Permanent Packet B-channel, through the PPB1 USR/PPB2 USR fields on a DSLUSR form, may not belong to an ACSR group.

8. AVAILABLE SERVICE COMBINATIONS

The D SERV, B1 SERV and B2 SERV fields on the DSL input form are used to indicate the usage of the available bandwidth (two B-channels and one D-channel) for the DSL.

The choices available for D SERV are:

- ADMIN: No D-channel usage
- ONLY: Q.931 signaling only; used for an ISDN Attendant
- SX: Q.931 signaling and X.25 packet switching
- XMP: Modem Pooling; a single USER

The choices available for B1 SERV and B2 SERV are:

- X25: X.25 packet switching (Permanent Packet)
- DMD: Demand (Circuit Switched Voice, Circuit Switched Data, and X.25 On Demand B [ODB] Packet Switched Data)

Refer to Figure 1 for the valid combinations of these three fields.

A caveat to the available service combinations exists in the 5E5 Software Release only. It is strongly recommended that if both B-channels on a DSL are used for Permanent Packet service (B1 SERV and B2 SERV are set to "X25" on a DSL input form), then the D SERV field on that DSL input form be set to "X25" (X.25 and Q.931) and the DSL CLS field on that DSL input form be set to "MP" (Multipoint). Please refer to the explanation of the DSL CLS field.

This should be done even if the D-channel is not going to be used for any purposes and a Multipoint environment is not required. This allows the customer to use the Multipoint wiring information in order to support the two Permanent Packet B-channels on the DSL. There is no need to define any USERS on the DSL.

9. CRITICAL FIELDS

There are several fields on the DSL and DSLUSR input forms which demand special attention.

The DSL form is used to indicate which variety of the MP-DSL feature is applicable. Recall that there are three distinct forms of DSL service. They are:

Point-to-Point
Restricted Multipoint
Pure Multipoint

The DSL CLS field, on the DSL input form, is used to differentiate between Point-to-Point and Multipoint (Restricted or Pure). An entry of "PP" indicates Point-to-Point and an entry of "MP" indicates Multipoint. The RSTR MP field, on the DSL input form, is then used to define which variety of Multipoint is desired. An entry of "Y" (Yes) indicates Restricted Multipoint and an entry of "N" (No) indicates Pure Multipoint.

The ACSR GRP field, on the DSL input form, is used to assign an Automatic Customer Station Rearrangement group to the DSL. An ACSR group can be assigned to a USER through the use of the ACSRLPA input form (5959-3 Record).

The DFLT SRV field, on the DSL input form, is used to assign a Default Service feature to the DSL. The Default Service feature is defined on a DFLT SRV input form (5974 Record). If a DSL is assigned an ACSR group, then the DSL must also be assigned a Default Service feature.

The ACSR INH field, on the DSL input form, is used to "toggle" the use of the Automatic Customer Station Rearrangement feature for the DSL. An entry of "Y" (Yes) inhibits the use of the feature, thus preventing any changes to the existing binding between USERS, USOPs, TERMS and SPIDs. An entry of "N" (No) allows the use of the feature.

The MDPKT field, on the DSL input form, is used to indicate the quantity of USERS that may provision D-channel services. It is an error to enter more DSLUSR forms, for a DSL, with D-channel service

provisioned, than the value entered in the MDPKT field.

The MTERM field, on the DSL input form, is used to indicate the quantity of active USERS (TERMINALS) that are allowed service. The USERS are handled on a first "plugged in", first serviced basis.

The MDPKT and MTERM fields are used for equipment and traffic engineering purposes. It is beyond the purview of this document to discuss the engineering.

The CUT DGTS field, on the DSL input form, is used for a gradual cutover by thousands group, as opposed to a flash cut or a gradual cutover by Switching Modules. With the advent of the Multipoint feature, the unique one-to-one correspondence of a port and a telephone number has been lost. A single DSL (port) could be related to a maximum of twenty five telephone numbers; thus, the DSL could be related to multiple thousands groups. To properly cutover a DSL so all the telephone numbers receive service simultaneously, either select the thousands group of the last telephone number to be cutover or select an unused thousands group which does not reflect any of the telephone numbers related to the DSL.

The MAXB CHL field, on the DSLUSR input form, indicates how many B-channels a USER can access with Demand B-channel service for Circuit Services. This field is intertwined with the quantity of B-channels that were defined as Permanent Packet on the DSL input form, since a B-channel cannot be Permanent Packet and Demand.

The ACT USR field, on the DSLUSR form, is used to indicate if a USER is active and can receive service. The field is significant in the Point-to-Point and Restricted Multipoint cases because both permit the provisioning of eight USERS, of which only one can be active. The field is moot in the Pure Multipoint case because every USER is active.

The CSV field, on the DSLUSR form, indicates how many B-channels the USER can access for Circuit Switched Voice service.

The CSV CHL field, on the DSLUSR form, indicates which B-channels the USER can access for Circuit Switched Voice service.

The CSD field, on the DSLUSR form, indicates how many B-channels the USER can access for Circuit Switched Data service.

The CSD CHL field, on the DSLUSR form, indicates which B-channels the USER can access for Circuit Switched Data services.

The T3XX field, on the DSLUSR form, is an optional timer for On Demand X.25 Packet Switching on a B-channel. If a USER has seized a B-channel for On Demand X.25 Packet Switching, but is not invoking any virtual calls, the timer can be used to indicate when to "remove" the USER from the B-channel. This can save connection time charges and free the B-channel for other USERS on the DSL.

The BAND field, on the DSLUSR form, is used to indicate the relative amount of usage of the B-channel for ODB (On Demand X.25 Packet) Switching by the USER. The USER can be "banded" with a value between 0 and 15. This spectrum of values can be used to classify the USER as a "light" to "heavy" USER of the service. The ODBRES form (5906 Record) is used to provide a pool of reserved ISCNs for ODB service. The ODBRES form also has a BAND field. When an ODB USER attempts to perform an ACSR move between ISLUs or Switching Modules, the move will fail unless the reserve pool has a BAND that is the same BAND indicated on the DSLUSR form for the USER.

SEC. 1AB: ENHANCED B-CHANNEL PACKET SWITCHING

1. FEATURE DESCRIPTION

A single BRI (Basic Rate Interface) or DSL (Digital Subscriber Line) consists of three channels: two B-channels (B1 and B2) and one D-channel. The B-channels are used for circuit switched voice, circuit switched data, and packet switched data. The D-channel is used for control signaling and packet switched data. The Enhanced B-channel Packet Switching feature, which is available with 5E5 and later Software Releases, provides two switching services for DSL users: ODB (On Demand B-channel) packet switching and Multiple PPB (Permanent Packet) switching.

The ODB packet switching service dynamically reconfigures either B-channel (B1 or B2) through Q.931 signaling via the D-channel to support packet switched data via the X.25 protocol. After the B-channel is reconfigured, the channel is used exclusively for packet switching by the user who initiated the Q.931 signaling until it is reconfigured again using a Q.931 DISConnect packet or until the T3xx Timer expires and disconnects the B-channel. The range of the timer is 10 - 60 minutes.

When PPB switching is assigned to a DSL, any combination of the two B-channels and D-channel on the same DSL is dedicated to packet switched data via the X.25 protocol on a permanent connection basis (circuit switched voice or data is prohibited).

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907	5	1H	23.2
DSLUSR	5908	5	1I	23.2
ODBTS	5905	5	1F	23.13
ODBRES	5906	5	1G	23.14

DSL form (5907 Record) - This form is used to select the type of service desired on the single D-channel (DSERV field) and the two B-channels (B1 SERV and B2 SERV). This form is also used to define the attributes of one or both B-channels if they are to be used for Permanent Packet switching. An indication of Permanent Packet B-channel usage on this form has no impact on the maximum number of users (8) on a DSL.

DSLUSR form (5908 Record) - This record is available with 5E5 and later Software Releases. The DSLUSR form is used to define attributes of circuit switching (under the CKT SWITCHING header), D-channel packet switching (DPKT header) and On Demand B-channel (ODB header). The PPB1 USR and PPB2 USR fields can be used to assign a user to a B-channel being used for Permanent Packet switching.

ODBTS form (5905 Record) - The ODBTS form is used to reserve DPIDB time slots for DSL users with the ODB feature.

ODBRES form (5906 Record) - The ODBRES form is used to reserve ISCNs for DSL users with the ODB feature.

SEC. 1AC: LINE TIME SLOT BRIDGING FEATURE DESCRIPTION

1. FEATURE DESCRIPTION

The LTSB (Line Time Slot Bridging) feature is available with 5E5 and later Software Releases.

The LTSB feature provides a software emulation of metallically bridged two-party ANI (Automatic Number Identification) lines and a software emulation of two metallically bridged ports which share the same telephone number (commonly referred to as off-premise extensions). The two-party line case shall be henceforth referred to as "2-TN LTSB" while the two port, single telephone number case shall be referred to as "1-TN LTSB".

Both 1-TN LTSB and 2-TN LTSB can service ports which are resident on any type of Switching Module, including RSMs (Remote Switching Modules), ORM's (Optical Remote Modules) and TRMs (Two-mile Remote Models). The modules can be in a Multi Module Cluster or they can be independent. The port, which must be analog, can be on a LU (Line Unit), Integrated or Universal SLC (Subscriber Line Carrier), a Z-card on an ISLU (Integrated Services Line Unit) or a Z-card on a RISLU (Remote Integrated Services Line Unit).

The flexibility afforded as to port location, when combined with the transparency of this feature with the traditional metallically bridged feature, allows the 5ESS Switch owner to offer two-party or off-premise extension service to customers in locations where bridging would have previously been financially prohibitive or impossible.

One member of the LTSB group must be designated as the "lead port". The busy/idle status of the LTSB group is associated with the lead port and therefore the switching module that the lead port resides on will be used as the focal point for originations, terminations and feature activations for the LTSB pair. It thus behooves the customer with a high density of LTSB groups to distribute the lead ports across switching modules as evenly as possible.

If the lead port is Out of Service, the member resident on the non-lead port may still originate calls, but terminations to the member will be blocked. If the non-lead port is Out-of-Service, there is no affect on the lead port. The member resident on the lead port can still originate and terminate calls. If the lead port is on a remote-type switching module, and that module goes into Stand-Alone operation and cannot communicate with the non-lead port, the non-lead port is unable to function.

The LTSB feature provides numerous services. They are explained in the following paragraphs accompanied by scenarios of the service, as appropriate.

Calls may be originated by, with correct billing, either member in both the 1-TN and 2-TN LTSB. If a member of the LTSB group is engaged in a call and the second member of the LTSB group attempts to originate a call, the second member's origination attempt will be treated as a "barge" attempt. The concept of barging will be explained later in this section.

Terminations will always begin at the lead port of the LTSB group. If the LTSB group is in the busy state, then a 1-TN LTSB group will be checked for Call Forward or Call Waiting (a 2-TN LTSB group cannot have these features). If neither feature is assigned and activated in the 1-TN LTSB group or it is a 2-TN LTSB group, then busy tone will be returned to the calling party. If the LTSB group is in the idle state, ringing will be applied to both members of a 1-TN LTSB group and to the called party of a 2-TN LTSB group. Either member of the LTSB group may answer the call, even though one member of the 2-TN LTSB group did not receive ringing. This is transparent with the traditional metallically bridged feature.

A member, in the 1-TN or 2-TN LTSB group, may "barge" into an existing connection between the other

member of the LTSB pair and a third party. The call will be handled as a three-way call and will use conference circuits. The term "barge" should not be confused with the barge-in feature of Directed Call Pickup. If the barged member disconnects before the barging member, control and billing will be transferred to the barging member. If barging is not allowed, then the member who is attempting an origination will receive busy tone. Barging is not permitted if one member is on a 911 call, connected to a tone, is the controller in a Multiway call, Call Waiting Terminating is in progress or Manual Exclusion is active (for the 1-TN LTSB group, only).

Manual Exclusion allows one member of a 1-TN LTSB group to prevent the other member from barging into a call. Manual Exclusion is invoked on a per-call basis; thus, the feature is never deactivated. Manual Exclusion is not available for 2-TN LTSB. Manual Exclusion may be invoked either through a dialed code before a LTSB member places a call or through a combination of a hook flash and a dialed code for a call in progress. A member who attempts to use Manual Exclusion, but is not eligible to use the feature, will receive re-order tone. A member who attempts to use Manual Exclusion, and is eligible to use the feature, will receive confirmation tone and subsequently a second dial tone.

The customer who wishes to invoke Manual Exclusion before originating a call would dial the Manual Exclusion code, receive confirmation tone followed by a second dial tone, and then dial the desired party's telephone number. The member of the 1-TN LTSB group must have a Multiway Calling feature assigned in order to use Manual Exclusion in this manner.

The customer who wishes to invoke Manual Exclusion while a call is in progress would hook flash first. This would place the call on hold. The customer would receive dial tone at which point they would dial the Manual Exclusion code. The customer would then receive confirmation tone and a second dial tone. The customer may hook flash to retrieve the held call or place a second call. Once again, the member of the 1-TN LTSB group must have a Multiway Calling feature assigned in order to use Manual Exclusion in this manner.

A set of BRCS (Business and Residential Custom Services) features are available for 1-TN LTSB. They are:

For 5E5 and later Software Releases, the following BRCS features are available.

- Call Forwarding, other than those of the busy or no answer varieties.
- Call Waiting Termination
- Multiway Calling, which will be prohibited if the "other" member of the LTSB group is barged onto the call.
- Call Transfer
- Speed Calling, which can be used by the lead port only.

With 5E6 and later Software Releases, the following LASS features are also available for 1-TN LTSB:

- Selective Call Acceptance
- Selective Call Forwarding
- Selective Call Rejection
- Selective Distinctive Alert

The sole BRCS feature available for 2-TN LTSB is Speed Calling. Each of the members may have its own Speed Calling list and cannot access the list of the other member.

Revertive Calling allows one member of a 2-TN LTSB group to call the other member. The calling member hears busy tone and hangs up. Both members then receive ringing, which will continue for two minutes if neither member goes off-hook. When either member goes off-hook, ringing is ceased to both members. This informs both members that a revertive call could be taking place. Both members must go off-hook to complete the call. This is transparent with the traditional metallically bridged feature.

LTSB can support a mixture of rotary and touch-tone phones.

2. TRANSLATION REQUIREMENTS

The primary form to be visited to define a 1-TN LTSB group or a 2-TN LTSB group is the LINE form (5109-1/2/3 Records). The usage of the form is markedly different between the 1-TN LTSB group and the 2-TN LTSB group.

The 1-TN LTSB group requires the use of a single LINE form. The two distinct ports are defined in the OE TYPE and NUMBER field combination and the ASSOC OE TYPE and NUMBER field combination. The LEAD PORT field, which appears after the ASSOC OE TYPE and NUMBER field combination, is related to the port defined in the OE TYPE and NUMBER field combination. The LEAD PORT field must be set to "Y" (Yes), thus designating the port defined in the OE TYPE and NUMBER field as the lead port.

The PTY field must be set to "I".

The RAX and LCC field combination must be defined on a LCC form (5306 Record), in the RATE AREA and LINE CLASS CODE fields respectively, such that the CLASS OF SERVICE is "INDIV" and the TERMINATING TREATMENT is "INDIV" or "AGING".

When the LTSB port is on an Integrated or Universal Subscriber Line Carrier, the SLC Channel Unit Type must correspond to the "INDIV" CLASS OF SERVICE as specified in Figures 4 and 5 of Division 3, Section 1g, SLCCU form (5107 Record).

The 2-TN LTSB group requires the use of two LINE forms. The first LINE form must have the two distinct ports defined in the OE TYPE and NUMBER field combination and the ASSOC OE TYPE and NUMBER field combination. The second LINE form must have the same two distinct ports defined in the OE TYPE and NUMBER field combination and the ASSOC OE TYPE and NUMBER field combination, such that the OE TYPE and NUMBER field combination from the first LINE form appears in the ASSOC OE TYPE and NUMBER field combination on the second LINE form, and the ASSOC OE TYPE and NUMBER field combination from the first LINE form appears in the OE TYPE and NUMBER field on the second LINE form.

Both LINE forms must have a RAX and LCC field combination that is defined on a LCC form or forms, in the RATE AREA and LINE CLASS CODE fields respectively, such that the CLASS OF SERVICE is "TWOPTY" or "2PTY" and the TERMINATING TREATMENT is "PARTY" or "AGING". Both LINE forms' LCC values must be associated with the same CLASS OF SERVICE; there cannot be one associated with "TWOPTY" and one associated with "2PTY".

When the LTSB port is on an Integrated or Universal Subscriber Line Carrier, the SLC Channel Unit Type must correspond to the specified CLASS OF SERVICE, "TWOPTY" or "2PTY", according to Figures 4 and 5 of Division 3, Section 1g, for the SLCCU form (5107 Record).

The CLASS OF SERVICE also impacts the values permitted in the PTY fields on the two LINE forms. If the LINE forms are associated with a CLASS OF SERVICE of "TWOPTY", then one LINE form must have its PTY field set to "T" and the other form must have its PTY field set to "R". If the LINE forms are associated with a CLASS OF SERVICE of "2PTY", then one LINE form must have its PTY field set to 1 through 5 and the

other form must have its PTY field set to 6 through 9 or 0.

One of the LINE forms must have the LEAD PORT field set to "Y" (Yes) and the other LINE form must have the LEAD PORT field set to "N" (No). The LEAD PORT field applies to the port defined in the OE TYPE and NUMBER field combination.

The MAN EXCL field on the LINE form is used to indicate if both members of a 1-TN LTSB group have the Manual Exclusion feature. The feature is not available for a 2-TN LTSB group. Recall that Manual Exclusion requires a dialed code and is used on a per-call basis. It is never deactivated; it is only invoked, per-call, through the use of a dialed code. If the MAN EXCL field is set to "Y" (Yes), then a PDIT form (5300-2 Record) must be entered to define that dialed code. The code must be entered in the DIGITS TO INTERPRET field, "MEON" must be entered in the ACTION field and "/" must be entered in the FEATURE field.

Because the Manual Exclusion feature is not available for a 2-TN LTSB group, the two LINE forms that are entered for the definition of a 2-TN LTSB group must both have the MAN EXCL field set to "N" (No).

The set of BRCS features that can be assigned to a 1-TN LTSB group were explained previously. The BRCS features may be assigned on a LINEFA form (5112 Record), an associated CLUSTER form (5600 Record) or an associated BFG form (5625 Record).

A Call Forwarding feature may be assigned that is defined on a CFWFD form (5614-1 Record) with the FWD CONDITION field set to "BOTH".

A Call Waiting Terminating feature may be assigned that is defined on a CWTFD form (5603-1 Record) with the INVOCATION field set to "TERM" and the FLASH ON FORWARD? field set to "Y" (Yes).

A Multiway Calling feature may be assigned that is defined on a MWFD form (5602-1 Record) with the CALL PICKUP field set to "N" (No). This feature must be assigned if the Manual Exclusion feature is desired.

The lead port (explained earlier) may have Speed Calling. Pursuant to that, an Individualized Dialing feature may be assigned that is defined on an IDFD form (5601 Record) with the IDP GROUP?, CUST ACT/DEACT A.C.T.? and GPIC CUST CHANGEABLE? fields set to "N" (No) and the AD 1 DIGIT? or the AD 2 DIGIT? field set to "Y".

For 5E6 and later Software Releases, the following LASS features may also be assigned to a 1-TN LTSB group.

A Selective Call Acceptance feature may be assigned that is defined on a LSCAFD form (5975 Record).

A Selective Call Forwarding feature may be assigned that is defined on a LSCFFD form (5976 Record).

A Selective Call Rejection feature may be assigned that is defined on a LSCRFD form (5977 Record).

A Selective Distinctive Alert feature may be assigned that is defined on a LSDAFD form (5978 Record).

The only BRCS feature that a 2-TN LTSB group can have is Speed Calling. Each member of the 2-TN LTSB group may have their own list and cannot access the other member's list. The feature may be assigned on a LINEFA form, an associated CLUSTER form or an associated BFG form. Pursuant to having Speed Calling, an Individualized Dialing feature may be assigned that is defined on an IDFD form with the IDP GROUP?, CUST ACT/DEACT A.C.T.? and GPIC CUST CHANGEABLE? fields set to "N" (No) and the AD 1 DIGIT? or the AD 2 DIGIT? field set to "Y".

If the feature is assigned on an IDPLPA form (5601-6 Record), then the SHARED? fields under the

ABBREVIATED DIAL LIST 1 and ABBREVIATED DIAL LIST 2 headers must be set to "N" (No).

If the feature is assigned on a BFG form (5625-2 Record), then the SHARED? fields under the ABBREVIATED DIAL LIST 1 and ABBREVIATED DIAL LIST 2 headers must be set to "N" (No).

If the IDPLPA or BFG forms were not applied to assign the feature, then the IDFD form, where the feature is defined, must have the AD 1 SHARED? and AD 2 SHARED? fields set to "N" (No).

SEC. 1AD: AUTOMATIC CUSTOMER STATION REARRANGEMENT

1. FEATURE DESCRIPTION

The ISDN ACSR (Automatic Customer Station Rearrangement) feature is available in 5E5 and later Software Releases. ACSR allows an end user to relocate their Primary Directory Number terminal equipment, features, group membership (Centrex group, dialing plan, etc.) and restrictions within the user's ACSR group without a service order. ACSR also allows:

- A user, given group control, to activate or deactivate ACSR service for the entire group.
- A user to check the status of an ACSR move.

ACSR has the following requirements and restrictions:

- A user must belong to only one ACSR group and may only move to DSLs that are within the user's ACSR group.
- Circuit-Switched voice calls are needed for ACSR Invocation. Therefore, every ACSR user must have a Circuit-Switched TN.
- DSLs supporting Permanently Provisioned B-channel packet services on both B-Channels or Modem Pooling are not allowed the ACSR feature.
- ISDN Attendants are not allowed the ACSR feature.
- Users assigned to a CKT MLHG are not allowed the ACSR feature.
- An ACSR move will be denied to a user moving to a DSL marked as Multi-Point if there are already 8 users assigned to that DSL.
- An ACSR move will be denied to a user moving to a DSL marked as Point-To-Point if there are already 8 users associated with that DSL, even though only one user is currently active.
- DSLs supporting On-Demand B-Channels will be allowed the ACSR service but an ISCN (Integrated Services Channel Number) must be available on the target Switching Module. Such an ISCN is reserved on an ODBRES form (5906 Record). The BAND value on the ODBRES form must match the BAND value on the DSLUSR form (5908-1 Record) where the user is described.

For more information on ACSR see Section 5.5 of AT&T 235-190-105.

1.1 ACSR Invocation

The user must have a circuit telephone number defined in the CKT TN field on a DSLUSR form (5908-1 Record). The entry in the OE field on that DSLUSR form must also appear in the DSL OE field, on a DSL form (5907-1 Record), where the entry in the ACSR INH field is set to "N". The entry in the ACSR GRP field, on the DSL form, must be defined on an ACSRGP form (5959-2 Record). The circuit telephone number must be assigned an ACSR feature defined on an ACSRFD form (5959-1 Record) or on an ACSRLPA form (5959-3 Record). The feature must be assigned to the circuit telephone number on a LINEFA form (5112 Record), on a BFG form (5625 Record) or on an associated CLUSTR form (5600 Record).

A user dials the ACSR access code (defined on a PDIT form (5300-2 Record) and/or an IDPDCA form (5601-1

Record) with an ACTION of "ACSRUSE") from the user's new location. It is recommended that the access code be the same on the PDIT and the IDPDCA forms. The user will then be prompted with the ACSR recorded announcements from the DSU2-RAF (Digital Service Unit Model 2 - Recorded Announcement Function) (see Division 2, Section 1S for more information on recorded announcements and Division 3, Section 5AH for the standard announcements) along with the message displayed on the terminal (if the terminal has a display window).

If the user is moving to a Multi-Point DSL with their own FIT, then for 5E8 and earlier, the user will receive an announcement giving the TN and asking for confirmation. Otherwise, the user will receive an announcement asking for their TN first. If the user has been assigned a PIN (Personal Identification Number), defined on a PIDEF form (5117 Record), on the ACSRFD or ACSRLPA form, an announcement will be given to enter the PIN. The user will then receive an announcement saying the ACSR request has been denied or accepted.

1.2 ACSR Ringback

After the ACSR move request has been processed the user will be given a ringback announcement saying whether or not the move was completed. If the user does not answer the ringback within a subscribable time (assigned in the RNG MAX field on the ACSRGP form), the move will still be completed.

1.3 ACSR Status Check

The user dials the ACSR access code of "ACSRVFY" from a terminal in the same ACSR group. The user will then be prompted for their TN and PIN in the same way as the ACSR move. After the TN and PIN have been entered the status will then be given.

1.4 ACSR Group Activation and Deactivation

The user, given control of the group, must have the ACSR feature defined on the ACSRFD form with GRP CNTRL set to "Y". After the group controller dials the ACSR access code "ACSRON" or "ACSROFF" from their terminal, a confirmation tone will be given for a successful update and a reorder tone will be given for an unsuccessful update. Group activation and deactivation can only be invoked from a DSL that has the ACSR feature assigned; they cannot be invoked from Default Service.

1.5 Default Service

When a user powers up a terminal on a DSL, the switch will try to identify the terminal and supply service to it. If a terminal does not have a service associated to it, the DSL must have a Default Service, defined on a DFLTSRV form (5974 Record), to allow a user to invoke ACSR from that terminal.

When Default Service is received, the ODP associated with the Default Service group is used. To avoid confusion, ACSR dial codes defined on the IDPDCA form should match the dial codes defined on the PDIT form. If dial codes need to be different, a separate ODP may be built for Default Service to allow ACSR, BRI Test Line, Repair (e.g., 611), Business Office, and Emergency (e.g., 911) dial codes.

2. TRANSLATION REQUIREMENTS

Figure 1 shows the interaction between forms used in populating the ACSR data. The following translations give a brief description for each of the forms.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907	5	1H	23.2

DSLUSR	5908	5	1I	23.2
TRUNK	5204	3	2C	5.5
TKGRP	5202	3	2A	5.1
RTIDX	5303	3	3P	10.2
FIXRT	5301-1	3	3G	10.1
PDIT	5300-2	3	3B	9.2
IDPDCA	5601-1/2	4	2B	9.13
ACSRFD	5959-1	6	2A	12.50
ACSRGP	5959-2	6	2B	4.47
ACSRLPA	5959-3	6	2C	1.49
EQIM	5700-1/2	8	2	18.1
EQRA	5821	8	35	19.10
EQRAP	5822	8	36	20.10, 20.22
ANNAPL	5529	3	5AC	8.64
ANNHD	5531	3	5AE	8.61
ANNDG	5532	3	5AF	8.60
ANNTR	5533	3	5AG	8.62
PHRASE	5534	3	5AH	8.63
DFTLSRV	5974	6	17	23.15
PIDEF	5117	3	1Q	4.39
MEASPDF	5615	4	16A	13.3
APFMA	5622	4	21C	24.5
ODBRES	5906	5	1G	23.14
ODBTS	5905	5	1F	23.13

2.1 Line Translations

DSL form (5907-1 Record) - ACSR GRP assigns an ACSR group to a DSL. ACSR INH indicates whether or not ACSR features can be invoked on a DSL. Every DSL with an ACSR group must have the DFLT SRV field entered and the entry defined on a DFTLSRV form (5974 Record).

DSLUSR form (5908-1/2/3/4/5/6/7/8 Record) - The user must have the CKT TN entered to allow the user to be prompted with recorded announcements. Both PPB1 USR and PPB2 USR must be "N" or left blank.

2.2 Trunk Translations

TRUNK form (5204-1 Record) - The RAFEN field must be entered for DSU2-RAF recorded announcements.

TKGRP form (5202-1/2/3/4 Record) - The TRKCLS must be "RAFDTA", TRK DIR must be "RAF", and SVC GRP must be "ACSR" for ACSR DSU2-RAF DTAs (Dial Through Announcements).

NOTE: If the trunk group supports RACF (Remote Activation To Call Forwarding) and/or LASS (Local Area Signaling Services) SLE (Screen List Editing) announcements, the SVC GRP must have a value of "RAS", not "ACSR".

2.3 Routing and Charging Translations

RTIDX form (5303 Record) - The TGN number assigned on this form must be defined on a TKGRP form.

FIXRT form (5301-1 Record) - An Announcement Trunk Group must be built to allow ACSR and Default Service failure announcements by entering "ACSR" and "DFTLFAIL" in the FIXED ROUTE TYPE field on two FIXRT forms.

PDIT form (5300-2 Record) - ACSR dial codes for the ODP are defined on this form. The ACTIONS are:

Valid ACTION Entries	
Entry	Definition
ACSRFF	Deactivate ACSR group.
ACSRON	Activate ACSR group.
ACSRUSE	Invoke an ACSR move.

ACSRVfy	Verify ACSR queue status.

2.4 BRCS Translations

IDPDCA form (5601-1 Record) - ACSR dial codes for the IDP are defined on this form. The ACTIONS are:

Valid XXXX Entries	
Entry	Definition
ACSRoff	Deactivate ACSR group.
ACSRon	Activate ACSR group.
ACSRUSE	Invoke an ACSR move.
ACSRVfy	Verify ACSR queue status.

2.5 ISDN ACSR Translations

ACSRFD form (5959-1 Record) - This form is used to define a constructed ACSR feature. The FEATURE field is used to assign the ACSR feature to a line.

ACSRGP form (5959-2 Record) - This form is used to define an ACSR group. The ACSR GRP field is used to assign the ACSR group to a DSL or to an ACSR line.

ACSRLPA form (5959-3 Record) - This form is used to assign line parameters to a TN, if they are different from the parameters defined on an ACSRFD form.

2.6 Engineering Translations

EQIM form (5700-1/2 Record) - Switching module entries on the ANNHD form (5531 Record), ANNDG form (5532 Record), PHRASE form (5534 Record) and ANNTR form (5533 Record) must be defined on this form.

EQRA form (5821 Record) - This form defines the RAF unit. The RAF SERVICE TYPE must have a value of "DTA" for DTAs.

The RAF circuit packs must be defined on the EQRAP form (5822 Record). Also, an associated TRUNK form must be entered with a RAF EN defined.

EQRAP form (5822 Record) - This form defines the RAF circuit packs. The SM (Switching Module) must be defined on the EQIM form (5700-1 Record). If the RAF is supporting announcements for RACF, ACSR and LASS, the following fields must be entered:

Field	Pack1	Pack2
APPLICATION	BRCS-SLE	—
MICROCODE	5D142A10	5D143A20

If the RAF is supporting ACSR or (ACSR and RACF), the following fields must be entered:

Field	Pack1	Pack2
APPLICATION	ISDN-ACS	—
MICROCODE	5D142A10	5D143A10

2.7 Miscellaneous Translations

ANNAPL form (5529 Record) - The Announcement Application SM List form specifies the SMs which are populated with RAF automated announcements.

ANNHD form (5531 Record) - The Announcement Header Phrase List form contains phrase identifications that comprise announcement headers. A standard set of input data is provided by ODA as each office is

registered and normally no data need be entered by the ODA system users.

ANNDG form (5532 Record) - The Announcement Digit Inflection Scheme form contains the inflection commands and phrase identifications that comprise a template for digit strings. A standard set of input data is provided by ODA as each office is registered and normally no data need be entered by the ODA system users.

ANNTR form (5533 Record) - The Announcement Trailer Phrase List form contains phrase identifications that comprise announcement trailers. A standard set of input data is provided by ODA as each office is registered and normally is registered and normally no data need be entered by the ODA system users.

PHRASE form (5534 Record) - The Announcement Phrase List form defines the phrases that comprise announcements. A standard set of input data is provided by ODA as each office is registered and normally no data need be entered by the ODA system users.

DFLTSRV form (5974 Record) - This form allows ACSR to be invoked from a terminal which has no service associated with its DSL.

PIDEF form (5117 Record) - This form is used to define the PIN.

MEASPDF form (5615 Record) - "ACSR" must be entered in the MEASUREMENT TYPE field in order determine the impact of the ACSR feature on the office.

APFMA form (5620-3 Record) - The ACSR field must be entered as "Y" to allow a customer to have administrative control over ACSR. Currently, the AT&T Application Processor does not support this application but it may be supported by another vendor.

2.8 ISDN/Packet Switching Translations

ODBRES form (5906 Record) - This form is used to reserve ISCNs for ODB (Office Data Base) users that are moving across SMs via ACSR. The ISCNs should be reserved on SMs that an ACSR group spans across to allow an ISCN to be assigned to the user at the new SM and to complete the ACSR move without a failure.

ODBTS form (5905 Record) - This form is used to reserve time-slots used by ODB users to access the PSU (Packet Switch Unit). The ISCNs allocated on the ODBRES form or assigned to ODB users must have time-slots reserved between the ISLU and PSU shelves (same shelves as the ISCNs assigned on the ODBRES form) on the ODBTS form (RC view 23.13).

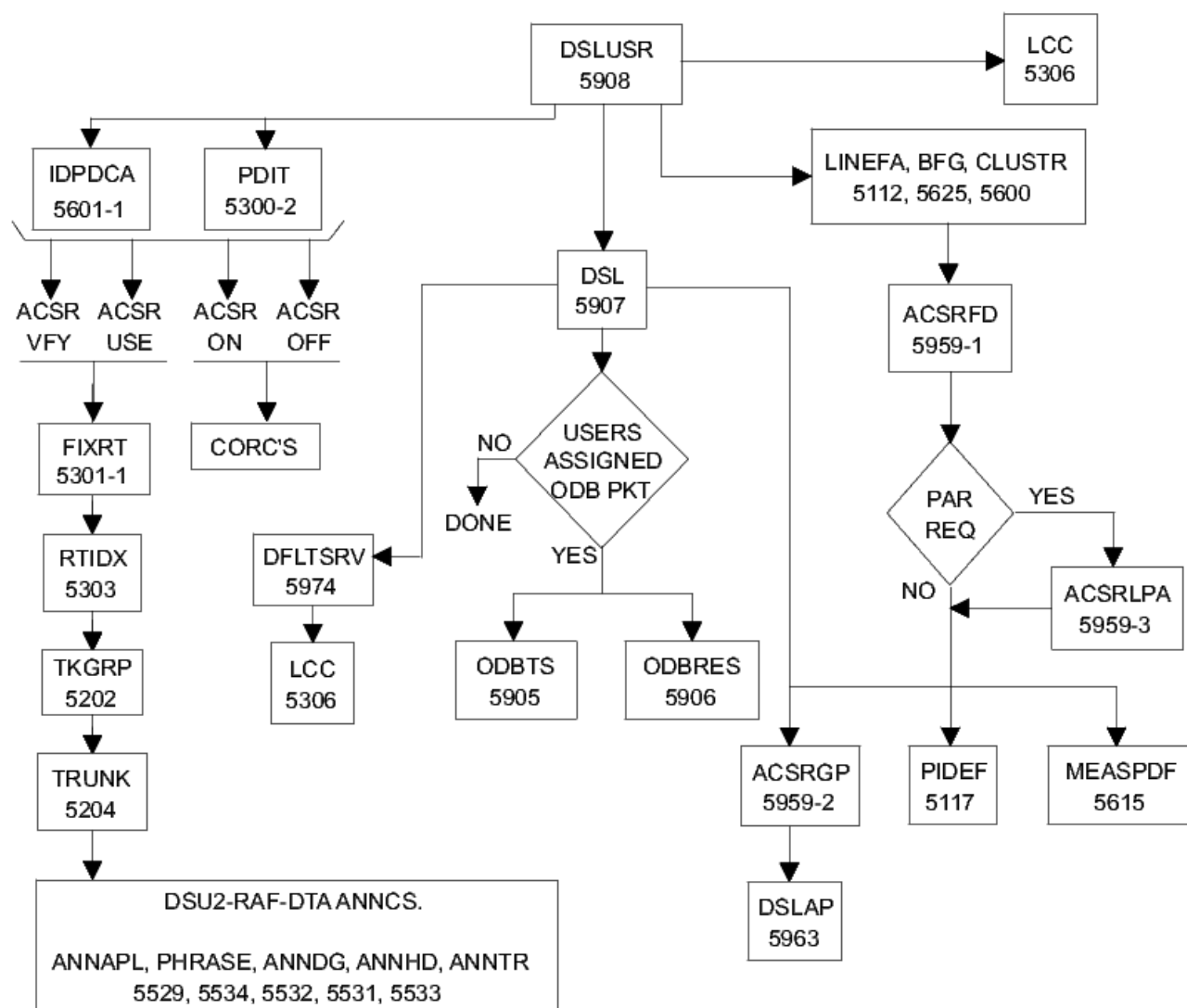


Figure 1 ACSR FORM FLOW

SEC. 1AE: INCREASE TRFC30 BUFFER SIZE

1. FEATURE DESCRIPTION

Available with 5E14 and later Software Releases, the Increase TRFC30 Buffer Size feature has feature number 99-5E-4340. This feature increases the limit of data collection for the Traffic 30 channel from 75KB (Kilobytes) to 384KB and increases the allowable individual section size limit from 32KB to the entire space assigned to TRFC30 buffer (384KB). However, each section's size limit must be changed separately to make use of the new allowable space.

The TRFC30 protocol conforms to the Telcordia Technologies' requirements in TR-TSY-000740, Section 3.1, except the header will not include the SPCS CLLI code field, making the header information non-standard. A new message type, 123 - "30-MINUTE DATA WITH EXPANDED HEADER POOL," replaces the old message number 103 - "30-MINUTE DATA POOL." The Datakit rate of 9600bps (bits/second) minimum is recommended for transferring the Traffic 30 data.

1.1 Traffic Message Type

Beginning with 5E14, the 5ESS Switch will use new message 123 - "30-MINUTE DATA WITH EXPANDED HEADER POOL". The old message, number 103 - "30-MINUTE DATA POOL," will no longer be supported. Only the new 123-message type will be used to identify the 30-minute traffic data. If the 5ESS Switch receives a poll message 103, the switch will reply with "invalid request" message 202.

1.2 OS Support

All OSS (Operational Support Systems) that support the Traffic 30 must be updated to support the new protocol. Customers who use an OSS other than Telecordia's DCOS or Lucent's Netminder TMS (TDMS), must be sure their vendor updates its OSS product to handle the changed protocol and additional data. DCOS and TDMS users should contact the vendor point of contact for availability and specifications.

1.3 Modem Speed

In order to take advantage of this feature's increase in traffic reporting capacity, Lucent highly recommends that larger offices use a minimum of a 9600 bps modem. A traffic data collection message over 75KB will not be completely transmitted in the time window, resulting in loss of data when using modems slower than 9600 bps. When the entire message is not received in the allotted time, the whole message may be dropped, losing all of the data sent in that message. Smaller offices in which the requested amount of traffic data to be reported does not exceed 75KB may stay on 2400 or 4800 bps modems. Thus the traffic engineer must size the amount of data being collected according to the modem speed to prevent loss of traffic data.

2. TRANSLATION REQUIREMENTS

No new forms or fields have been added or modified.

SEC. 1AF: PACKET SWITCHING DATA BUSINESS GROUP

1. FEATURE DESCRIPTION

The Packet Switching Data Business Group Service feature is available in 5E5 and later Software Releases. This feature enables an operating company to set up and administer intra-switch PBGs (Packet Business Groups) by assigning a PBG number to each X.25 termination to distinguish between intra-PBG calls and other calls on the AMA billing record using AMA call code "378". All PBG members must reside in the same 5ESS Switch; one switch can support up to 100 PBGs.

Billable, intra-group X.25 PVCs (Permanent Virtual Circuits) will also be recorded on the AMA billing record as call code "378". Although the same call code is used for both virtual calls and PVCs, different ODD (Office Dependent Data) is used to control PVCs than is used to control virtual calls, so a comparison of PBG numbers for endpoints of the PVC is not performed. Each PVC in the ODD is statically marked intra-PBG or not intra-PBG; there is no PBG number assigned by the operating company.

During a virtual call, ODD for the two call endpoints is compared to determine whether or not the call is an intra-PBG call. Each individual packet user and each packet MLHG (Multi-Line Hunt Group) can be assigned a PBG number in the ODD for virtual calls. For an individual user, the PBG number is entered on the DSL or the DSLUSR form, and for an MLHG the PBG number is entered on the MLHG form. The MLHG PBG number is used for an endpoint that is a member of the MLHG if a LISTED TN (i.e. a hunting TN) for the MLHG was called to reach the endpoint or was the calling TN for the endpoint; in all other cases the PBG number entered on the DSL or DSLUSR forms for the endpoint is used. A virtual call is intra-PBG if it is intra-switch and the two call endpoints have been assigned the same PBG number. A call is not intra-PBG: if at least one of the endpoints was not assigned a PBG number in the ODD, the PBG numbers of the endpoints are different, or the call is not intra-switch.

The following list and Figure 1 present the sequence of events for setting up an X.25 line-to-line virtual call between an originating customer (User A) and terminating customer (User B). A call that has a trunk (e.g. X.75' trunk) at either the originating or terminating end cannot be an intra-PBG call. The sequence of events that takes place during the set-up of a virtual call has not changed due to this feature, however, some of the events themselves have been modified. Information that modifies an existing event due to this feature is marked "PBG".

- User A originates a call to User B by sending an X.25 Call Request packet (see Figure 1). This request packet is processed by a PH (Protocol Handler). The PH circuit pack resides in the PSU (Packet Switching Unit).
- The PH forwards a routing request to the PR (Packet Routing) software subsystem in the originating SMP (Switching Module Processor). The SMP is a subunit of the MCTSI (Module Control/Time Slot Interchanger) in the SM.
- The PR subsystem accesses the ODD for routing information.

PBG: PR retrieves User A's PBG number. If the originating TN is a "hunting" TN (the user is a MLHG member), the PBG number is obtained from the MLHG form (5110 Record). If the originating TN is for an individual packet user, the PBG number is obtained from the DSL or DSLUSR forms (5907 or 5908 Records).

- PR returns a response message to the PH. PBG: PR includes the PBG number (or a default if no PBG number was assigned) in the response message.

- The originating PH initiates an IP (Internal Protocol) call request through the packet network by sending an IP Call Request packet to the terminating PH.

PBG: The PBG number is stored in the originating PH. If the PBG number is not the default, it is added in the Call Request packet.

- When the terminating PH receives the Call Request packet, it sends a Data Request message to the terminating SMP to request information about the terminating user (User B).
- The PR subsystem in the terminating SMP accesses the ODD for routing information.

PBG: PR retrieves both of User B's PBG numbers from the 5907 or 5908 Records, and from the 5110 Record (if User B is an MLHG member).

- PR returns a data response message to the terminating PH from the terminating SMP.

PBG: The PBG numbers (individual and/or hunt group) of the terminating user are added to the response message.

- After receiving the data from the SMP, the terminating PH offers the X.25 call to the CPE (Customer Premises Equipment) via an X.25 Incoming Call packet.

PBG: The PBG number for the terminating user is determined based on the terminating TN. If the terminating TN is a "hunting" TN (terminating user is a MLHG member), the PBG number from the MLHG form (5110 Record) is used. If the terminating TN is for an individual packet user, the PBG number from the DSL or DSLUSR forms (5907 or 5908 Records) is used.

- The CPE accepts or clears the call.
- The terminating PH returns a Call Accept (or Clear) packet to the originating PH.

PBG: If User B is in a PBG, the PBG number is added to the Call Accept/Clear packet.

- The originating PH sends a call Connect (or Clear) packet to the originating CPE. For intra-PBG virtual calls, the PBG AMA field on the ISDNOPT form (5941 Record) is checked to see if intra-PBG AMA records are to be generated or if the call is to be treated as non-billable. The comparison of PBG numbers is done at the originating PH; for reverse charge calls the comparison is done at the terminating PH.

2. TRANSLATION REQUIREMENTS

MLHG form (5110 Record) - This form is used to define Multi-Line Hunt Group parameters. Enter a PBG number in the PB GRP field on this form to assign the MLHG to a PBG. Valid values are 1 to 100. If the MLHG is not in a PBG, simply leave the field blank. If a PBG number is assigned, however, then a HUNT TYPE of "UCD" (modem pool only) or "PSUCD" must be defined on the MLHGFD form (5604 Record).

DSL form (5907 Record) - This form's fundamental purpose is to define the attributes of a DSL. DSL is another name for a BRI (Basic Rate Interface). PB GRP fields are located under the PPB1 (PERMANENT PACKET B1) and PPB2 (PERMANENT PACKET B2) headers on the DSL form. Only assign a PB GRP

number to a user with a known PPB1 or PPB2 TN, or to a PPB1/PPB2 MLHG/TERM with a known PPB1/PPB2 TN. Valid values are 1 to 100. If no PBG is assigned, simply leave the field blank. The PB GRP entered under PPB1 applies only when B1 is used for a virtual call; the PB GRP entered under PPB2 applies when B2 is used.

DSLUSR form (5908 Record) - This form is used to assign attributes to a user of a DSL (BRI). PB GRP fields are located on this form under the DPKT (D-CHANNEL PACKET SWITCHING) header and under the ODB (ON-DEMAND B-CHANNEL) header. Only assign a PB GRP number to a user with a known DPKT TN, or to a DPKT MLHG with a known MLHG TN also assigned on this form. Valid values are 1 to 100. If no PBG is assigned, leave the field blank. The PB GRP entered under DPKT applies only when the D-channel is used for a virtual call; the PB GRP entered under ODB applies when ODB is used.

PSPVC form (5923 Record) - This form is used to assign PVC (Permanent Virtual Circuit) channel numbers to DSLs. The INTRA GROUP field on this form is used to determine whether or not the billable PVC (Permanent Virtual Circuit) should be marked as intra-group (AMA call code 378).

ISDNOPT form (5941 Record) - The ISDNOPT form is used to define ISDN office options. The PBG AMA field on this form is used to define whether or not AMA billing entries should be generated for intra-PBG virtual calls.

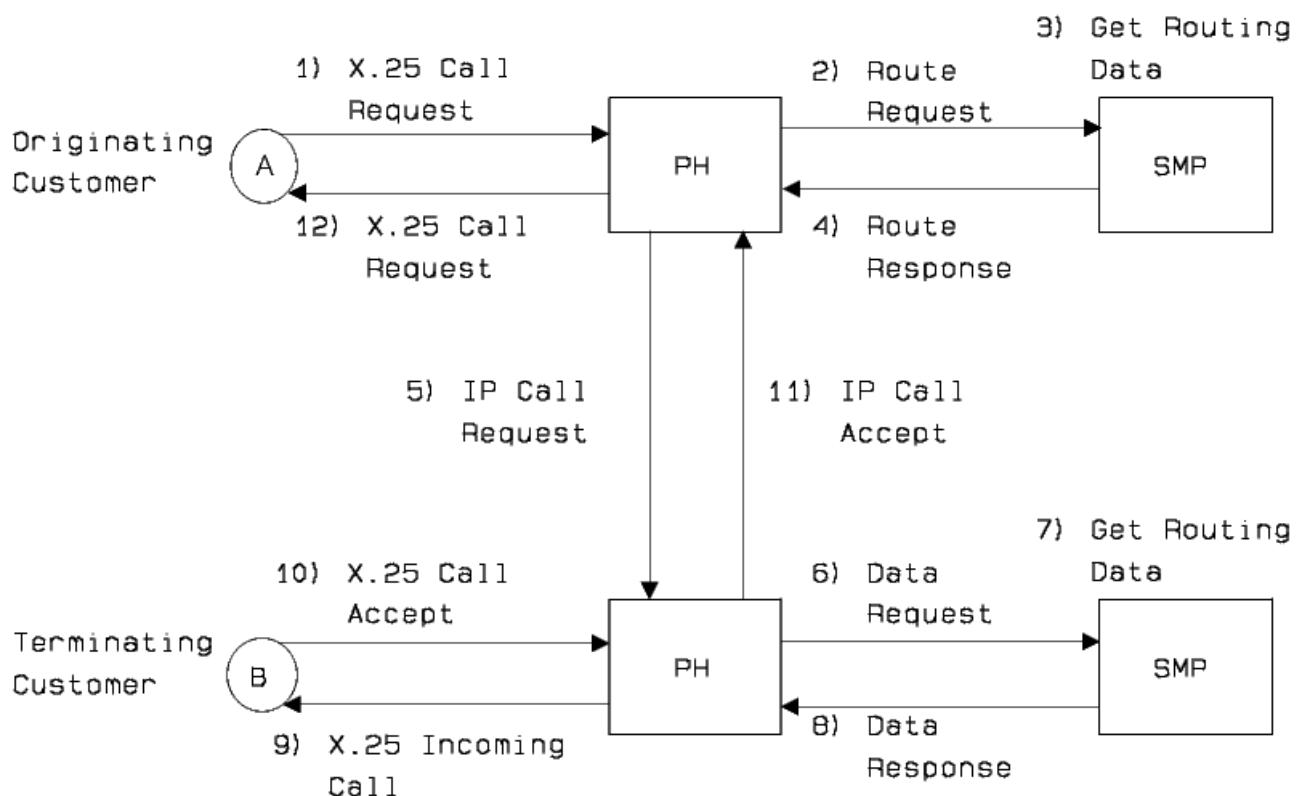


Figure 1 PACKET SWITCHING DATA BUSINESS GROUP CALL SCENARIO

SEC. 1AG: REMOTE ACTIVATION TO CALL FORWARDING

1. FEATURE DESCRIPTION

RACF (Remote Activation To Call Forwarding) is available with 5E5 and later Software Releases. It allows a customer to activate or deactivate CF (Call Forwarding) from a remote location. For security, RACF may be restricted to remote activations from within an IDP group. The following requirements are needed for RACF:

- The user must have a CF feature that allows RASs (Remote Access Services) and CF activation/deactivation by dial code.
- The user must have a PIN (Personal Identification Number).
- The user must have the ability to use RASs on a given CF feature.
- The user must access RACF via a touch-tone phone.
- The RADN (Remote Access Directory Number) must be defined to allow access to RAS.

1.1 Call Scenario

The following call scenario shows a customer's interaction with the RACF recorded announcements:

A customer activates the RACF feature by dialing the RADN from a remote location. The RADN routes calls to the DSU2-RAF-DTA (Digital Service Unit Model 2 - Recorded Announcement Function - Dial Through Announcement) via a ROUTE INDEX (defined on the RTIDX form (5303 Record)). The DSU2-RAF-DTA will then give the following announcements:

- "This is your Remote Access Service. Please use a touch-tone telephone only. You may now dial your seven-digit home or office telephone number that has remote access service. Please dial now." The customer dials `7778329'.
- "The number you have dialed is `7778329'. If this number is correct, dial your Personal Identification Number. If the number is not correct, dial `*' and enter a new number. Please dial now." The customer dials `4328'.
- "Please dial a feature code now." The customer dials `*52'.
- "You have accessed the Call Forwarding Activation feature. To confirm this feature, dial `1'. To try a new feature, dial `0'. Please dial now." The customer dials a `1'.
- "This is your Call Forwarding service. Please dial the number to which you want your calls forwarded. If you must dial `1' or an Area Code to reach this number from your home or office, then do so. Please dial now." The customer dials `9825324'.
- "Your call will be forwarded to `9825324'. If this number is correct, dial `1'. If this number is not correct, dial `0'. Please dial now." The customer dials a `1'.
- "Your calls will now be forwarded. You may hang up or dial another feature code now." The customer hangs up.

Remote access may be restricted to the IDP group as the RADN by setting the IDP RESTRICT field to "Y" on

the RASRTI form (5538 Record).

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINEFA	5112	3	1L	1.8, 1.11, 1.12
MLHLNFA	5113	3	1M	3.8, 3.11, 3.12
TRUNK	5204	3	2C	5.5
TKGRP	5202	3	2A	5.1
RTIDX	5303	3	3P	10.2
LDIT	5300-3/5	3	3C	9.3
IDPDCA	5601-1/2	4	2B	9.13
CLUSTR	5600	4	1A	12.2
CFWFD	5614-1/2	4	15A	12.12
ANNAPL	5529	3	5AC	8.64
ANNHD	5531	3	5AE	8.61
ANNDG	5532	3	5AF	8.60
ANNTR	5533	3	5AG	8.62
PHRASE	5534	3	5AH	8.63
PIDEF	5117	3	1Q	4.39
RASRTI	5538	3	5AL	10.19
EQIM	5700-1/2	8	2	18.1
EQRA	5821	8	35	19.10
EQRAP	5822	8	36	20.10, 20.22

Figure 1, "RACF Form Flow", shows the interaction between forms used in populating the RADN, target DN (Directory Number) and the dial codes. The following translations give a brief description for each of the forms.

2.1 Line Translations

LINEFA form (5112 Record) - A value of "Y" must be entered in the R (RAS allowed) field for the CF feature. This allows the feature to be accessed remotely.

MLHLNFA form (5113 Record) - A value of "Y" must be entered in the R (RAS allowed) field for the CF feature. This allows the feature to be accessed remotely.

2.2 Trunk Translations

TRUNK form (5204-1 Record) - The RAFEN field must be entered to receive DSU2-RAF-DTA dial-through announcements.

TKGRP form (5202-1/2/3/4 Record) - The TRKCLS must be "RAFDTA", TRK DIR must be "RAF", and SVC GRP must be "RAS" to receive RACF DSU2-RAF-DTAs.

2.3 Routing and Charging Translations

RTIDX form (5303 Record) - The RTIDX defined here is needed to route to a TKGRP which has the associated RACF DSU2-RAF-DTA announcements. The Trunk Group Number assigned on this form must be defined on the TKGRP form.

LDIT form (5300-3 Record) - This form and/or the IDPDCA form (5601-1/2 Record) must be used to define the digits to be interpreted by the ODP/IDP for the RADN dial codes needed to access the CF feature remotely.

2.4 BRCS Translations

IDPDCA form (5601 Record) - This form and/or the LDIT form must be used to define the digits to be interpreted by the IDP/ODP for the RADN dial codes needed to access the CF feature remotely.

CLUSTR form (5600 Record) - A value of "Y" must be entered in the R (RAS allowed) field for the CF feature. This allows the feature to be accessed remotely.

CFWFD form (5614-1/2 Record) - Any CF features that are defined on this form and allow RAS must have dialed codes defined in the appropriate dialing plan. Only CF features with a DEACTIVATION TYPE of "CODE" and an ACTIVATION TYPE of "CDCA1A", "CDDN", "CDDNC", "CDDNCA", or for 5E6 and later, "CODE", are allowed by RACF.

NOTE: ACT TYPE (Activation Type) of "CODE" is only allowed when CHANGE FWD TO DN is "Y". Additionally, ACT TYPE of "CODE" does not change the operation of the RACF feature. Therefore, the FORWARD TO DN (The directory number to which calls will be forwarded) will still be prompted for and changed when activating RACF remotely even though ACT TYPE of "CODE" does not require the FORWARD TO DN field to be entered or changed.

2.5 Miscellaneous Translations

ANNAPL form (5530 Record) - The Announcement Application SM (Switching Module) List form specifies the SMs which are populated with RAF (Recorded Announcement Function) automated announcements.

ANNHD form (5531 Record) - The Announcement Header Phrase List form contains phrase identifications that comprise announcement headers. A standard set of input data is provided by ODA as each office is registered and normally no data need be entered by the ODA system users.

ANNDG form (5532 Record) - The Announcement Digit Inflection Scheme form contains the inflection commands and phrase identifications that comprise a template for digit strings. A standard set of input data is provided by ODA as each office is registered and normally no data need be entered by the ODA system users.

ANNTR form (5533 Record) - The Announcement Trailer Phrase List form contains phrase identifications that comprise announcement trailers. A standard set of input data is provided by ODA as each office is registered and normally no data need be entered by the ODA system users.

PHRASE form (5534 Record) - The Announcement Phrase List form defines the phrases that comprise announcements. A standard set of input data is provided by ODA as each office is registered and normally no data need be entered by the ODA system users.

PIDEF form (5117 Record) - This form must be entered to define the PIN which is associated with a TN.

RASRTI form (5538 Record) - This form assigns the dialing plans associated with the RADN. If IDP RESTRICT is set to "Y", the IDPNAME (RADN's IDP group) must be in the same IDP group as the remote location TN (where the call is being made from).

When both an IDP and ODP are assigned to an RADN, the IDP will be used for digit analysis of the user's Target DN.

2.6 Engineering Translations

EQIM form (5700-1/2 Record) - Switching module entries on the ANNHD form, ANNDG form, PHRASE form

and ANNTR form must be defined on this form.

EQRA form (5821 Record) - This form defines the RAF unit. The RAF SERVICE TYPE must have a value of "DTA" for DTAs.

The RAF circuit packs must be defined on the EQRAP form (5822 Record). Also, an associated TRUNK form must be entered with a RAF EN defined.

EQRAP form (5822 Record) - This form defines the RAF circuit packs. The SM must be defined on the EQIM form (5700-1 Record). If the RAF is supporting announcements for RACF, ACSR (Automatic Customer Station Rearrangement), and Local Area Signaling Services, the following fields must be entered:

Field	Pack1	Pack2
APPLICATION	BRCS-SLE	—
MICROCODE	5D142A10	5D143A20

If the RAF is supporting ACSR or (ACSR and RACF), the following fields must be entered:

Field	Pack1	Pack2
APPLICATION	ISDN-ACS	—
MICROCODE	5D142A10	5D143A10

If the RAF is supporting RACF only, the following fields must be entered:

Field	Pack1	Pack2
APPLICATION	BRCS-RAS	—
MICROCODE	5D142A10	—

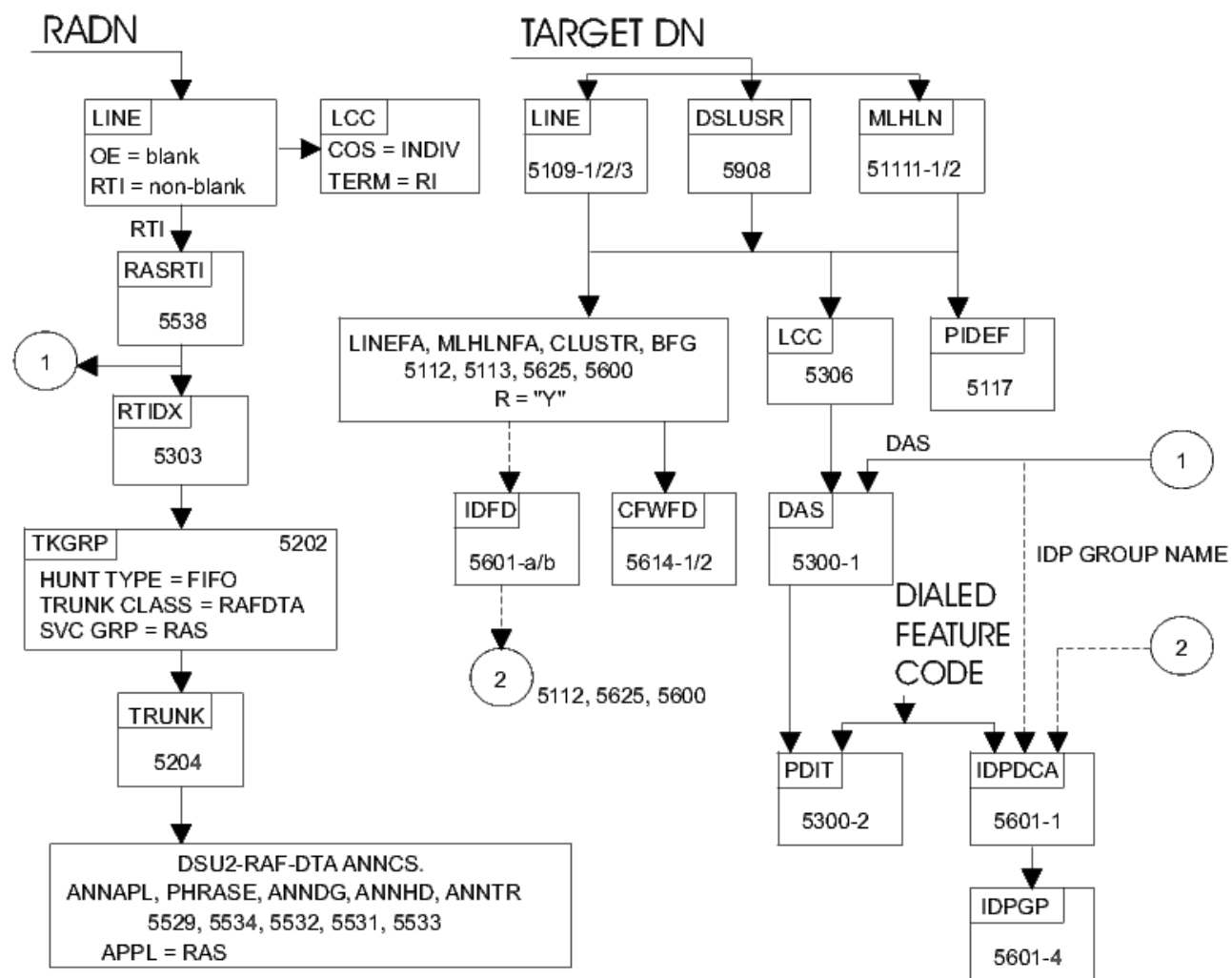


Figure 1 RACF FORM FLOW

SEC. 1AH: CALL FORWARDING OVER PRIVATE FACILITIES

1. FEATURE DESCRIPTION

This section describes the Call Forwarding over Private Facilities (CFPF) and Call Forwarding over Private Facilities/Electronic Tandem Switching (CFPF/ETS) feature and data population.

The CFPF feature allows a user with dial access to private facilities or Automatic Route Selection (ARS) the ability to forward calls over private facilities. The private facility or service selected by the user can be either: Common Control Switching Arrangement (CCSA), Outward Wide Area Telephone Service (OUTWATS), Foreign Exchange (FX) or senderized (not cut-through) tie-trunk.

The CFPF/ETS feature allows an ETS collocated or noncollocated main business customer station to have all terminating calls automatically forwarded to another ETS on-network or off-network remote station using the Electronic Tandem Network (ETN).

The following terms will be used in this section:

- An Electronic Tandem Network (ETN) is a private telecommunications system arrangement that contains an X number of Electronic Tandem Switches (ETNs) that are interconnected via intertandem trunks.
- When an ETS of an ETN provides business service and ETS service switching for an ETS customer station, the business is said to be collocated with the ETS.
- If business service switching for an ETS main business customer is provided by a switch other than ETS of the ETN, then the service is said to be noncollocated. In a noncollocated application, the ETS main business customer stations have calling party access to an ETS of the ETN via a non-senderized trunk.

For more information on CFPF National ISDN applications, see Division 2, Section 1AM; for information on CFPF/DA (CFPF/Don't Answer), see Division 2, Section 4A155.

1.1 CFPF FEATURE ACTIVATION

The user goes off-hook, receives dial tone, dials the CFPF activation code, receives 2nd dial tone and dials an ARS or PFA access code. If the access code is valid, a 3rd dial tone is returned awaiting the remote station number. If the user receives confirmation tone and remains off-hook, the call is placed to the remote station to verify the call is being forwarded properly. If the user goes on-hook after confirmation tone, the call forwarding will still be activated.

An ISDN user may use an on-hook activation (pressing CFPF feature button with an ACTION of "BNTOG") thus allowing the account codes, authorization codes and forward to DNs to be defaulted by ODA or RC on the Call Forwarding Feature Definition forms (CFWFD, CFWLPA, or CFWMPA). The account codes, authorization codes and forward to DNs are automatically CORCed during off-hook (dial code of CFPF with an ACTION of "FTACT") activation. This also applies to CFPF/ETS.

1.2 CFPF/ETS FEATURE ACTIVATION

A collocated or noncollocated user goes off hook, receives dial tone, dials a CFPF activation code, receives 2nd dial tone and dials an ARS (collocated) or PFA (noncollocated) access code. If the access code is valid, 3rd dial tone is returned. The user can dial, optionally, a lead account code followed by an account code. If the code was dialed, the 4th dial tone prompts for the 7/10 digit remote station number (with ETS, a 7-digit number is used for call forwarding to an on-network remote station while a 10-digit number indicates a call is

being forwarded to a off-network remote station). After remote station dialing, an authorization code will be required for off-network DNs and may be optionally prompted for on-network DNs from a noncollocated main business customer. The user dials the authorization code and will receive one of the following tones:

- A. If confirmation tone is given, the CFPF/ETS feature is automatically activated and remains activated until deactivated by the station user or the ETS customer attendant.
- B. In a collocated base station application, if an invalid remote station DN is dialed, reorder tone will be given instead of confirmation tone.
- C. In a noncollocated base station application, if an invalid remote station DN is dialed, confirmation tone followed by reorder tone is returned to the user.

1.3 CFPF AND CFPF/ETS FEATURE DEACTIVATION

The base station user goes off-hook, receives dial tone and dials the CFV deactivation code. If the code is valid, confirmation tone followed by dial tone will be given.

2. TRANSLATION REQUIREMENTS

2.1 LINE TRANSLATIONS

LINEFA form (5112 Record)

The CFPF call forwarding feature defined on the CFWFD form must be assigned to the line that is forwarding calls over private facilities.

The lines which are using an account code and authorization code must have the account and authorization features defined on the ATHFD and ACCTFD forms. The ACCTFD and ATHFD features may be assigned here or on a corresponding BFG or CLUSTER form.

The associated ARS features and PFA features must be assigned to the lines to allow access to the private facilities.

MLHLNFA form (5113 Record)

The CFPF call forwarding feature defined on the CFWFD form must be assigned to the lead member of the MLHG which is forwarding calls over private facilities.

The hunt groups which are using an account code and authorization code must have the account and authorization features defined on the ATHFD and ACCTFD forms.

The associated ARS features and PFA features must be assigned to the lines to allow access to the private facilities.

2.2 ROUTING AND CHARGING TRANSLATIONS

PDIT form (5300-2 Record)

This form and/or the IDPDCA form may be used to define the CFV activation and deactivation codes (ACTION of "FTACT" and "FTDCT"), ARS use codes (ACTION of "ARSUSE", "ARS1USE" or "ARS2USE"), PFA access codes (ACTION of "PFUSE"), ACCT use code (ACTION of "ACCTUSE") or ARS use codes (ACTION of "ARSUSE").

AMACT form (5506 Record)

This form is used to define the CALL TYPE which is associated with the CHARGE INDEX defined on the CGIDX form.

The following CALL TYPES may be used for trunks which are used for CFPF or CFPF/ETS:

- CFPFNA - A forwarded incoming call will be billed when answer supervision has been returned. If the trunk does not return answer supervision, the billing will begin when the call is answered.
- TANTTK - A forwarded incoming call will be billed when a simulated answer supervision has been returned. With this CALL TYPE, billing will occur even if the the call is not answered.

CGIDX form (5302-1 Record)

This form is used to define the CHARGE INDEX. The index is used to determine which type of billing should be used to forward a call over a trunk which is being accessed by a PFA group with a CODE INDEX assigned on the PFAGPA form. The CALL TYPES are defined on the AMACT form.

2.3 BRCS TRANSLATIONS

IDPDCA form (5601-1/2 Record)

If the base station user belongs to an IDP group, this form may be used to define the CFV activation and deactivation codes (ACTION of "FTACT" and "FTDCT"), ARS use codes (ACTION of "ARSUSE", "ARS1USE" or "ARS2USE"), PFA access codes (ACTION of "PFUSE"), ACCT use code (ACTION of "ACCTUSE") or ARS use codes (ACTION of "ARSUSE").

CFWFD form (5614-1/2 Record)

This form is used to define the CFPF feature which is to be assigned to the TNs or MLHGs which are forwarding calls over private facilities. The preconstructed feature /CFPF or a constructed feature with CFPF ALW set to "Y" may be used to indicate calls will be forwarded over private facilities.

The ACT TYPE may not be "CDDNCA" or "CDCA1A" and the FWD CONDITION must not be "PRCI" or "IDLE". Note that for 5E9(1) and later, if the CFPF/DA (Call Forwarding Over Private Facilities/Don't Answer) secured feature is purchased and SFID ACT 155 is "Y", FWD CONDITION may be set to "IDLE".

The ACCT CODE is used to store the account code which is used when the call is being forwarded.

The ATH CODE is used to store the authorization code which is used when the call is being forwarded.

The FORWARD TO DN is used to store the account use codes, authorization use codes, LEAD ACCOUNT CODE, defined on the PFAGPA form, ARS use codes, PFA access code and the forward to DN which is used when the call is being forwarded.

The ACCT CODE, ATH CODE and FORWARD TO DN are CORCed during off-hook activation. These fields may be used as defaults after off-hook activation (CORC) or through assignment via RC or ODA as long as on-hook activation (ISDN CFV feature button) is being used.

CFWLPA form (5614-3 Record)

This field is used to assign a specific FORWARD TO DN and ACCT CODE or ATH CODE to a non-multiline

hunt line with this call forwarding feature.

CFWMPA form (5614-4 Record)

This field is used to assign a specific FORWARD TO DN and ACCT CODE or ATH CODE to a multiline hunt line with this call forwarding feature.

PFAGPA form (5609-5 Record)

This form is used to define the private facility group which uses the private facility to forward calls.

An ETS access trunk that operates in senderized mode limits the number of digits that can be outpulsed from the noncollocated main to the ETS of the ETN which makes account code and authorization features unavailable at the noncollocated main location. Therefore, noncollocated CFPF/ETS requires the ETS TRK IND = "Y" on this form and the trunk to be non-senderized which is indicated by the CUT THRU field set to "Y" on the TKGRP form (5202-1/2/3 Record).

- **NOTE:** If a CFPF activation is initiated over a non-senderized trunk which is not marked as an ETS trunk, the call will be routed to reorder and the CFPF feature will remain inactive.

This form allows a lead account code and account code to be entered without having an ACCT feature by entering a LEAD ACCT CODE and an ACCT CODE LENGTH. The ACCT CODE LENGTH determines the validity of an account code on a noncollocated switch.

During CFPF/ETS activation, a noncollocated user has the option of being prompted for an authorization code on all on-network calls (7-digit DNs) by entering a value other than "NONE" in the ATH PROMPT field and by entering a value of "Y" in the ATH ALW field. The noncollocated switch has no way of knowing if the authorization code is valid (except by the length indicated by the ATH CODE LENGTH field on the PFAGPA form). The ATH CODE LENGTH and authorization codes may be dialed without having the ATH feature.

- **NOTE:** All off-network calls (10-digit DNs) will always be prompted for an authorization code even if the ATH ALW field has a value of "N".

For a noncollocated switch, the digits must be outpulsed to the ETS via a cut through trunk according to the ETS Uniform Dialing Plan. The PAUSE1 field allows time for the ETS to get ready for digit collection. The PAUSE2 field allows a delay between the account code and the DN. The PAUSE3 field allows a delay between the DN and the authorization code.

ACCTFD form (5623-1 Record)

This form is used to define the account code feature. This form must be used if an ACCT CODE is entered on one of the Call Forwarding Feature forms (CFWFD, CFWLPA or CFWMPA).

ATHFD form (5619-1 Record)

This form is used to define the authorization code feature. This form must be used if an ATH CODE is entered on one of the Call Forwarding Feature forms (CFWFD, CFWLPA or CFWMPA).

SEC. 1AI: CENTRALIZED ATTENDANT SERVICE/RELEASE LINK SERVICE (CAS/RLS)

1. FEATURE DESCRIPTION

Centralized Attendant Service/Release Link Service (CAS/RLS) allows a business customer, having more than one business location served by separate switching machines, to concentrate attendants at a single location. CAS/RLS allows an attendant located at the main switching machine to control certain switching actions at a branch switching location. RLS provides improved trunk facility usage on calls which require attendant assistance. Release Link Trunks (RLTs) are used by RLS to provide short holding time connections for attendant calls from the branch location to the main location.

The CAS/RLS service is similar to the Main/Satellite service except the tie-trunks will be replaced by RLTs from the branch switch to the main switch. See Figure 1 for CAS/RLS configuration. The attendant at the main switch will provide the branch switches with Attendant Call Transfer, Attendant Camp-on, and Attendant Conference when the appropriate Multi-way and Call Waiting features are assigned to the branch side of the RLT. The attendant may be accessed through LDN calls or dial 0 calls (intercom dialing). The RLTs will only be utilized during LDN calls or dial 0 calls originating from the branch switch. The following trunk types may be defined as RLTs:

- Analog (non-ISDN), senderized tie or Foreign Exchange trunks with a class of service of flash repeating. The trunks are one-way incoming at the main and two-way at the branch.
- Analog (non-ISDN), FX trunk with a class of service of flash repeating entering the main switch. The trunk appears as a line in a Multi-line hunt group with a class of service of "PBX" at the branch switch.

Refer to the Business and Residence Feature Descriptions (235-190-103) document for a detailed description of the CAS/RLS feature.

2. TRANSLATION REQUIREMENTS

The form flow for CAS/RLS using intercom dialing is shown in Figure 2.

2.1 RLT Translations

The FX trunks and tie trunks are defined as an RLT by entering "PERM" (permanent hold RLT) or "TEMP" (temporary hold RLT) in the RLT TYPE field on the corresponding TKGRP form or MLHG form. A permanent hold RLT may be released by the attendant by pressing the "RING" or "CAMP" keys on the 50B Console or the "RLS LOOP" key on the ISDN Console. A temporary hold RLT will be released automatically when the extended leg of a multi-way call answers. If a call is split on a temporary hold RLT, the call may be held until the originating party station has been reconnected by the attendant by pressing the "JOIN" key.

The RLT FLASH field indicates the types of signals the branch will send to the main.

If RLT FLASH is set to "Y", signals for called party answer, calling party disconnect, and called party disconnect will be sent over the RLT. Attendant consoles, which have additional status lamps, will be able to recognize the different types of flashes. If the attendant console is an ISDN or 50B console, only called party answer will be recognized by the attendant console.

If RLT FLASH is set to "N", only called party answer will be sent by the branch.

The following forms are used to populate data for the RLTs:

LCC form (5306 Record)

An FX trunk on the branch switch must have an LCC with a CLASS OF SERVICE of "PBX".

MLHG form (5110 Record)

This form is used to define an FX trunk group as an RLT on the branch switch by entering "PERM" or "TEMP" in the RLT TYPE field.

TKGRP form (5202 Record)

This form defines an FX trunk or a tie trunk as an RLT. The following entries are needed for an FX trunk defined as an RLT on the main switch.

FX Trunk Entries for RLT Main Switch	
Field	Entry
CUT THRU	"N"
DIR CON DN	
IMPULSING	"NONE"
OUTPULSING	no entry
RLT TYPE	"PERM" or "TEMP"
TRK DIR	"INC"
TRKCLS	"PFLASH"

The following entries are needed for a tie trunk defined as an RLT on the main switch.

Tie Trunk Entries for RLT Main Switch	
Field	Entry
TRK DIR	"INC"
TRKCLS	"PFLASH"
IMPULSING	"DP", "MF", or "TT"
OUTPULSING	no entry
CUT THRU	"N"
RLT TYPE	"PERM" or "TEMP"

The following entries are needed for a tie trunk defined as an RLT on the branch switch.

Tie Trunk Entries for RLT Branch Switch	
Field	Entry
TRK DIR	"2W"
TRKCLS	"PFLASH"
IMPULSING	"TT"
OUTPULSING	"DP", "MF", or "TT"
CUT THRU	"N"
RLT TYPE	"PERM" or "TEMP"

MLHLN form (5111 Record)

This form is used to define the FX trunks which have been defined as RLTs on the associated MLHG form by entering "PERM" or "TEMP" in the RLT TYPE field. The RLTs must have the following fields entered:

- BRCS is "Y"
- GNDREF "Y"
- TTC is "Y"

2.1.1 TRUNK form (5204 Record)

This form defines the tie and FX trunks which have been defined as RLTs on the associated TKGRP form.

An FX trunk at the main switch must have the following entries:

- IN START DIAL must be "DIRC"
- OUT START DIAL must not be entered.

A tie trunk at the main switch must have the following entries:

- IN START DIAL must be "WINK".
- OUT START DIAL must not be entered

A tie trunk at the branch switch must have the following entries:

- IN START DIAL must be "DLTN"
- OUT START DIAL must be "IMED"

2.2 Multi-way Feature Translations

The attendant features are provided for the branch switches by assigning analog Multi-way features (defined on the MWFD form, 5602-1/2) to the originating side (branch side) of the RLT via the TKGRPFA form (5206 Record) for a trunk appearance or the MLHLNFA form (5113 Record) for a line appearance.

Attendant Satellite Transfer may be provided to the branches by assigning the /MWSAT1 feature to the lines (via LINEFA form) and assigning either the /MWCTA1 and /MWCH1 or the /MWCTA2 feature to the originating side of the RLT via TKGRPFA form. If the /MWCTA2 feature is selected, the attendants DN must be specified in the DIRCONDN field on the MWTPA form (5602-5 Record).

2.3 Call Waiting Feature Translations

To provide automatic attendant camp-on, an attendant call waiting feature (/CWACO or /CWACODT) must be assigned to the RLT at the branch side via the TKGRPFA form (trunk appearance) or MLHLNFA form (line appearance).

2.4 Miscellaneous Translations

If queueing is desired, the queueing feature should be assigned to the attendant MLHG at the main not to the RLT at the branch.

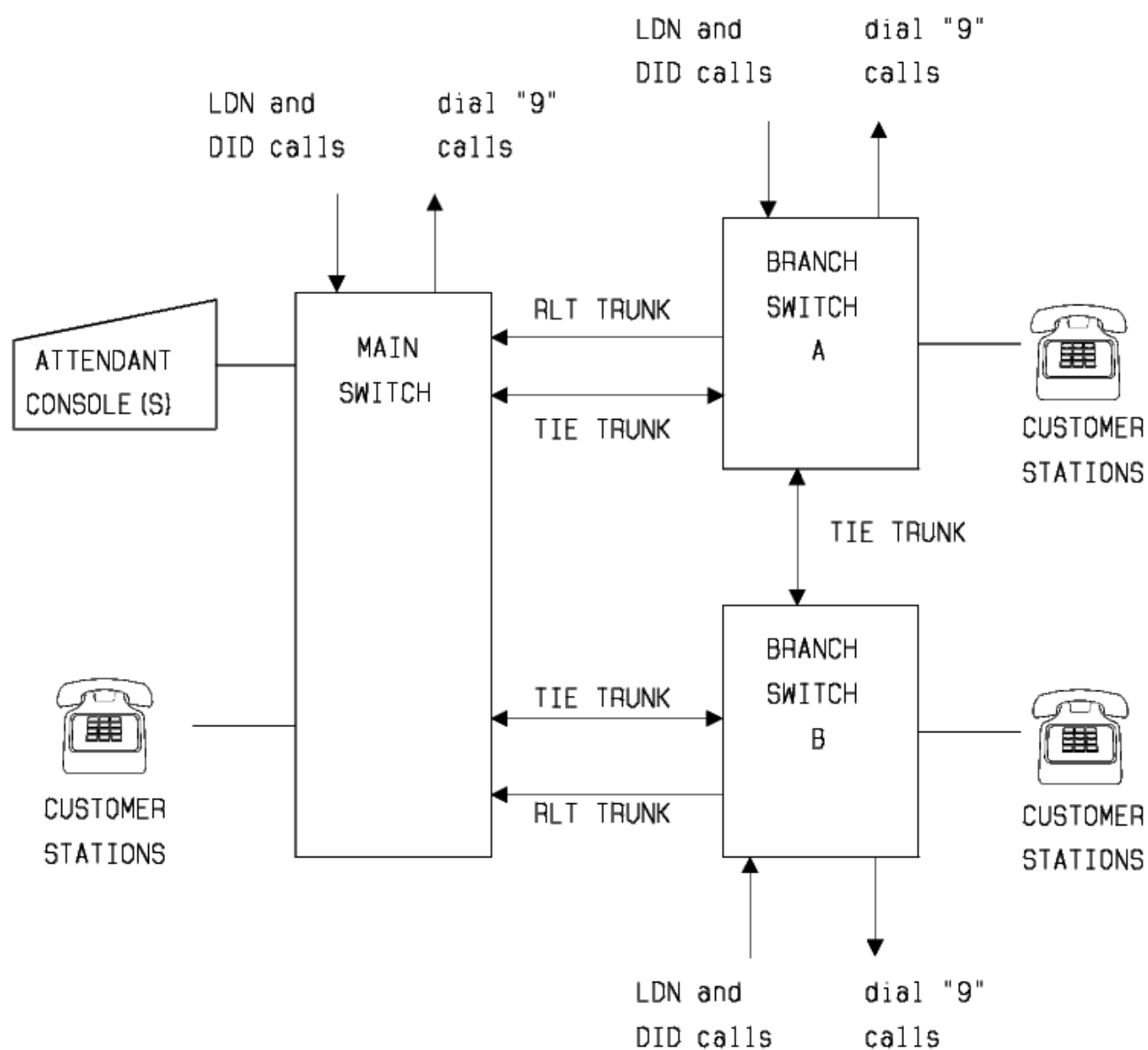


Figure 1 CAS/RLS NETWORK

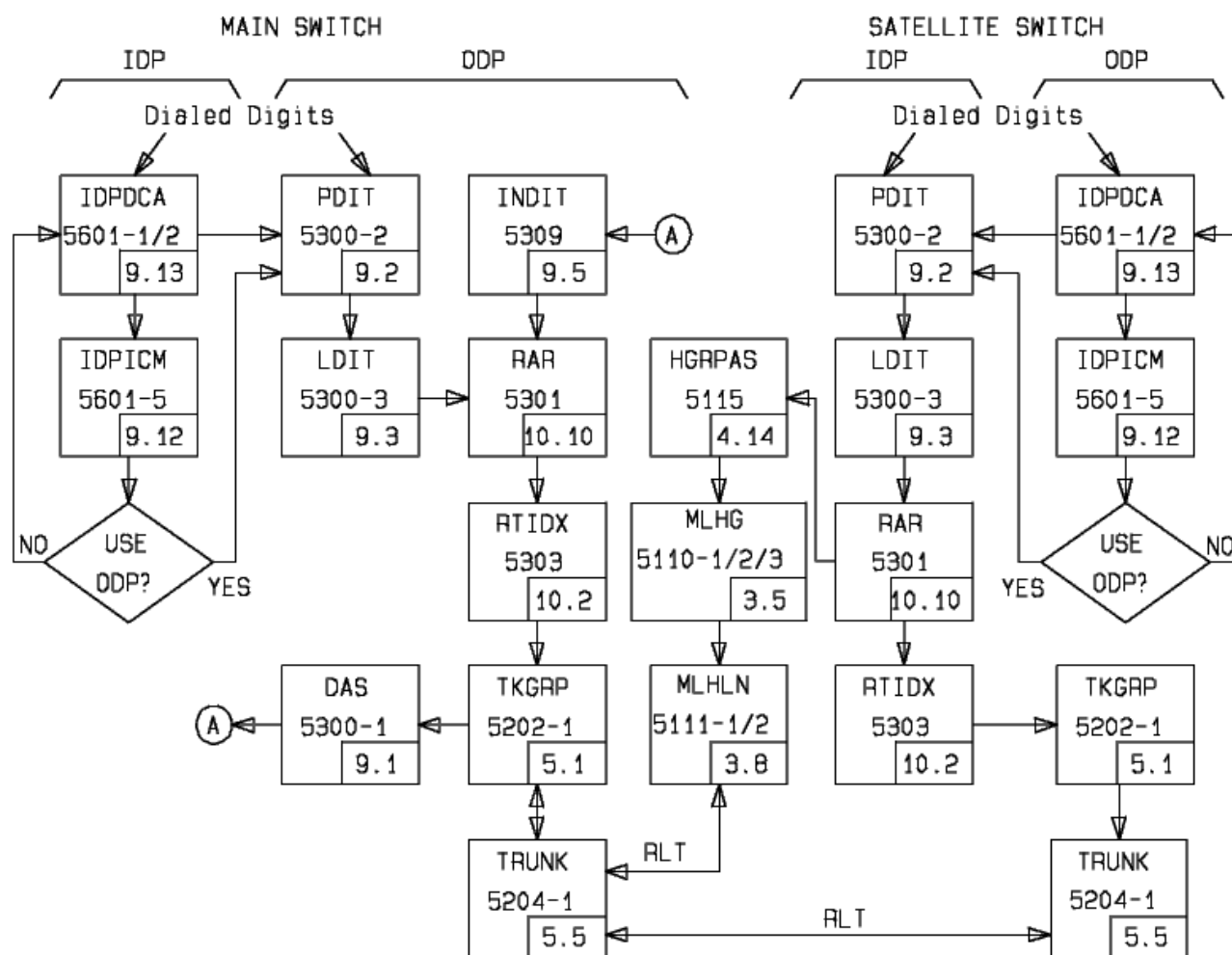


Figure 2 CAS/RLS FORM FLOW

SEC. 1AJ: ATTENDANT CALL FORWARDING/FLEXIBLE NIGHT SERVICE

1. FEATURE DESCRIPTION

1.1 ACF/FLXNS (Attendant Call Forwarding/Flexible Night Service)

Is available with 5E5 and later Software Releases. ACF allows attendants in ISAT or MUPH groups the ability to forward associated TNs and MLHG's to a changeable Forward To DN.

FLXNS, a subset of ACF, allows attendants in ISAT or MUPH groups the ability to forward a LDN (Listed Directory Number) to a changeable NDN (Night Directory Number). The attendants may forward all LDNs at once by forwarding the first LDN. Also, the attendant may deactivate FLXNS for an individual LDN or all the LDNs via a dial code.

The following terms will be used in this section:

- The term "attendant" is any line or group of lines which are given attendant Class of Service.
- The term "Target DN" refers to the DN that the attendant is forwarding.
- The term "Forward To DN" refers to the DN the call is being forwarded to.
- The term "Station TN" is used to define a TN which has an associated attendant which can forward its calls.
- The term "Station MLHG" is used to define a MLHG which has an associated attendant which can forward the groups calls.
- The term "LDN" is defined as a DN which is used to access an ISAT or MUPH group.

1.2 ATTENDANT REQUIREMENTS

All attendants must be in an ISAT or MUPH group (HUNT TYPE = "MUPH" or "ISAT" on the MLHGFD form) with a CLASS OF SERVICE of "ATND" or "ISATND" on the LCC form.

The first terminal of the attendant group must have CFV assigned to it on the MLHLNFA form. Subsequently, all attendants in the group will automatically receive ACF/FLXNS.

1.3 STATION TN REQUIREMENTS

All Station TNs must have the CFV feature assigned to them on the corresponding feature assignment form (LINEFA, BFG, or CLUSTR form) before ACF can be used to activate/deactivate call forwarding for the stations.

All Station TNs must have an associated attendant with ATT MLHG entered on the corresponding DSLUSR or LINE form to allow ACF.

1.4 STATION MLHG REQUIREMENTS

Station MLHG's cannot be an ISAT or MUPH group (HUNT TYPE not equal to "MUPH" or "ISAT" on the MLHGFD form).

The first terminals of each Station MLHG, defined on the DSLUSR or MLHLN form must have the CFV feature

assigned to them on the MLHLNFA form before ACF can be used to activate/deactivate call forwarding for the stations.

All Station MLHGs must have an associated attendant for ACF (ATT MLHG field entered on the corresponding MLHG form).

1.5 FEATURE ACTIVATION

The attendant will use the same dial code used for CFV in 5E4(2).

The following scenario will show the process used by the attendant to activate ACF for a Station TN (refer to Figure 1):

1.5.1 Scenario

Attendant #2 dials the CFV code '*72'. The system will give recall dial tone, awaiting the Target DN. The attendant enters the Target DN '5102447'. The system will give recall dial tone, awaiting the Forward To DN. The attendant dials the Forward To DN '&'5107898'. The system will give confirmation tone followed by dial tone.

The following scenario will show the process used by the attendant to activate FLXNS for all LDNs that are controlled by the attendant (refer to Figure 1):

1.5.2 Scenario

Attendant #3 dials the CFV code '*72'. The system will give recall dial tone, awaiting the Target DN. The attendant enters the Target DN for LDN #1 '5102346'. The system will give recall dial tone, awaiting the NDN. The attendant dials the NDN '5106335'. The system will give confirmation tone followed by dial tone.

■ **NOTE:** When LDN #1 is forwarded, all associated LDNs will be forwarded to the same DN.

1.6 FEATURE DEACTIVATION

In 5E5 and later Software Releases, the following actions take place when the attendant (ISAT or MUPH) deactivates CFV.

The following scenario will show the process used by the attendant to deactivate ACF for the Station TN activated in Scenario 1 (refer to Figure 1):

1.6.1 Scenario

Attendant #4 dials the CFV code '*73'. The system will give recall dial tone, awaiting the Target DN. The attendant enters the Target DN '5102447'. The system will give confirmation tone followed by dial tone.

The following scenario will show the process used by the attendant to deactivate FLXNS for all the LDNs activated in Scenario 2 (refer to Figure 1):

1.6.2 Scenario

Attendant #4 dials the LDN deactivation code '*74'. The system will give confirmation tone followed by dial tone.

1.7 FEATURE INTERACTION

FLXNS and FNS may be used simultaneously but FLXNS will take precedence over FNS. The order in which the Night Service features are activated or deactivated has no effect on the feature.

1.7.1 Scenario

The attendant dials *72 to forward the 2nd LDNs '5106753' calls to DN '5107898'. The attendant then presses the CFNS feature button to forward all LDNs to the NDN '5106335'. All LDNs except LDN #2 will be forwarded to the NDN '5106335'. If the attendant dials the deactivation code *73 for LDN #2, all LDNs including LDN #2 will be forwarded to the NDN '5106335'.

2. TRANSLATION REQUIREMENTS

2.1 LINE TRANSLATIONS

DSLUSR form (5908 Record) - This form is used to assign an attendant to a Station TN and Station MLHG. The ATT MLHG field indicates the TN or CKT TN has an associated attendant group. Also, the TN or CKT TN must have CFV assigned to it on the corresponding feature assignment form (LINEFA, BFG, CLUSTER form) to allow the attendant to forward the Station TNs or Station MLHGs calls.

LINE form (5109-1/2/3 Record) - This form is used to assign an attendant to a Station TN. The ATT MLHG field indicates the TN has an associated attendant group. Also, the TN must have CFV assigned to it on the corresponding feature assignment form (LINEFA, BFG, CLUSTER form) to allow the attendant to forward the Station TNs calls.

MLHLN form (5111-1/2 Record) - This form is used to indicate which attendant group can monitor the terminal. The ATT MLHG field indicates which attendant group can monitor the terminal defined on this form.

SHTN form (5902 Record) - The ATT MLHG field indicates which attendant group can forward the Secondary-only TN. The first TN in the Secondary-only TN SHARED LIST will be the Primary TN and will receive Ping-Ring.

MLHG form (5110-1/2/3 Record) - The station MLHG must have the ATT MLHG field entered, indicating which attendant group is able to forward the hunt group via ACF.

The attendant group must have CFV assigned to the first terminal in the hunt group and cannot have an ATT MLHG associated with it.

The LDNs are defined as SUBTNs on this form and may only be assigned to ISAT and MUPH groups.

2.2 ROUTING AND CHARGING TRANSLATIONS

PDIT form (5300-2 Record) - This form and/or the IDPDCA form may be used to define the dial codes which are used to activate/deactivate ACF and FLXNS. The feature is activated by assigning the CFV feature and the "FTACT" ACTION to a dial code. The ACF feature may be deactivated by assigning the CFV feature and the "FTDCT" ACTION to a dial code. Also, all LDNs may be deactivated at once by assigning the CFV feature and the "LDNDCT" ACTION to a dial code.

2.3 BRCS TRANSLATIONS

CFWFD form (5614-1/2 Record) - The Call Forwarding Feature Definition form is used to define the CFV. The CFV feature must be assigned to the first terminal of the attendant group and to the first terminal of all Station MLHGs on the MLHLNFA form to allow for ACF.

IDPDCA form (5601-1/2) - If the user is in an IDP GROUP, this form may be used to define the dial codes which are used to activate/deactivate ACF and FLXNS. The feature is activated by assigning the CFV feature and the "FTACT" ACTION to a dial code. The ACF feature may be deactivated by assigning the CFV feature and the "FTDCT" ACTION to a dial code. Also, all LDNs may be deactivated at once by assigning the CFV feature and the "LDNDCT" ACTION to a dial code.

ATTENDANTS

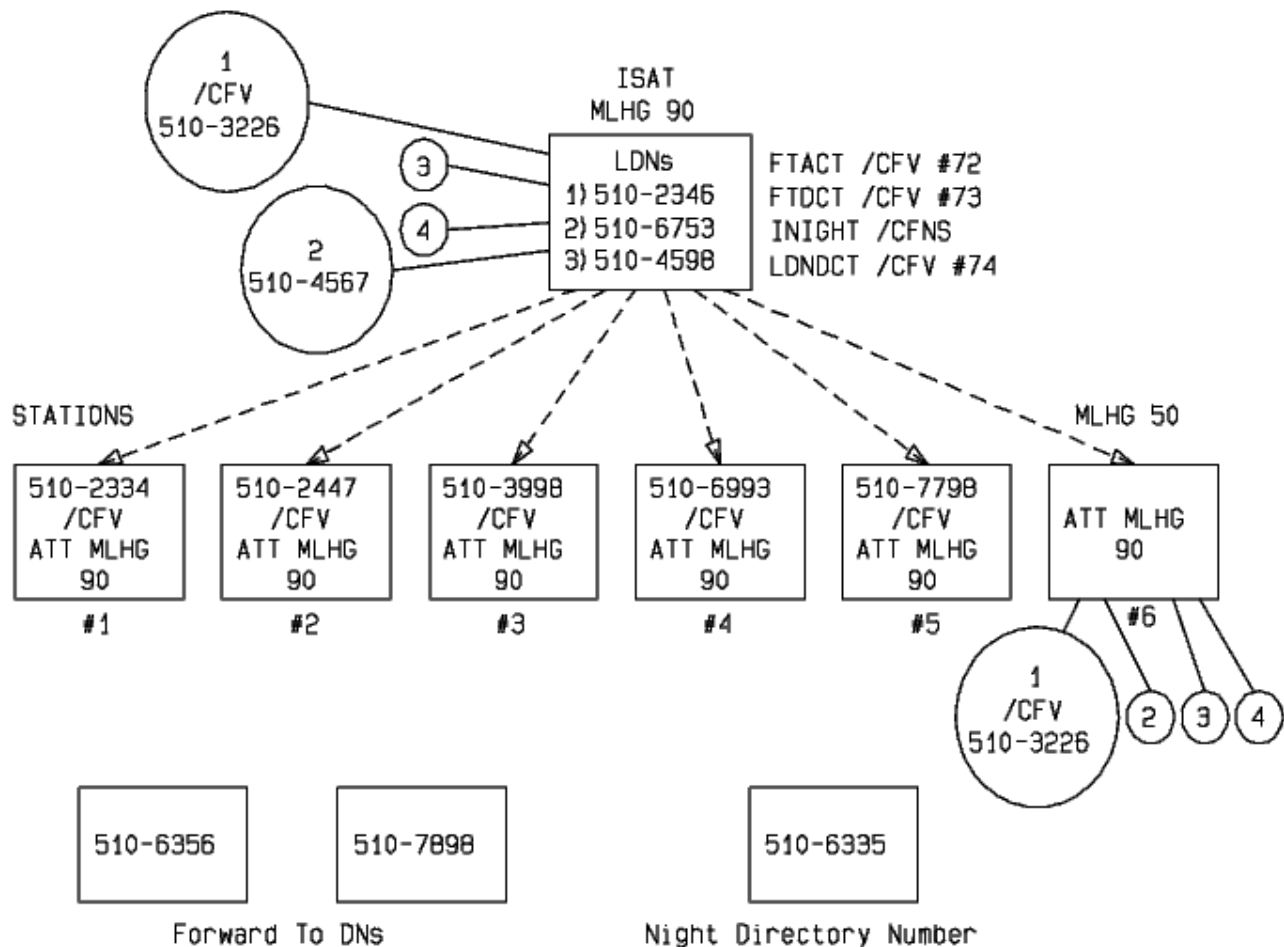


Figure 1 ATTENDANT/STATION ASSIGNMENT

SEC. 1AK: SELECTIVE CARRIER DENIAL

1. FEATURE DESCRIPTION

The SCD (Selective Carrier Denial) feature, which is available with 5E5 and later Software Releases, allows an operating company to screen and block certain carrier-handled calls designated as non-paying subscribers by the particular carrier and is completely independent from the existing 5ESS Switch Carrier Interconnect non-payer screening capability.

After subscribing to the feature, the carrier provides the operating company with a list of subscribers who should be denied access to the carrier's facilities, and a list of previously denied subscribers who should regain access. Any previously denied subscribers who wish to regain access to the carrier must negotiate this issue with the operating company and the carrier in order to have carrier service restored. Also, no more than thirty-one carriers can subscribe to the operating company's SCD service at one time. Furthermore, the operating company is responsible for the administration, support and operation of the SCD feature. These responsibilities include: assigning and removing SCD to and from lines, routing blocked interLATA and intraLATA calls to a tone or announcement via call processing, determining which SACs (Service Access Codes) are to be blocked for SCD screened lines and administering support tools.

The SCD feature screens calls based on the originating line and the carrier that will handle the call, and it applies to the following lines:

- POTS lines
- BRCS (Business and Residential Customer Services) lines
- RSM (Remote Switching Module) lines
- ORM (Optically Remoted Module lines
- SLC (Subscriber Loop Carrier) lines
- Hotel/Motel lines
- PBX (Private Branch Exchange) and FX (Foreign Exchange) lines (PBX and FX lines are trunks using line-type translations.)

ISDN (Integrated Services Digital Network) lines are not included at this time.

The following list shows which screened calls will be blocked. (These calls must originate from one of the previously mentioned lines.)

- Non-operator assisted calls 1 + 7/10 digits [Primary InterLATA Call (PIC) call] 10XXX + (1) + 7/10 digits [non-PIC call]
- Operator-assisted calls 0 + 7/10 digits [PIC call] 10XXX + 0 + 7/10 digits [non-PIC call]
- Operator calls 00- [PIC operator] 10XXX + 0(#) or 10XXX + 00 [non-PIC operator]
- Cut-through calls 10XXX + #
- Information calls 1 + NPA-555-1212 where NPA = Numbering Plan Area

- International calls (10XXX) + 011 + CC + NN [no operator assistance] (10XXX) + 01 + CC + NN [operator assisted call] where CC = Country Code; NN = National Telephone Number
- Service Access Codes (screened only if selected by operating company) (1) + XXX + 7 digits

Internal 5ESS Switch call processing recognizes SCD line assignments and blocks calls for the specified carrier based on the Office Dependent Data (ODD); this process is called SCD screening (see Figure 1). ODD is created using the necessary input forms required to set up and use the SCD feature (see TRANSLATIONS REQUIREMENTS) and is maintainable over Generic retrofits.

The screening process begins during Digit Analysis with the determination of whether or not a particular carrier is screening the originating subscriber's line (see Figure 1). If no carriers elected to screen this line, SCD screening will terminate and the call will continue with normal call processing. If a carrier has chosen to screen the line, call processing will determine whether or not the SCD feature has been purchased by the carrier handling the call. If SCD has not been purchased, SCD screening will terminate for this call (continue normal call processing).

After verifying that the carrier has or has not purchased the SCD service, call processing determines whether or not the call is a SAC call. If the call is not a SAC call, call processing will determine whether or not the call handled by the carrier should be blocked. Blocked calls are routed to a tone or announcement as defined by the operating company; allowed calls continue with normal call processing (SCD screening terminates).

If the call is a SAC call, call processing will determine whether or not the SAC should be screened. If the SAC should not be screened, SCD screening will terminate at this point. If the SAC is screened, call processing tries to determine whether or not the carrier requesting the screening wants to block this SAC call. Blocked calls are routed to a tone or announcement as defined by the operating company; allowed calls continue with normal call processing (SCD screening terminates).

2. TRANSLATION REQUIREMENTS

2.1 LINE form (5109 Record)

The LINE form is used to define the Office Equipment number and features for each defined TN in the switch. The SCD SCRNING field on this form is a "no display" field. Data in this field can be viewed (not entered or changed) by Recent Change/Verify (RC/V) only. The ODD will contain a value ("Y" or "N") for this field based on whether or not the TN on the LINE form has been assigned the SCD feature via the CARSCR form (5551 Record).

2.2 MLHLN form (5111 Record)

This form is used to define the individual terminal numbers that are assigned to a Multi-Line Hunt Group (MLHG). The SCD SCRNING field on this form is a "no display" field. Data in this field can be viewed (not entered or changed) by Recent Change/Verify (RC/V) only. The ODD will contain a value ("Y" or "N") for this field based on whether or not the TERM on the MLHLN form has been assigned the SCD feature via the CARSCR form (5551 Record).

2.3 FIXRT form (5301 Record)

This form is used to define routing and charging treatment of Fixed Route Types. A FIXED ROUTE TYPE value of "SCD" will provide routing to a tone or announcement for calls blocked by SCD screening.

2.4 ICF form (5305 Record)

Use this form to define the characteristics of interLATA (Local Access Transport Area) carriers. In the SCD SCRNING field on this form, enter "Y" (Yes) or "N" (No) to indicate whether or not the carrier has subscribed to the SCD feature. Enter "N" if the carrier is a Local Exchange Carrier (CARRIER TYPE set to "LEC"). If the carrier has purchased the SCD feature, ensure that a FIXRT form has been defined and has a FIXED ROUTE TYPE of "SCD".

2.5 CARSCR form (5551, 5551A Records)

This form contains the basic components of an initial SCD assignment and is used to assign carrier line screening information to an individual TN or to an MLHG and MLHG member (TERM field) for a particular carrier. The 5551 Record consists of all carriers requesting the screening of each individual TN or MLHG group and member; the 5551A Record is comprised of each unique CARRIER ID and the corresponding TN or MLHG group and member that the listed carrier is screening.

The TN, MLHG, and TERM values are optional key fields on this form; otherwise, the only key field is the CARRIER ID field. The MLHG and TERM values must be defined on the MLHLN form where OE TYPE/NUMBER is defined and "N" is entered in the SHARED field, and the TN value must be defined on the LINE form where OE TYPE/NUMBER is defined and "N" is also entered in the SHARED field.

If a TN is assigned on this form, the MLHG and TERM fields must be left blank and vice versa due to the fact that one CARSCR form is used per individual TN or MLHG group and member. For either case the CLASS OF SERVICE on the LCC form (5306 Record) must be defined as one of the following: "INDIV", "PBX", "HOTMOTL", or "HOTPBX".

2.6 SACSCR form (5552 Record)

Use this form to assign Service Access Codes that will be screened by the SCD feature. Enter a three-digit Service Access Code in the NPA format where N is any digit in the range 2 - 9, P is in the range 0-1, and A equals 0-9. If a SAC is entered on this form, it must be defined as the first three digits of INCOMING DIGITS on at least one LDIT form with TYPE OF CI CALL set to "SAC". See Figure 1 for SCD SCREENING call flow.

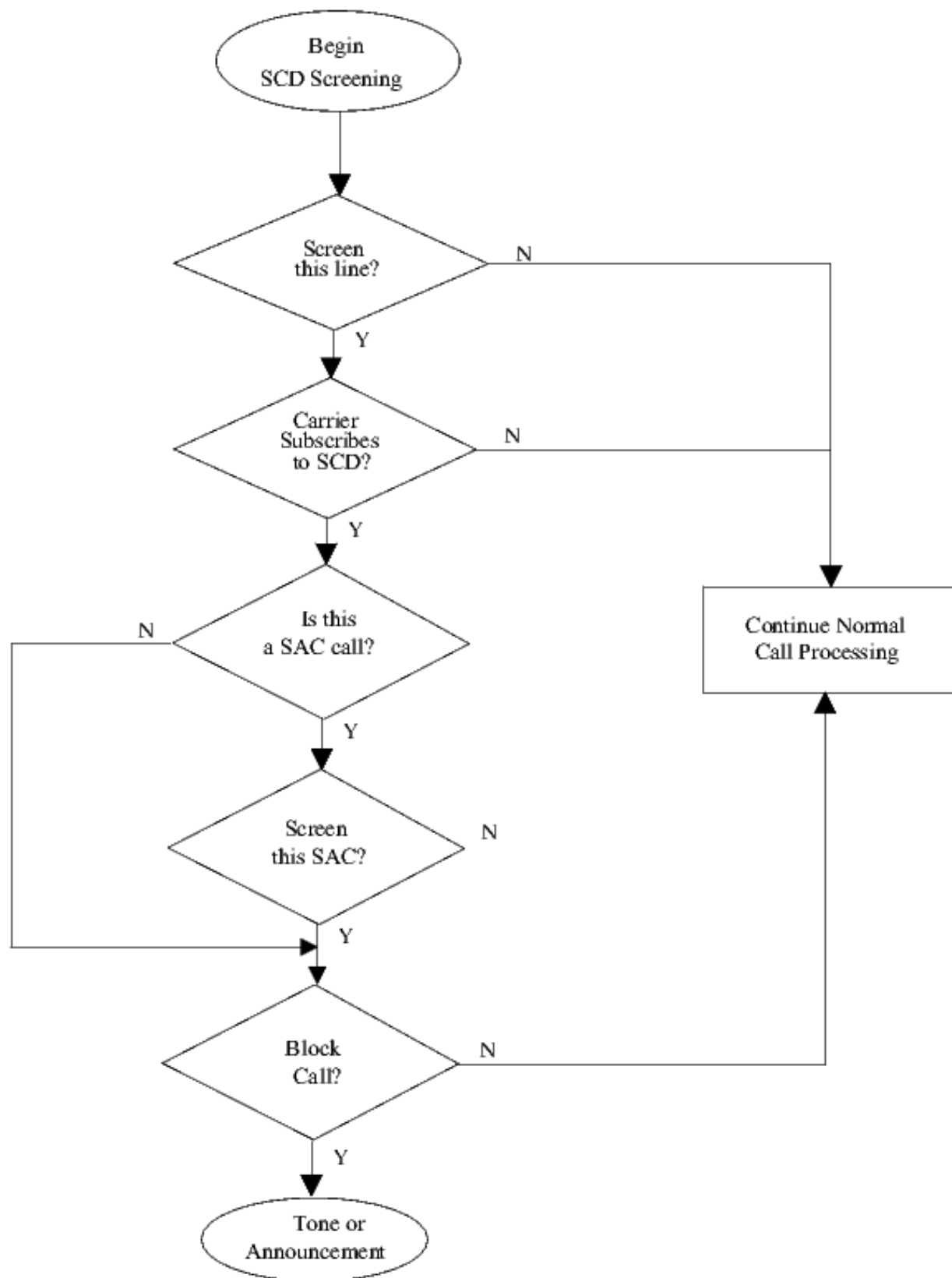


Figure 1 SCD SCREENING CALL FLOW

SEC. 1AL: ISDN CLOSED USER GROUPS AND MODEM POOLING

1. CLOSED USER GROUP FEATURE DESCRIPTION

The CUG (Closed User Group) feature is an ISDN packet switching service provided on the 5ESS Switch with 5E3 and later Software Releases. Based on CCITT (International Telegraph and Telephone Consultative Committee) Recommendations, the feature allows ISDN packet switching subscribers to establish subnetworks protection against unauthorized access. A subscriber may optionally belong to one or more CUGs.

Each Closed User Group member subscribes to one of the following access arrangements:

- Closed User Group (C) is the simplest and most restrictive type of CUG membership. The subscriber may exchange calls with other members of the same CUG(s) but cannot communicate with anyone outside the CUG(s).
- C+IA (Closed User Group with Incoming Access) is a user with Incoming Access who may make and receive calls as described for the closed user group (C). However, the C+IA user may receive calls from non-CUG users (those who are not members of a CUG) and from members of other CUGs who have outgoing access. The user's outgoing calls are still restricted to members of the user's CUG(s).
- C+OA (Closed User Group with Outgoing Access), is a user with Outgoing Access who may make and receive calls as described for the closed user group (C). The C+OA user may additionally make calls to all non-CUG users and to users of other CUGs who have Incoming Access. The user may receive incoming calls only from members of the user's CUG(s).
- C+IA+OA (Closed User Group with Incoming Access and Outgoing Access), is a user with Incoming Access and Outgoing Access who may make and receive calls as described for both the closed user group with incoming access (C+IA) and the closed user group with outgoing access (C+OA).

All access arrangements and restrictions apply to the CUG member and not to individual CUGs.

1.1 FEATURE ACTIVATION

The Closed User Group feature and its related access arrangements are activated via subscription. A group of users that wishes to establish a secured data environment must coordinate CUG formation and maintenance with the appropriate administrations.

The packet switching data network authority and the Telephone Company jointly administer a Closed User Group.

Each packet switching network is uniquely identified by a DNIC (Data Network Identification Code); in the United States DNICs are assigned to Regional Bell Operating Companies and Interexchange Carriers by the FCC. When the DNIC authority creates a CUG, it assigns an ICN (International Closed User Group Number), uniquely identifying the CUG within the DNIC. The DNIC/ICN must be assigned to each subscriber on the subscriber's originating switch.

1.2 SUBSCRIPTION DATA

For each packet telephone number or MLHG/TERM (Multiline Hunt Group Terminal) that requests CUG service, the following information must be provided via translations:

- List of CUGs to which the DN or MLHG/TERM subscribes.
- Subscriber access permissions.
- Subscriber preferential CUG designation.

Data for each CUG in a subscriber's CUG list must include the DNIC/ICN identifier as well as an Index, a 2-digit alias by which the subscriber identifies the CUG. The Telephone Company assigns a CUG Index to each of a user's memberships. The index has local meaning between the user and the serving switch and is typically the only CUG identifier known by the subscriber. It is used to specify a preferential CUG in translations and is also used by the subscriber when specifying a CUG in a dialing sequence.

1.3 CALL CONTROL

To understand the Closed User Group translation data, it is helpful to consider control requirements on a CUG call. The Closed User Group protection scheme requires the switching network to determine if a call from or to a subscriber is allowed. For an intra-CUG call, it must also verify that the calling and called parties are members of the same CUG.

When a CUG call is initiated, the originating exchange forwards call control information to the called exchange. This data includes the CUG identification code and, in some cases, an outgoing access indicator.

Upon receipt of the call, the called exchange analyzes the control information. If the outgoing access indicator is absent, the call is an intra-CUG call and both subscribers must be members of the CUG. If the outgoing access indicator is present, the terminating subscriber need not belong to any CUG; if he does belong to a CUG, he must either belong to the same CUG as the originating subscriber or he must have incoming access permission.

1.4 CUG SELECTION

A Closed User Group subscriber can select a CUG on a per call basis by including a CUG index in the dialing sequence. This would be the case when the caller has no preferential CUG or wants to initiate the call from within a CUG other than the preferential.

1.5 PREFERENTIAL CUG

The user may select a preferential CUG via subscription. The preferential is a default CUG. When the user makes a CUG call and does not select a CUG in the dialing sequence, the call is automatically placed within the default CUG.

CUG subscribers with neither Incoming Access nor Outgoing Access must be assigned a preferential CUG index. Subscribers with either type of access are not required to select a preferential CUG but may do so at their option.

1.6 CUG APPLICATIONS

The Closed User Group feature can be used to establish a protected subnetwork for any group of ISDN packet switching users. On the 5ESS Switch it is also used in conjunction with the ISDN Modem Pooling feature and with the OSPS AMLB (Automated Multi-Leaf Bulletin) option. Modem Pooling is explained in this section. For specific information on CUGs in AMLB, see the OSPS (Operator Services) section in Division 2 of the TG-5.

2. CLOSED USER GROUP TRANSLATION REQUIREMENTS

PSCUG form (5924/5924A Record)

This form is used to assign a packet switching subscriber line to a Closed User Group. CUG membership must be assigned separately to each packet telephone number and to each packet MLHG and Member. This includes D Channel packet users, permanent B Channel packet users and On Demand B Channel packet users. If a subscriber desires the CUG feature for more than one of these services, CUG membership must be assigned to each service individually.

The PSCUG form also defines the CUG Index that identifies the CUG for the subscriber. The CUG Index is used directly by the subscriber when (s)he dials the CUG along with the called number. It is also used in translations to specify a preferential CUG on the subscriber's line form. For the 5E4(2) and earlier Software Releases, the preferential CUG is specified on the DSL (5900 Record) or DSMLHLN (5901 Record) form. For 5E5 and later Software Releases, it is on the DSL (5907 Record) or DSLUSR (5908 Record) form.

DSL form (5900 Record)

For the 5E4(2) and earlier Software Releases, packet switching is allowed on either the D Channel or one of the B Channels. The DSL form (5900 Record) is used to optionally specify a preferential CUG, Outgoing Access and Incoming Access for a packet switching user on a Digital Subscriber Line.

DSMLHLN form (5901 Record)

For the 5E4(2) and earlier Software Releases, packet switching is allowed on either the D Channel or one of the B Channels. The DSMLHLN form (5901 Record) is used to optionally specify a preferential CUG, Outgoing Access and Incoming Access for a packet switching user on a Digital Subscriber Multiline Hunt Group Terminal.

DSL form (5907 Record)

For 5E5 and later Software Releases, this form is used to optionally specify a preferential CUG, Outgoing Access and Incoming Access for permanent packet users. They are set separately for Permanent Packet B1 and Permanent Packet B2 users.

DSLUSR form (5908 Record)

For 5E5 and later Software Releases, this form is used to optionally specify a preferential CUG, Outgoing Access and Incoming Access for D Channel packet users and for On Demand B Channel Packet Users.

3. CUG CALL FLOW EXAMPLES

The examples in this section illustrate when a packet call will and will not be allowed between subscribers assigned to CUGs. They are based on a small set of data defined in the following extract from a PSCUG form.

Packet Switching Closed User Group Assignment Record. PSCUG (5924 Record)

Sample Data:

Packet Switching			Closed User Group
TN	IDX	DNIC	ICN
5551000	01	3046	01000
5551000	02	3046	03000
5552000	01	3046	02000

5553000	01	3046	03000
5553000	02	3046	02000
5553000	03	7018	01004

Note that if a CUG subscriber originates a packet call without specifying a CUG, i.e., does not dial a CUG and does not have a preferential CUG:

- if the subscriber has Outgoing Access, the call is processed as an ordinary non-CUG call;
- if the subscriber does not have Outgoing Access, the call is not allowed.

3.1 Example 1. BOTH TNs BELONG TO THE SAME CLOSED USER GROUP.

555-1000 calls 555-3000. The call is originated within CUG 3046 03000. That is, either CUG Index 02 is specified as the preferential CUG on the DSLUSR form for 555-1000 or the caller dials the CUG Index 02 along with 555-3000. Since both 555-1000 and 555-3000 belong to the CUG, the call always connects, regardless of Incoming Access or Outgoing Access permissions on either side.

TN = 555-1000		TN = 555-3000		
OA	ORIG-TERM	IA	ORIG-TERM	CONNECT
Y	ORIG	Y	TERM	YES
Y	ORIG	N	TERM	YES
N	ORIG	Y	TERM	YES
N	ORIG	N	TERM	YES

3.2 Example 2. THE TNs BELONG TO DIFFERENT CLOSED USER GROUPS

555-1000 calls 555-2000. The call is originated within CUG 3046 03000. That is, either CUG Index 02 is specified as the preferential CUG on the DSLUSR form for 555-1000 or the caller dials the CUG Index 02 along with 555-2000. Since 555-2000 does not belong to the CUG, the call connects only if 555-1000 has Outgoing Access and 555-2000 has Incoming Access.

TN = 555-1000		TN = 555-2000		
OA	ORIG-TERM	IA	ORIG-TERM	CONNECT
Y	ORIG	Y	TERM	YES
Y	ORIG	N	TERM	NO
N	ORIG	Y	TERM	NO
N	ORIG	N	TERM	NO

3.3 Example 3. ONLY ONE OF THE TNs BELONGS TO A CLOSED USER GROUP

When 555-1000 calls 555-4000, the call is originated within CUG 3046 03000. That is, either CUG Index 02 is specified as the preferential CUG on the DSLUSR form for 555-1000 or the caller dials the CUG Index 02 along with 555-4000. Since 555-4000 does not belong to any CUG, the call connects only if 555-1000 has Outgoing Access.

When 555-4000 calls 555-1000, the call connects only if 555-1000 has Incoming Access.

TN = 555-1000		TN = 555-4000		
OA	IA	ORIG-TERM	ORIG-TERM	CONNECT
Y	N	ORIG	TERM	YES
N	N	ORIG	TERM	NO
N	N			
N	Y	TERM	ORIG	YES
N	N	TERM	ORIG	NO

4. MODEM POOLING FEATURE DESCRIPTION

The Modem Pooling feature is available with the 5E4(2) and later Software Releases. Modem pooling provides data protocol conversion for customers requiring an interface between the ISDN based X.25 network and the analog network. It permits ISDN customers to make data calls to analog customers who have modems. Likewise, it allows the analog customers to originate calls to ISDN customers who have subscribed to the Modem Pooling feature. These data calls utilize a common pool of modems rather than requiring individual analog lines and modems for each ISDN customer.

Two basic types of Modem Pools may be created: private and public. A Private Modem Pool is restricted to members of a Closed User Group. The CUG is assigned to the Modem Pool and to the ISDN customers who will access it. This is normally the case when the hardware, i.e., modems and terminal adapters, is to be located at the end customer's premises.

A Public Modem Pool, normally located in the Central Office, can be assigned in two different ways. One way is to build the Modem Pool using a new CUG number. Any ISDN customer that subscribes to the Modem Pooling feature would be assigned the same CUG as the Public Modem Pool.

Another way is to build the Public Modem Pool with Closed User Group Incoming Access and Outgoing Access, making the pool accessible to anyone who knows the phone number.

A modem pool is characterized by a set of data transmission rates. All modems within the pool must have the same speed or all must be automatically switchable over the same range of speeds. Valid baud rates are 300, 1200, 2400, 4800 and 9600.

4.1 MODEM POOL CONFIGURATION

A connection between an ISDN packet subscriber and an analog subscriber is established by routing the call through a Modem Pool Member. Each Modem Pool should have at least three Members, the minimum required for the TST:MP Input Message to perform maintenance on the pool.

A Modem Pool Member consists of a digital side and an analog side. The digital side is a Terminal Adapter, e.g., an AT&T 7500 Modular Data Module, that terminates to the 5ESS Switch on a DSL (Digital Subscriber Line) provisioned for X.25 packet switching on the D Channel. The Terminal Adapter converts between the ISDN X.25 protocol and the modem's asynchronous transmission protocol.

The Modem Pool Member's analog side is a modem that terminates to an analog Line Unit or an ISLU Z card. The modem performs digital to analog and analog to digital conversion.

Both the analog and digital sides of a Modem Pool Member must reside in the same SM (Switching Module).

An RS232 cable connects the Terminal Adapter and Modem in each Member. See figure 5.

The 5ESS Switch ISDN Feature Descriptions document (235-190-104) describes the Modem Pooling feature.

4.2 MODEM POOL CALLS

Every ISDN subscriber who wishes to receive data calls from non-ISDN subscribers via an X.25 Modem Pool must have an Access DN. This telephone number, which is in addition to the subscriber's PKT DN and CKT DN, is a "data only" DN to be used by analog subscribers to place a data call to the ISDN subscriber. The incoming Access DN notifies the call processing software that the call should be routed through the Modem Pool.

When an analog subscriber places a data call to an ISDN packet subscriber, the subscriber originates the call by dialing the special access DN. The call is set up through the Modem Pool and automatically terminated to

the ISDN user's packet telephone number. See Figure 4 for a sample call flow.

When the ISDN subscriber calls the analog user, the caller must dial two numbers. The first number accesses the Modem Pool. After the caller receives a message indicating the modem has been connected, (s)he must dial the second number preceded by the modem dialing command. This second number is the analog subscriber's directory number. Figure 3 shows the flow for a sample digital to analog call.

The ISDN packet subscriber must be on the same 5ESS Switch as the Modem Pool.

5. MODEM POOLING TRANSLATION REQUIREMENTS

A Modem Pool is constructed as a Multiline Hunt Group that contains both analog and digital terminals. For each Modem Pool Member, the analog side is represented by a MLHLN form; the digital side is represented by a pair of DSL and DSLUSR forms. (For the 5E4(2) Software Release, the digital side is represented by a DSMLHLN form.)

This section describes forms required to build a Modem Pool. To explain critical fields, data from a sample Public Modem Pool is used. The Modem Pool is assigned to Multiline Hunt Group 2, has listed telephone number 350-4085 and has one Modem Pool Member. It is a 2400 baud pool. The ISDN customer that will use the Modem Pool is assigned telephone number 350-4097, but will have an access TN of 350-4090. The ISDN customer and analog customer line assignments are not included in the example.

In the sample data, items shown in parentheses are values to be supplied by the Telephone Company. Unparenthesized values must be entered as shown.

Note that the sample data shows a single Modem Pool Member for sake of simplicity. In actuality, a Modem Pool must have at least three members if the TST:MP input message will be used to test the Modem Pool.

LCC form (5306 Record)

This form is used to build the Line Class Codes for the digital and analog sides of the Modem Pool Members. The DIGIT ANALYSIS SELECTOR and SCREENING INDEX fields on the digital side must be for packet switching, while those on the analog side are for circuit switching.

On the digital side, the Line Class Code must have a TERMINATING TREATMENT of AGING. This prevents analog callers from terminating to a phone number associated with the Hunt Group terminal. The CLASS OF SERVICE must be ISDN. For the 5E4(2) Software Release, this LCC will be assigned to the Terminal Adapter's DSL on the DSMLHLN form. For the 5E5 and later Software Releases, the LCC will be assigned on the DSLUSR form.

LCC for the Digital Side	
Field	Value
LINE CLASS CODE	(PS2)
RATE AREA	(01)
CLASS OF SERVICE	ISDN
TERMINATING TREATMENT	AGING
SCREENING INDEX	(3)
LINESCRN	N
DIGIT ANALYSIS SELECTOR	(3)

On the analog side, the CLASS OF SERVICE must be MODEM, while the TERMINATING TREATMENT must be INDIV. This LCC will be assigned to the Modem's analog line on the MLHLN form.

LCC for the Analog Side	
Field	Value
LINE CLASS CODE	(DS2)

RATE AREA	(01)
CLASS OF SERVICE	MODEM
TERMINATING TREATMENT	INDIV
SCREENING INDEX	(1)
LINESCRN	N
DIGIT ANALYSIS SELECTOR	(1)

TIMING form (5520 Record)

This form defines the timing values for Modem Pools. The customer does not need to enter this; it is standard data provided when the switch data is initialized.

TIMING Form	
Field	Value
SERVICE CLASS	MODEM
START SIGNAL	NONE
SIGNAL TYPE	TT-DP
CRITICAL TIMING	4
PARTIAL DIAL TIMING	20
PERMANENT SIGNAL TIMING	20
OVERLOAD PARTIAL DIAL	10
OVERLOAD PERM. SIGNAL	10

MLHGFD form (5604 Record)

This form is used to define the hunting feature that will be assigned to the Modem Pool on the MLHG form. The preconstructed feature /MHU is available for Modem Pools and may be used instead of constructing a new one. If a new feature is built, it must have a HUNT TYPE of UCD.

MLHGFD Form	
Field	Value
FEATURE NAME	(MPMHG)
HUNT TYPE	UCD
OVERFLOW REG	N
INWATS	N
CF BUSY	N
CF VARIABLE	N
BEARER	VOICE

MLHG form (5110 Record)

This form is used to build the Modem Pool Multiline Hunt Group. The presence of a value in the MPTYPE field indicates that the MLHG is a Modem Pool. The LISTED TN is the telephone number to be called by an ISDN customer when accessing the Modem Pool.

In the sample data, the MLHG FEATURE is the one previously defined in the MLHGFD form. The value of the MPTYPE field represents the baud rate of the modems in this group. In this example, the Modem Pool is owned by the switch owner. When the Modem Pool is owned by a private customer, the MPTYPE field contains billing data. See Division 3, Section 1J, for a detailed explanation of the Modem Pool fields MPTYPE, MAINT, MPPFX and MPIDP.

MAINT indicates whether the switch owner or customer is responsible for maintenance of the Terminal Adapters and Modems ("Y" if switch owner).

The MPPFX field contains the dialing prefix used by the pool's modems to initiate calls. All modems in the pool must use the same prefix. ("atdt" is the common dialing prefix for the Hayes command set.)

MPIDP indicates if the Modem Pool can be accessed with a 4-digit number defined in a customer's Individualized Dialing Plan.

MLHG Form	
Field	Value
MLHG	(0002)
MLHG FEATURE	(MPMHG)
LISTED TN	(3504085)
REMARKS	Modem Pool
MPTYPE	(2400)
MAINT	Y
MPPFX	(atdt)
MPIDP	N

MLHLN form (5111 Record)

This form is used to define the analog side of Modem Pool Members. One MLHLN form must be built for each Member. For the 5E4(2) Software Release, the corresponding digital side for a member must be defined in a DSMLHLN form. For 5E5 and later Software Releases, the digital side must be defined on a pair of DSL and DSLUSR forms.

The MLHG field on this form must match the MLHG of the Modem Pool that was defined in the MLHG form. Also, the MLHG and TERM values for the analog side of the Modem Pool Member must match the corresponding fields for the digital side. This is crucial to properly link the Terminal Adapter and Modem of a Modem Pool Member. In the sample data, the MLHG and TERM fields (0002 and 0001) on the MLHLN form are the same as the DPKT MLHG and DPKT TERM fields on the DSMLHLN form.

The analog side Line Class Code, DS2, was defined earlier in the LCC form.

The OE TYPE specifies the equipment termination for the modem: L for analog Line Unit; C for ISLU Z-Card.

Since both the analog and digital sides of a Modem Pool Member must reside on the same SM, the first three digits of the OE NUMBER, i.e., the SM number, must equal the first three digits of the equipment number on the digital side. In the sample data, the SM number is 027.

The TN field on the MLHLN form must contain a directory number. The testing program initiated by the TST:MP input message uses this TN.

MLHGLN Form	
Field	Value
MLHG	(0002)
TERM	(0001)
LCC	(DS2)
OE TYPE	(L)
NUMBER	(02702003)
TN	(3504080)
RMK	Modem Pool

DSMLHLN form (5901 Record)

For the 5E4(2) Software Release, this form is used to build the digital side of Modem Pool Members. There must be one form for each Modem Pool Member. For the Modem Pool to operate properly, the analog and digital side of each Member must have the same terminal number. The MLHG and TERM fields on the MLHLN form must be the same as the PKT MLHG and PKT TERM fields on the corresponding DSMLHLN form.

The LCEN on this form is connected to the Terminal Adapter. Its first three digits, the SM number, must match those of the OE TYPE field on the MLHLN form.

The value XMP in the D SERV field indicates that this form represents the digital side of a Modem Pool Member.

Both 2W LCN fields must be "1". All other LCN fields must be "0".

The digital side of a Modem Pool Member must belong to a Closed User Group as discussed later under the PSCUG form section. The preferential CUG, CUG PREFER CUST IDX specified on this form, must match the CUG IDX defined on the PSCUG form.

In the sample data, the Modem Pool has both CUG Incoming Access and Outgoing Access. Therefore, ISDN subscribers who will use this Modem Pool will not need to be assigned to the pool's CUG. If a Modem Pool does not have the CUG IA and OA features, all ISDN customers who will access the Modem Pool must be assigned to the same Closed User Group on the PSCUG form.

The digital sides of all Modem Pool Members within the same pool should have the same IA and OA access permissions.

DSMHGLN Form	
Field	Value
PKT MLHG	(0002)
PKT TERM	(0001)
PKT LCC	(PS2)
LCEN	(02710925)
D ISCN	(004000)
DSL PROF	DX
D SERV	XMP
RMK	Modem Pool
HIGH PVC LCN	0
IN LCN (FROM	TO)
2W LCN (FROM	1
2W LCN (TO)	1
OUT LCN (FROM	TO)
THRUPUT CLASS (SEND)	1200
THRUPUT CLASS (RCV)	1200
PKT SIZE (SEND)	128
PKT SIZE (RCV)	128
PKT WINDOW SIZE (SEND)	2
PKT WINDOW SIZE (RCV)	2
CUG PREFER CUST IDX	02
CUG OUT ACCESS	Y
CUG IN ACCESS	Y

DSL form (5907 Record)

For 5E5 and later Software Releases, a pair of DSL and DSLUSR forms are used to build the digital side of Modem Pool Members. There must be one pair for each Modem Pool member. The DSL OE equipment field on the DSL form must match the OE field on exactly one DSLUSR form for a Member.

The DSL OE on this form is connected to the Terminal Adapter. The first three digits of the equipment number portion, the SM number, must match those of the OE TYPE field on the MLHLN form.

The value XMP in the D SERV field indicates that this form represents the digital side of a Modem Pool Member.

In 5E5 and earlier Software Releases, Modem Pools are supported only on Point to Point DSLs. With 5E6 and later Software Releases, they are also supported on Multipoint DSLs. In this example, the DSL CLS is PP (Point to Point).

DSL Form	
Field	Value
DSL OE	(1 02710925)
D ISCN	(004000)
D SERV	XMP

DSL CLS	PP

DSLUSR form (5908 Record)

For 5E5 and later Software Releases, the DSL and DSLUSR forms are used to build the digital side of the MLHG.

For the Modem Pool to operate properly, the digital and analog side of each Modem Pool Member must have the same terminal number. The DPKT MLHG and DPKT TERM fields on the DSLUSR form must be the same as the MLHG and TERM fields on the corresponding MLHLN form.

Both 2W LCN fields must be "1". All other LCN fields must be "0".

The digital side of a Modem Pool Member must belong to a Closed User Group as discussed later under the PSCUG form section. The preferential CUG, CUGPX specified on this form, must match the CUG IDX defined on the PSCUG form.

In the sample data, the Modem Pool has both CUG Incoming Access and Outgoing Access, i.e., CUGOA and CUGIA equal to "Y". Therefore, ISDN subscribers who will use this Modem Pool will not need to be assigned to the Modem Pool's CUG. If a Modem Pool does not have the CUG OA and IA features, all ISDN customers who will access the Modem Pool must be assigned to the same Closed User Group on the PSCUG form.

The digital sides of all Modem Pool Members within the same pool should have the same IA and OA access permissions.

DSLUSR Form	
Field	Value
DPKT MLHG	(0002)
DPKT TERM	(0001)
OE	(1 02710925)
DPKT SWITCHING	
LCC	(PS2)
H PVC LCN	0
L IN LCN	0
H IN LCN	0
L 2W LCN	1
H 2W LCN	1
L OUT LCN	0
H OUT LCN	0
SEND TPC	1200
PKTSZ	128
PKTWD	2
RCV TPC	1200
PKTSZ	128
PKTWD	2
CUGPX	02
CUGOA	Y
CUGIA	Y
RMK	Modem Pool

PSMTN form (5925 Record)

This form is used to assign the access number by which an analog subscriber can call an ISDN customer. Refer to Figure 4 for a sample analog to digital modem pool call.

The MODEM POOL GROUP is the MLHG defined on the MLHG form for the Modem Pool.

For 5E5 and later Software Releases, the customer may be a Multiline Hunt Group terminal.

PSMTN Form

Field	Value
PKT TN	(3504097)
PKT MLHG	
PKT TERM	
ACCESS TN	(3504090)
MODEM POOL GROUP	(0002)

PSCUG form (5924 Record)

This form is used to assign to a Closed User Group the digital side of each Modem Pool Member and all ISDN customer TNs that will be allowed access to the Modem Pool.

The Closed User Group is identified by the CUG DNIC and CUG ICN; the pair must be the same on all the forms associated with the same Modem Pool. The following example shows the assignments for the sample Modem Pool Member and one ISDN customer that will use the Modem Pool.

The digital sides of all Modem Pool Members must be assigned to a Closed User Group. All Members of the same pool must be assigned to the same CUG.

ISDN customers who will access the Modem Pool need to be assigned to the CUG only if the Modem Pool Members do not have CUG Incoming Access and CUG Outgoing Access as specified on DSMLHLN or DSLUSR forms.

PSCUG Form		
Field	MP Member Value	ISDN Cust Value
PKT TN	-	
PKT MLHG	(0002),	
PKT TERM	(0001),	
CUG IDX	(1)	(3)
CUG DNIC	(9001)	(9001)
CUG ICN	(02000)	(02000)

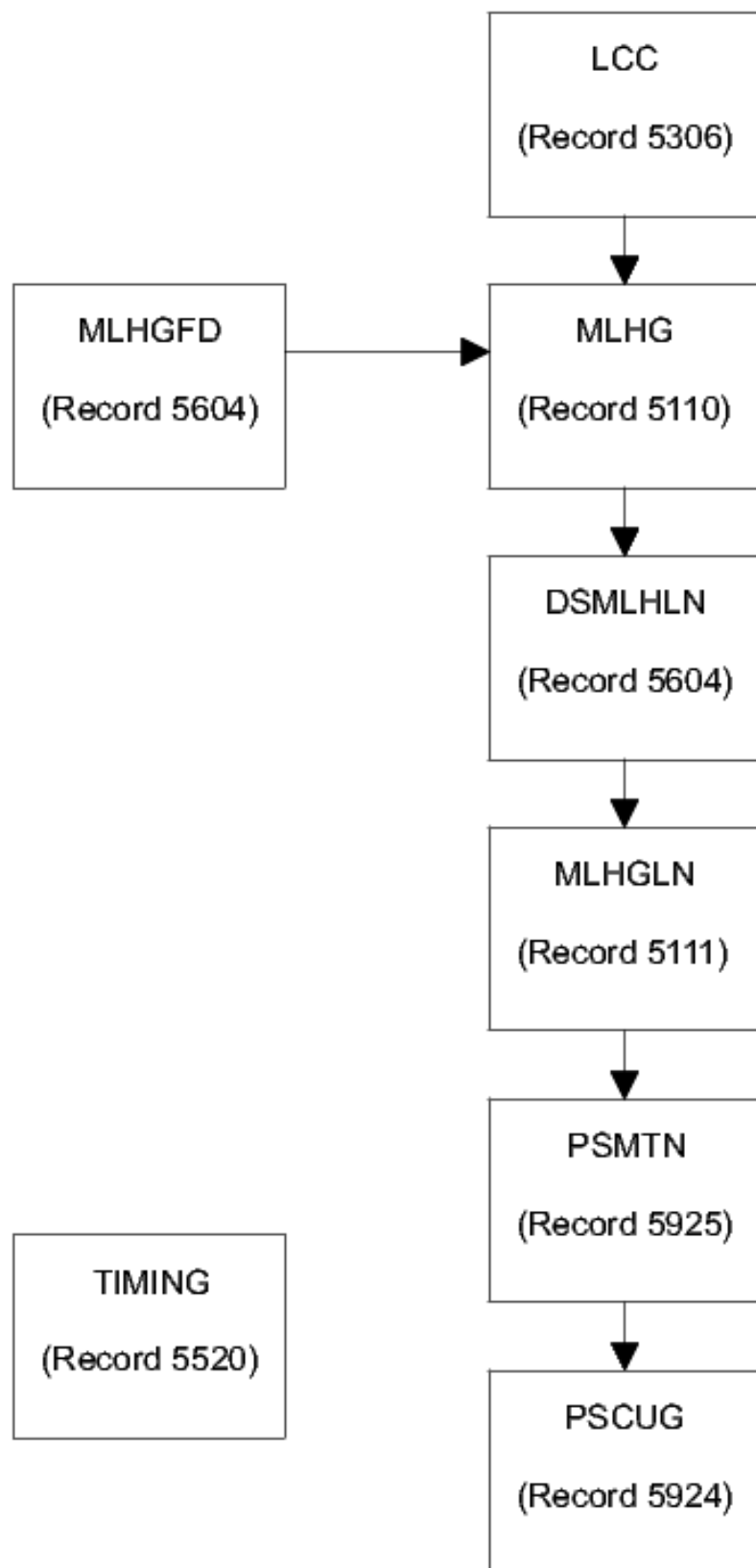
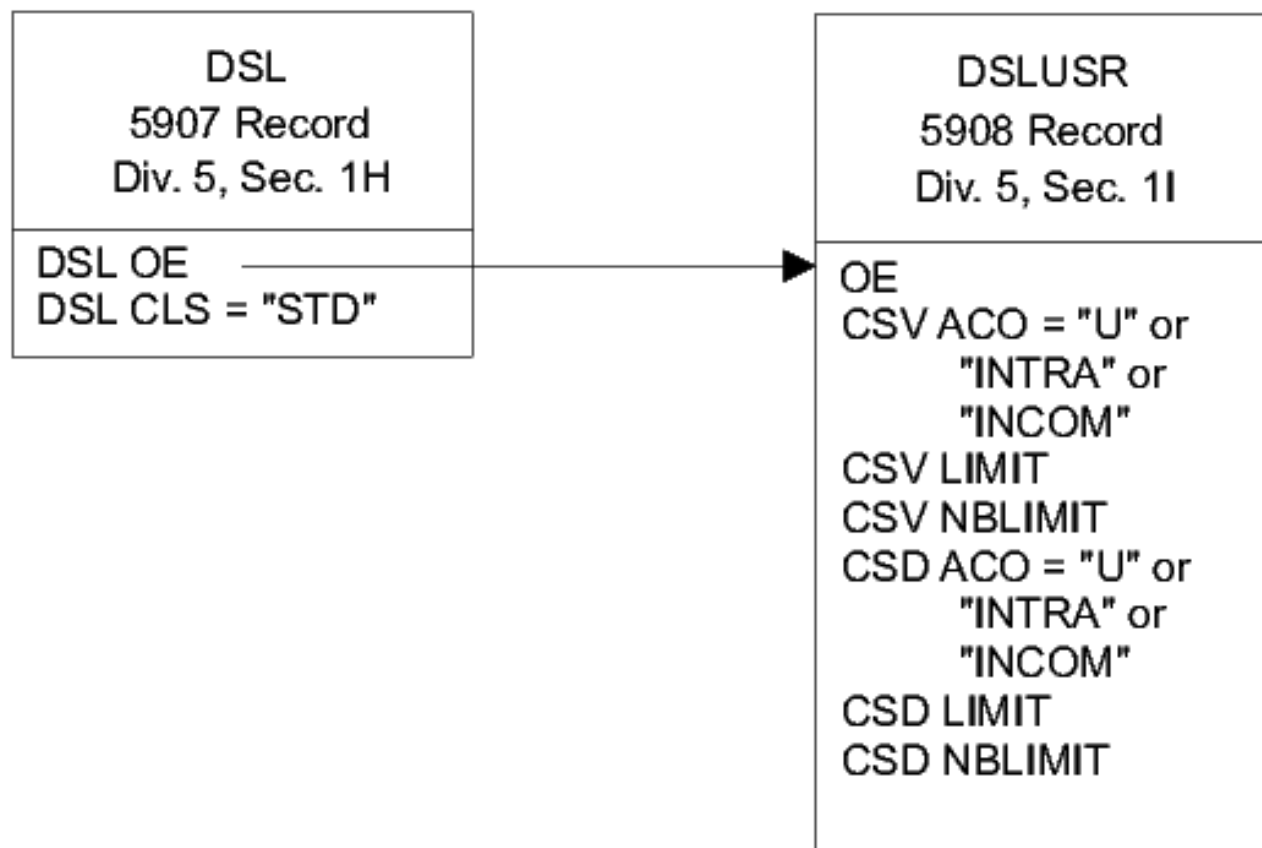
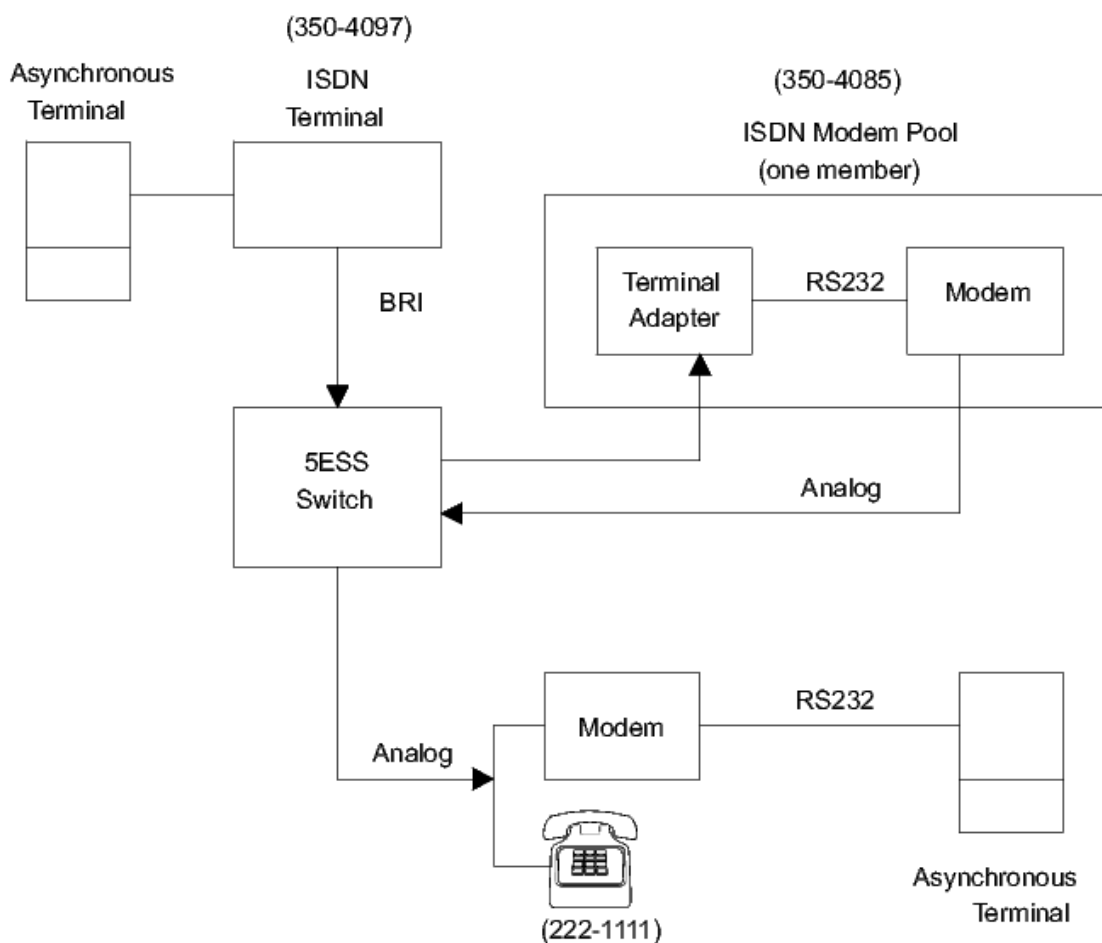


Figure 1 MODEM POOL ASSIGNMENT FORM FLOW 5E4(2) SOFTWARE RELEASE



Note: CSV ACO and/or CSD ACO may be "INTRA" or "INCOM" only if the ACO subscriber is assigned a TGSR feature.

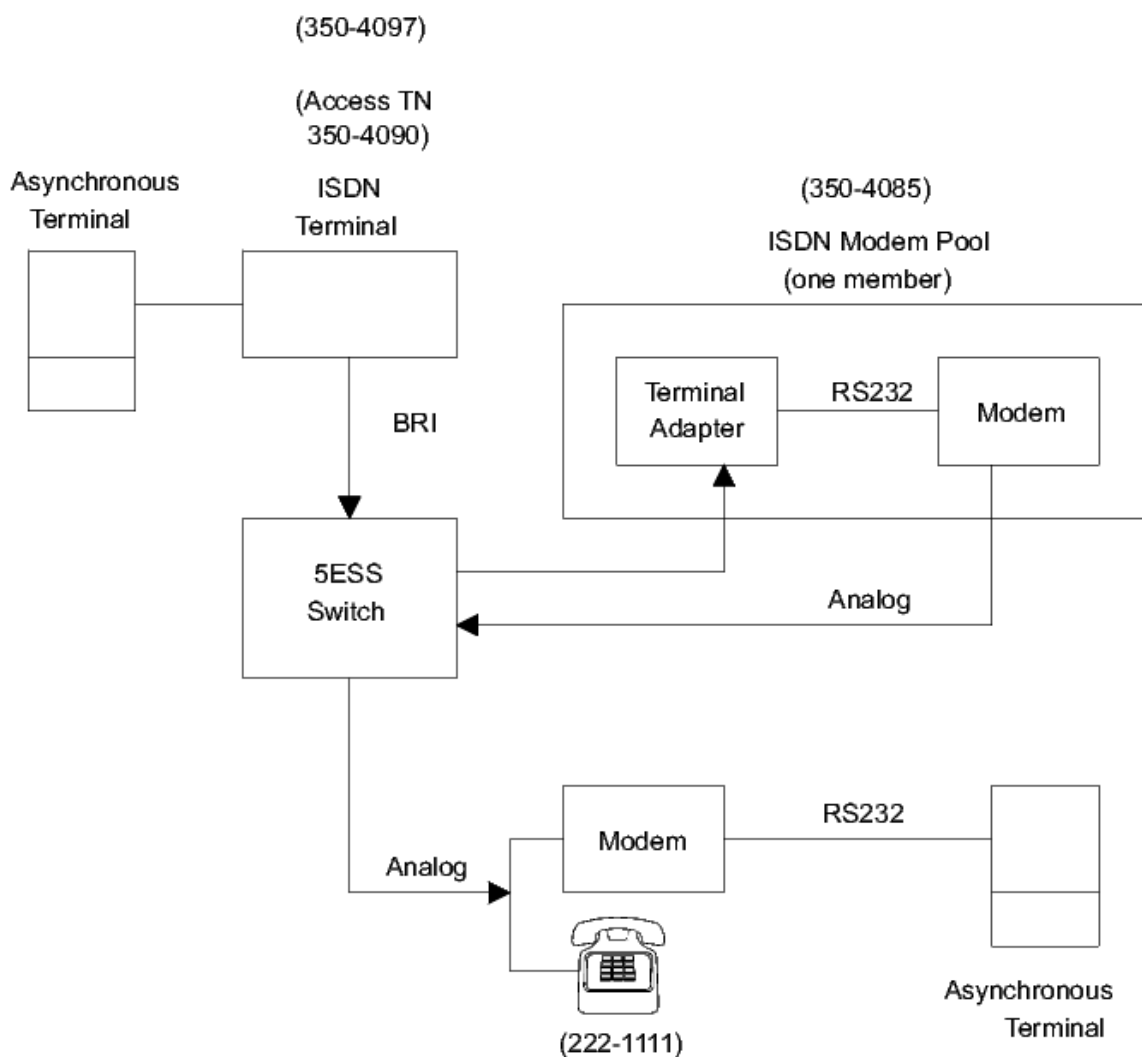
Figure 2 MODEM POOL ASSIGNMENT FORM FLOW 5E5 AND LATER SOFTWARE RELEASES



The ISDN customer originates a packet call by dialing the Modem Pool access number 350-4085. A message is received on the ISDN customers' terminal indicating that the modem has connected. The ISDN customer then enters the analog customer's directory number preceded by a command to the modem "atdt2221111". A data call is then established between the ISDN customer (350-4097) and the analog customer (222-1111).

Note: The dialing prefix "atdt" is the common prefix for the common set.

Figure 3 DIGITAL TO ANALOG MODEM POOL CALL



The Analog customer (222-1111) enters the unique ISDN packet access number (350-4090) at the terminal keyboard. This number is translated by the 5ESS Switch into the modem pool group number and the actual ISDN customer number (350-4097). The data call is then established between the analog customer (222-1111) and the ISDN customer (350-4097).

Figure 4 ANALOG TO DIGITAL MODEM POOL CALL

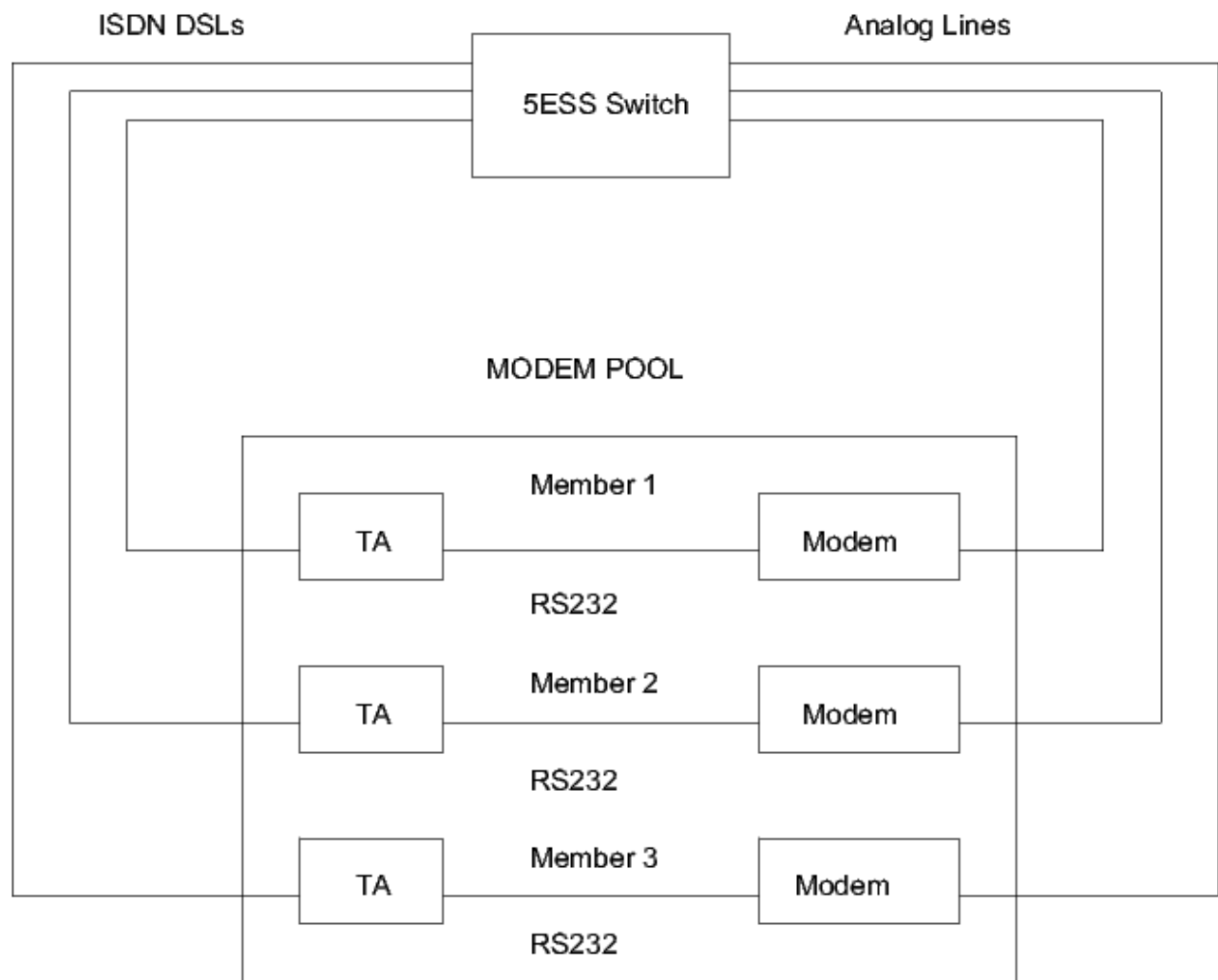


Figure 5 RS232 CABLE CONNECTION

SEC. 1AM: NATIONAL ISDN CIRCUIT SWITCHING FEATURES

1. NATIONAL ISDN 1 FEATURE DESCRIPTION

The National ISDN 1 Circuit Switching feature is available with 5E8 and later Software Releases. This feature supports the National ISDN 1 standard BRI (Basic Rate Interface) defined in Bellcore specifications.

For 5E8 and later, the 5ESS Switch will support both the existing BRI, now designated as a "Custom" interface, and the new "Standard" BRI, which meets Bellcore specifications. The interface selected in translations is dependent upon the CPE (Customer Premises Equipment) at the subscriber's location.

To ensure success of future retrofits for BRCs features assigned to BRI lines, it is suggested that separate CLUSTRs and BFGs be maintained for standard and custom DSLs. Although this separation is not enforced by ODA, it is highly recommended.

See the DSL CLS field on the DSL form, Division 5, Section 1H, for explicit lists of BRCS features which can and cannot be assigned to Standard BRI users.

LASS features that are available for Standard BRIs may be provisioned with the introduction of the 5E8 Software Release. The features will not be operable on the switch until after the first Software Update is applied.

Several capabilities that affect translations have been introduced for the Standard BRI. They include the following.

- ACO (Additional Call Offering)
- Automatic Recall
- ISDN Calling Number Identification Services
- EKTS (Electronic Key Telephone Service)
- Flexible Calling
- One B-Channel per User
- Terminal Initialization
- Series Completion

Each of these will be defined separately.

1.1 ACO (Additional Call Offering)

ACO (Additional Call Offering) is the Bellcore equivalent of the existing Multiple Call Appearance feature. It allows a CPE to have multiple appearances of a single DN so that a user can receive notification of an incoming call while active on another call.

1.2 Automatic Recall

The AR (Automatic Recall) feature allows the subscriber to automatically recall the last called party for circuit

mode calls. If the party recalled by AR is busy, the network will automatically camp on (monitor) it. The originator will be notified when the camped-on party is idle.

AR supports interswitch service for voice mode circuit activations provided CCS7 connectivity exists between the originating and terminating offices. For standard BRI users, this feature extends AR to circuit data service. Data mode circuit activations are restricted to intraswitch use.

1.3 ISDN Calling Number Identification Services

I-CNIS (ISDN Calling Number Identification Services) provides the RND (Redirecting Number Delivery) feature, which will be offered for both circuit switched voice and circuit switched data calls on Standard BRIs. For calls that have been forwarded to the called party, this feature delivers the first forwarding number and the associated reason for forwarding to the called party. In the case of sequential forwardings, the last forwarding number and the associated reason for forwarding will be delivered in addition to the first forwarding number and the associated reason for forwarding.

1.4 EKTS

EKTS (Electronic Key Telephone Service) allows terminals to share call appearances for a given DN. EKTS can be "BASIC", allowing only one call appearance per DN, or "CACH", allowing multiple call appearances per DN.

Standard and Custom DSL terminals may not appear in the same Shared List. For further restrictions on Standard DSLs, see the SHTN form, Division 5, Section 1C.

1.5 Flexible Calling

This capability provides terminal compatibility for Flexible Calling and Hold according to the Bellcore standard protocol. Three new feature buttons (conference, transfer, and drop) are introduced for Standard BRI users.

1.6 One B-Channel per User

Restricting a user to 1 B-channel provides a mechanism for grouping a set of distinct physical terminals for the purpose of limiting the group to using at most one B-channel at a time. A set of physical terminals acts like a single integrated terminal with regard to B-channel use. For example, if User 1 consists of a terminal with voice service and a packet terminal configured for ODB service, and User 2 consists of another terminal with voice service, this feature will prevent User 1 from having simultaneous voice and ODB packet calls, guaranteeing User 2 will always have access to a B-channel. Without this feature User 1 could use both B-channels simultaneously.

When groups are defined, two and only two groups may be defined, that is User 1 and User 2. When groups are defined, all terminals with On Demand B-channel services must be a member of one of the two groups.

1.7 Terminal Initialization

The terminal initialization procedures (endpoint identification) have been modified for ISDN terminals on Standard BRIs. The Bellcore-compliant Standard BRIs are specified on DSL forms with DSL CLS set to "STD".

1.8 Series Completion

The Series Completion feature is not available for Standard DSL users (BRI lines).

Analog or Custom DSL users who subscribe to Series Completion, may not series complete to a Standard BRI line, an analog line shared to a Standard BRI, or a Secondary Only TN associated with a Standard BRI. Specific checks are detailed for the SERHLN fields on the LINE, MLHLN, DSLUSR, and SHTN forms.

2. NATIONAL ISDN 1 TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CFGGRP	5964	6	7A	12.5
DSL	5907	5	1H	23.2
DSLUSR	5908	5	1I	23.2
IDPGP	5601-4	4	2D	9.10
ISDNOPT	5941	5	5B	8.1
LSARFD	5971-1	6	14A	12.48
RNDFD	5983	6	26	12.59

CFGGRP form (5964 Record) - This form is used to assign BRCS (Business and Residence Customer Service) feature actions to ISDN CPE (Customer Premises Equipment) terminal buttons. CFGGRP is available with 5E4(2) and later Software Releases.

For the National ISDN 1 Circuit Switching feature, the GRP TYPE field was added, and the ACTION field was modified.

- GRP TYPE: This field indicates if the Configuration Group on this form is applicable to Bellcore BRI users or to BRI users. Its values are "STD" (Bellcore) and "CUSTOM".

All CFGGRP forms for the same CONFIG GRP must have the same GRP TYPE. If GRP TYPE is "CUSTOM", the CONFIG GRP can be assigned only on DSLUSR forms defined for custom BRI users; if CONFIG GRP is "STD", it can be assigned only on DSLUSR forms defined for standard BRI users.

- ACTION: Three new values were added to this field to support Standard BRIs: "CONF", "DROP", and "XFER". One button on a Standard BRI terminal may be designated "CONF" for the multiway conference feature; another, "DROP" for the multiway drop feature; and a third, "XFER" for the multiway transfer feature.

DSL form (5907 Records) - This form is used to define the attributes of a DSL (Digital Subscriber Line; also called a BRI, Basic Rate Interface). DSL is available with 5E5 and later Software Releases.

- DSL CLS: This field specifies the DSL class as users under the custom protocol or users under the Bellcore standard protocol. With the National ISDN 1 feature the new DSL CLS "STD" was added to identify BRIs that support the Standard Bellcore protocol. Standard BRI's may have up to 8 multiple users.

DSLUSR form (5908 Records) - This form is used to define the TN and other information for a DSL user. This includes circuit switching (voice and data) attributes. The DSLUSR form must have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases.

For the National ISDN 1 Circuit Switching feature, six fields were added.

- AGI: The Associated Group Indicator designates the group (1 or 2) to which a Demand B-channel user is assigned. AGI applies only to Demand B-channel users on Standard BRIs, that is, users who subscribe

to CSV, CSD, or ODB services and are assigned to a DSL that has DSL CLS set to "STD" on the associated DSL form. Users assigned the same AGI are treated as one logical Demand B-channel user.

If users are assigned to the same BRI without packet service (neither B1 SERV nor B2 SERV is "X25"), then all AGI fields on the DSLUSR forms must have a value or all must be blank. If any user on the BRI has DPKT TN or MLHG/TERM entered, every AGI field in the group must be left blank.

If users are assigned to the same BRI with packet service on one channel (either B1 SERV or B2 SERV is "X25"), then all AGI fields on the DSLUSR forms must have the same value (either 1 or 2) or all must be blank. If one or more of the DSLUSR forms has DPKT TN or MLHG/TERM entered, every AGI in the group must be left blank.

If users are assigned to the same BRI with packet service on both B-channels (B1 SERV and B2 SERV are "X25"), then no AGI field on the DSLUSR forms may have an entry.

When a value is entered in AGI, MAXB CHL must be 1; and CSV, CSD, or ODB must be 1.

- **CSV ACO:** The Circuit Switched Voice Additional Call Offering field indicates the type of CSV ACO service provided. The only entry allowed is "U", unrestricted. Since ACO is a Standard BRI feature, this field applies only to users on Standard BRIs. TERM TYPE must be "TYPEA", and CSV LIMIT must be entered. EKTS and CKT MLHG/TERM cannot be entered.
- **CSV LIMIT:** This field specifies the CSV Call Reference Busy Limit and may have a value of 1 - 16. This field applies only to Standard BRI users. TERM TYPE must be "TYPEA", and CSV must be entered. EKTS and CKT MLHG/TERM cannot be entered.
- **CSD ACO:** The Circuit Switched Data Additional Call Offering field indicates the type of CSD ACO service provided. The only entry allowed is "U", unrestricted. Since ACO is a Standard BRI feature, this field applies only to users on Standard BRIs. TERM TYPE must be "TYPEA", and CSD LIMIT must be entered. EKTS and CKT MLHG/TERM cannot be entered.
- **CSD LIMIT:** This field specifies the CSD Call Reference Busy Limit. It applies only to Standard BRI users and may have a value of 1 - 16. An entry in this field is necessary to originate or terminate CSD calls on all types of Standard lines: Basic, ACO, EKTS Basic, and EKTS CACH.

If CSD LIMIT is entered, CSD must also be entered. For non-EKTS service, TERM TYPE must be "TYPEA"; for EKTS service, TERM TYPE must be "TYPEC". If CSD LIMIT is greater than 1, EKTS cannot be entered.

- **EKTS:** This field specifies the type of EKTS (Electronic Key Telephone Service) provided. Valid entries are "BASIC", which restricts the user to one call appearance per TN, and "CACH", which permits more than one call appearance.

TERM TYPE must be "TYPEC"; CSV LIMIT, CSV ACO, and CSD ACO cannot be entered; CPN SCRNM must be "Y". If the EKTS user is assigned CSD service, CSD LIMIT must be 1 for the service to be available. For additional rules about EKTS, see the field description in Division 5, Section 11.

IDPGP form (5601-4 Record) - This form is used to define options associated with IDPs (Individualized

Dialing Plans).

The field ESC TO POTS was added. This field defines the dial code used to escape to POTS from Basic Call functional addressing.

ISDNOPT form (5941 Record) - This form is used to define a set of office parameters that must be entered when the office is an ISDN switch.

Two new fields were added.

- **TI T1:** This is a timer that determines the maximum time in seconds a Standard BRI will wait for an initializing terminal to send an initialization request to the switch. Valid entries are 1 - 30 seconds.
- **FC T1:** This is a timer that determines the maximum time in seconds the switch will wait for a Standard CPE to send a HOLD ACKNOWLEDGE message after the switch has sent a HOLD message. Valid entries are 1 - 10 seconds.

LSARFD form (5971 Record) - This form is used to define LASS AR (Automatic Recall) features.

Two fields were added.

- **CSV ALW:** This field determines if the AR feature applies to Circuit Switched Voice calls. The voice option applies to both Custom and Standard BRIs. At least one of these two new fields (CSV ALW, CSD ALW) must be set to "Y".
- **CSD ALW:** This field determines if the AR feature applies to Circuit Switched Data calls. The data option applies only to Standard BRIs.

RNDFD form (5983 Record) - This form is new and is used to define RND (Redirecting Number Delivery) features for Standard BRIs. It includes the following fields.

- **FEATURE:** This field specifies the name of the feature.
- **REMARKS:** This field is available for descriptive or commentary remarks.
- **ACT:** This field specifies the method for activating the feature. The only allowed value is "AUTO"; the feature is automatically active when assigned to a subscriber.
- **DEACT:** This field specifies the method for deactivating the feature. The only allowed value is "NONE"; the feature cannot be deactivated.

3. NATIONAL ISDN 2 FEATURE DESCRIPTION

The National ISDN 2 Circuit Switching features are available with 5E9(1) and later Software Releases. These features support and extend the initial offering of standard BRI (Basic Rate Interface) features introduced with National ISDN 1. They implement the Standard Services Bellcore Specifications for standard BRIs.

3.1 ACO (Additional Call Offering)

ACO provides notification to an ISDN user that a call directed to that user is present at the serving switch,

even though no B-channel can be allocated for the call. For NI1 (National ISDN 1), the number of concurrent ACO calls of which the user may be notified is limited by a subscription parameter, the Call Reference Busy Limit. For NI2 (National ISDN 2), the number of concurrent ACO calls for an ACO subscriber is dependent on the Call Reference Busy Limit, the type of ACO feature, and the Notification Busy Limit. Calls that arrive when defined limits have been reached are given busy treatment.

ACO notifies an ISDN BRI user of an incoming call when that call would normally be cleared because the user's ISDN interface is busy. ACO is available to circuit switched voice calls and circuit switched data calls. The number of additional calls of which the user may be notified concurrently is limited through the call reference busy parameters. The call reference busy limit for the BRI must be greater than or equal to 1. It is recommended that the call reference busy limit should be greater than the number of B-channels the BRI can access, so the user can fully utilize the BRI capacity.

ACO is assigned on a terminal basis on the DSLUSR form; it may not be assigned to an EKTS terminal.

With the National ISDN 2 ACO feature, two new BBG (Basic Business Group) options are provided: the Intra-ISDN Basic Business Group option and the Incoming-to-ISDN Basic Business Group option. Prior to NI2 (National ISDN 2) ACO provided only an "all calls" option that allowed all calls terminating to the ACO subscriber to be eligible waiting calls without regard to where they originated. NI2, in addition to supporting the "all calls" option, provides the Intra-ISDN BBG option, which allows only calls originating from within the terminal group to be offered as additional calls to the terminating user. The Incoming-to-ISDN BBG option allows only calls originating from outside the terminal group to be offered as additional calls to the terminating user. The BBG options apply only to ACO subscribers who are members of terminal groups.

For NI2, ACO will check the Notification Busy Counter against the Notification Busy Limit before offering a terminating ACO call (assuming the call is not a call reference busy). When the switch offers a call via ACO, the appropriate call reference busy and notification busy counters will be incremented.

3.2 Display

The National ISDN 2 Display feature enhances the display formats used to display call related information to the end user for basic circuit switched voice or data calls. This was done to provide service uniformity for displays in accordance with TR-865.

The meaning of the DISPLAY field on the DSLUSR form was changed with 5E9(1) for National ISDN users. Setting DISPLAY to "Y" means the user will receive all Standard Displays (incoming, outgoing, and feature displays). Assigning an ICLID feature merely provides the user the calling DN in the Standard Display.

The DISP T2 timer field was added to the ISDNOPT form to specify the length of time certain displays will appear on the BRI CPE (Customer Premises Equipment).

3.3 EKTS (Electronic Key Telephone Service)

For EKTS users under National ISDN 2, the handling of bridged calls is changed, and a new intercom feature is introduced.

Prior to the 5E8 Software Release, some members of a Shared DN group can be assigned the Manual Call Exclusion option, while other members of the same group are assigned Automatic Call Exclusion. For 5E8 and later, when members of the same Shared DN group are Standard DSL users, they may not have a mixture of manual and automatic call exclusion options. All members must have CALL EXCL set to "M" "N", or blank; or all must have it set to "A", "N", or blank.

In addition, for members of an EKTS Shared DN group, there is a new concept for putting a call on hold.

Before 5E9(1), when a call is bridged, the bridged member cannot put the call on hold. For 5E9(1) and later, when a call is bridged, any active member can put the call on hold. This new feature does not require any provisioning changes.

Also for 5E9(1) and later, a new intercom feature is available for Standard BRI users. This feature, Call Appearance Intercom, allows a subscriber to originate a voice call to another user within the same intercom group by activating a dedicated call appearance. It supports automatic, 1-digit, and 2-digit intercom service. With the automatic feature, the intercom group consists of two members; no additional digits are needed to route the call. With 1-digit and 2-digit intercom service, the intercom digit(s) of the called party must be entered.

The CA-ICOM (Call Appearance Intercom) feature is distinguished from the pre-existing FB-ICOM (Feature Button Intercom) feature in both its provisioning and user activation. The FB-ICOM feature is a BRCS feature defined on an ICMFD form (5960-1 Record) and assigned to an ISDN Standard or Custom BRI user on the associated feature assignment form; it is associated with a Feature Button through the CFGGRP form (5964 Record). The subscriber initiates an intercom call from his terminal by depressing the feature button.

The new CA-ICOM feature is not a BRCS feature. CA-ICOM can be assigned only to Standard EKTS CACH terminals. The subscriber initiates an intercom call, not by pressing a feature button, but by activating the dedicated call appearance.

To provision the CA-ICOM feature, an Intercom Group dialing plan must be defined on the ICMGP form. This is the same form used to define the dialing plan for Feature Button intercom groups. Both 1-digit (10 position) and 2-digit (100 position) Intercom groups are allowed.

After an Intercom Group is created, it may be assigned to a Standard EKTS CACH terminal on the new CAICOM form (5984 Record); the Intercom Group is associated with one or more call appearance buttons on the terminal. On the CAICOM form, values must be entered in the TN, ICM GRP, SOURCE, CA, and CA QTY fields. If the caller will be required to dial a 1- or 2-digit code to reach an intercom group member, then SOURCE must be set to "DIAL", and AUTO DIAL POSITION must be blank. If the call appearance will directly connect to one member of the intercom group, the caller will not be required to enter any digits but will simply activate the call appearance; then, SOURCE must be set to "AUTO", and AUTO DIAL POSITION must contain the position of the called party in the intercom group. The position is defined in the ICM BLOCK and POSITION fields on the ICMGP form. See Figure 3 for the CA-ICOM provisioning flow.

A terminal may be a member of up to four CA-ICOM groups. Intercom call appearances cannot be shared.

Although ICOM groups may contain a mix of terminals assigned Call Appearance ICOM features and Feature Button ICOM features, an individual terminal may be assigned only one type of ICOM feature, not both.

NOTE: To accommodate the transition from FB-ICOM to CA-ICOM features, both types of ICOM features will be available for Standard DSL users in the 5E9(1) Software Release. For 5E9(2) and later, FB-ICOM features will not be allowed for Standard DSL users.

3.4 Call Forwarding

The National ISDN 2 Call Forwarding features provide the activating user a service that is service-uniform across vendors' switches, as defined in Bellcore TR853, *ISDN Call Forwarding*.

To implement this service, the Feature Button Activation/Deactivation Action "CFBN" was added to the CFGGRP form. Additionally, eight new preconstructed features were defined with the CFWFD form (5614-1 Record).

Preconstructed Call Forwarding Features	
Name	Description
/CFIBL	National ISDN Call Forwarding Busy Line (CSV)
/CFIDA	National ISDN Call Forwarding Don't Answer (CSV)
/CFIDBL	National ISDN Call Forwarding Busy Line (CSD)
/CFIDDA	National ISDN Call Forwarding Don't Answer (CSD)
/CFIDV	National ISDN Call Forwarding Variable (CSD)
/CFIV	National ISDN Call Forwarding Variable with no courtesy call (CSV)
/CFIVC	National ISDN Call Forwarding Variable with courtesy call - No answer required (CSV)
/CFIVCA	National ISDN Call Forwarding Variable with courtesy call - answer required (CSV)

3.5 Flexible Calling

National ISDN 2 modified 6-way call operation to allow the addition of up to six parties via normal add-on conference procedures without first invoking a separate 6-way calling feature.

The value "ET", Explicit Transfer, was added to the MULTIWAY TRANSFER field on the MWFD form. It is a new transfer value that allows a conference call to be transferred only when the controller explicitly requests a transfer. It prohibits a call from being transferred after the controller disconnects.

Also, the following new preconstructed features were defined using the MWFD form.

National ISDN 2 Preconstructed Multiway Calling Features	
Name	Description
/MWI6WBA	Implemented in the 5E8 Software Release. ISDN 6-Way Flexible Calling with Transfer. This feature allows six way operation via a single conference type feature button. It allows normal transfer operation and allows conferees of a conference call to be transferred to each other if the controller presses the transfer button or if the controller disconnects. In addition, at least one of the conferees must be in the same terminal group as the controller.
/MWI6WBN	ISDN 6-Way Flexible Calling with No Transfer. This feature prevents transfer and the transfer of the conferees under any circumstances.
/MWI6WBT	ISDN 6-Way Flexible Calling with Explicit Transfer. This feature allows normal transfer operation and allows conferees of a conference call to be transferred to each other if the controller presses the transfer feature button. If the controller disconnects, transfer is not allowed. In addition, at least one of the conferees must be in the same terminal group as the controller in order for the transfer to complete.
/MWI6WB2	ISDN 6-Way Flexible Calling with Transfer. This feature allows normal transfer operation and allows conferees of a conference call to be transferred to each other if the controller presses the transfer feature button or if the controller disconnects. There are no terminal group restrictions applied to the conferees.
/MWI6WB3	ISDN 6-Way Flexible Calling with Explicit Transfer. This feature allows normal transfer operation and allows conferees of a conference call to be transferred to each other if the controller presses the transfer feature button. If the controller disconnects, transfer is not allowed. There are no terminal group restrictions applied to the conferees.
/MWICTA2	ISDN Transfer Individual All Calls. This feature allows normal transfer operation and allows conferees of a conference call to be transferred to each other if the controller presses the transfer feature button or if the controller disconnects. In addition, at least one of the conferees must be in the same terminal group as the controller.
/MWICTA3	ISDN Explicit Transfer Individual All Calls. This feature allows normal transfer operation and allows conferees of a conference call to be transferred to each other if the controller presses the transfer feature button. If the controller disconnects, transfer is not allowed. There are no terminal group restrictions applied to the conferees.

/MWICTA4	ISDN Explicit Transfer Internal Only. This feature allows normal transfer operation and allows conferees of a conference call to be transferred to each other if the controller presses the transfer feature button. If the controller disconnects, transfer is not allowed. In addition, at least one of the conferees must be in the same terminal group as the controller in order for the transfer to be complete.

3.6 Series Completion

The Series Completion restrictions that existed in National ISDN 1 have been removed with the 5E9(1) Software Release and National ISDN 2. Although no data fields were modified, several data rules that prohibited Standard DSL lines to be specified as series completion to DNs and from DNs were removed.

4. NATIONAL ISDN 2 TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CAICOM	5984	6	3D	23.23
CFGGRP	5964	6	7A	12.5
DSLUSR	5908	5	11	23.2
ISDNOPT	5941	5	5B	8.1
MWFD	5602-1/2	4	3A	12.19

4.1 ACO (Additional Call Offering)

DSLUSR form (5908 Records) - This form is used to define the TN and other information for a DSL user. This includes attributes for circuit switched voice and data. The DSLUSR form must have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases. For the National ISDN Circuit Switching ACO feature two fields were modified, and two were added.

- CSV ACO: To accommodate the new feature options for Circuit Switching Voice ACO, two valid entries were added to the CSV ACO field. "INTRA" assigns the Intra-ISDN Basic Business Group option to the CSV user, while "INCOM" assigns the Incoming-to-ISDN BBG option.

These options may be assigned only to Standard DSL users who have "TYPEA" terminals and are members of a Terminal Group. For specific restrictions regarding the CSV LIMIT (Call Reference Busy Limit), CSV NBLIMIT (Call Notification Busy Limit), and other fields, see the data rules for the CSV ACO field on the DSLUSR form in Division 5, Section 11.

- CSV NBLIMIT: This new field, the CSV Notification Busy Limit, specifies the maximum number of simultaneous waiting voice calls allowed for this user of the ACO feature. Its value must be less than the CSV LIMIT, which is the Call Reference Busy Limit.

The range of allowed values is 0 to 15. When ACO is assigned, the CSV NBLIMIT default value is 1 if CSV LIMIT is greater than 1, 0 otherwise.

- CSD ACO: To accommodate the new feature options for Circuit Switching Data ACO, two valid entries were added to the CSD ACO field. "INTRA" assigns the Intra-ISDN Basic Business Group option to the CSD user, while "INCOM" assigns the Incoming-to-ISDN BBG option.

These options may be assigned only to Standard DSL users who have "TYPEA" terminals and are

members of a Terminal Group. For specific restrictions regarding the CSD LIMIT (Call Reference Busy Limit), CSD NBLIMIT (Call Notification Busy Limit), and other fields, see the data rules for the CSD ACO field on the DSLUSR form in Division 5, Section 11.

- CSD NBLIMIT: This new field, the CSD Notification Busy Limit, specifies the maximum number of simultaneous waiting voice calls allowed for this user of the ACO feature. Its value must be less than the CSD LIMIT, which is the Call Reference Busy Limit.

The range of allowed values is 0 to 15. When ACO is assigned, the CSD NBLIMIT default value is 1 if CSD LIMIT is greater than 1, 0 otherwise.

4.2 Display

ISDNOPT form (5941 Record) - This form is used to define a set of office parameters that must be entered when the office is an ISDN switch.

The field DISP T2 was added. This is a timer that determines the maximum time in seconds that a Standard BRI will display certain messages on the subscriber's terminal. It represents the TD-2 timer specified for ISDN displays in Bellcore TR-NWT-000865 for call control and selected services. Valid entries are 10 - 60 seconds.

4.3 EKTS (Electronic Key Telephone Service)

CAICOM form (5984 Record) - This form is new with the 5E9(1) Software Release. CAICOM is used to assign an Intercom Group to call appearances on a Standard ISDN EKTS CACH terminal. It includes the following fields.

- TN: This key field is the 7-digit telephone number of a Standard ISDN EKTS CACH terminal that is to be assigned the CA-ICOM feature. The TN must be defined on a DSLUSR form as either a CKT TN or CKT MLHG TN.
- ICM GRP: This key field is the Intercom Group to be assigned to the call appearance(s) designated by the CA and CA QTY fields. The intercom group must be defined on an ICMGP form (5960-2 Record).
- SOURCE: The source of the CA-ICOM digits may be "DIAL" or "AUTO". If "DIAL", Intercom calls originated from call appearances require dialing the one or two digits associated by the Intercom Group with the TN being called. If SOURCE is "AUTO", activating the call appearance button automatically originates the call. The automatic feature requires an entry in the AUTO DIAL POSITION field to identify the Intercom Group member to be called.
- AUTO DIAL POSITION: When SOURCE is "AUTO", this field specifies the position in the intercom group dialing plan (on the IDPGP form) to which intercom calls can be placed automatically from the intercom call appearance(s) for this TN.
- CA: This field identifies the button number associated with the first call appearance for the Intercom Group.
- CA QTY: This field specifies the number of consecutive call appearances dedicated to the Intercom Group.

4.4 Call Forwarding

CFGGRP form (5964 Record) - This form is used to assign BRCS (Business and Residence Customer Service) feature actions to ISDN CPE (Customer Premises Equipment) terminal buttons. CFGGRP is available with 5E4(2) and later Software Releases.

For the National ISDN 2 Circuit Switching feature, the "CFBN" value was added to the ACTION field. The Call Forwarding Button ("CFBN") Action applies only to Configuration Groups with GRP TYPE set to "STD"; it may be associated only with Call Forwarding features that are defined on a CFWFD form with ACT TYPE set to "CDDN", "CDDNC", "CDDNCA", or "CDCA1A", and with DACT TYPE set to "CODE".

4.5 Flexible Calling

MWFD form (5602-1/2 Record) - This form is used to define Multiway features.

The "ET" value was added to the MULTIWAY TRANSFER field and is used in new preconstructed features for Standard BRI terminals. "ET", Explicit Transfer, is a new value that allows a conference call to be transferred only when the controller explicitly requests a transfer. It prohibits a call from being transferred after the controller disconnects.

5. AUTOMATIC TERMINAL SETUP

5.1 Feature Description

The ATS (Automatic Terminal Setup) feature is available in 5E9(1) and later Software Releases, and supports National ISDN 2. This feature downloads certain parameters essential for terminal operation on a National ISDN (standard) BRI upon request from the terminal. A terminal can request a parameter download after the initialization of layer 3 protocol, or after the terminal has been notified by the switch that a service order change has been completed. The parameters downloaded include DNs (Directory Numbers), bearer capabilities per DN, the CACH EKTS CA (Call Appearance) map per DN, DNA (DN Appearances) per DN, FAs (Feature Activators), FI (Feature Indicators), and service description parameters.

This feature minimizes the number of steps the user or installer must take to establish service. For example, the most simple installation requires the user to plug the CPE into the interface, and then program the SPID (Service Profile Identifier) into the CPE. After the initialization and download procedures are complete, the user may immediately originate and receive voice, circuit-switched data and packet data calls.

ATS minimizes the number of parameters a customer must enter into an ISDN terminal. Without ATS, an ISDN terminal requires that all parameters be entered manually or via other semi-automatic means such as a local data link or pre-programmed data medium. The ATS feature enables the customer's ISDN terminal to read the actual switch-provisioned parameters into memory, thus ensuring the data in the terminal and switch are consistent.

Not all parameters are candidates for downloading. As an example, the SPID is not considered to be downloadable, since it is the bootstrap mechanism by which the terminal identifies itself to the switch at layer 3 protocol for initialization and downloading purposes.

5.2 CPE Parameters

There are three classes of parameters which a CPE requires to provide ISDN service:

- **Factory-set:** The parameters needed by the CPE to establish layer 2 and layer 3 protocols when it is plugged in. These parameters are programmed into the CPE at the factory. Default values of layer 2 and layer 3 protocol timers and counters, fixed TEI (Terminal Endpoint Identifiers), and fixed button and

lamp numbers fall into this category.

- **Programmable:** These are parameters programmed into CPE by the user. The SPID is an example of this class of parameters. Another example is a terminal with a setup mode which allows the installer or user to define buttons as call appearance or feature, and then number them.
- **Downloadable:** These are parameters downloaded into the CPE from the switch. The feature described in this capability is concerned with this subset of parameters and the downloading procedures. Any parameters that are not downloaded but are required by the CPE must be either factory-set or programmable.

This ATS feature permits a user to connect any CPE designed to support automatic terminal updates. This feature requires that the switch and CPE both support the proper protocol and procedures for successful downloading to occur. Downloadable and non-downloadable terminals may be mixed on an interface.

5.3 Terminal Setup Mechanism

The ATS feature can only be invoked from an initialized terminal. The terminal requests a download from the switch, and the switch responds by sending the parameter values. The terminal ends the process by sending an acknowledgement to the switch.

The switch notifies a terminal that a download is required when a service order change has been processed which affects downloaded parameters. The terminal can use the notification as a trigger to automatically request a download, or the user can manually request a download via terminal-provided means.

Downloading is accomplished by sending messages across the BRI D-channel. The protocol for these messages is derived from CMISE and ROSE (Common Management Information Service Element and Remote Operations Service Element) specifications with the parameters transported in Q.931/Q.932 messages following the CCITT standards for interface management services, Q.941.

The ATS feature can be divided into two major functionalities; CPE-initiated download request processing, and switch-initiated notifications from a service order change for a CPE on a standard BRI.

- CPE-initiated download request processing is achieved by two TPs (Terminal Processes). The first TP is created when a CPE requests a download through a REGISTER message. This TP controls the message flow between the CPE and the Switch throughout the download. The second TP is created to process PDUs (Protocol Data Units) and collect the downloadable data. PDUs are exchanged between these two TPs to send the downloadable data to the CPE and receive responses from the CPE throughout the download.
- Switch-initiated notification begins with a service order change via RC/V. Trigger functions examine these service order changes and determine whether the terminal needs notification. Notifications are put in a queue managed by the ATS system process to send a NOTIFY message to the terminal.

5.4 Duplication of Call Appearances

In order to accurately download CPE data, CAs must be unique. Several fields defining DNAs which formerly had been manually entered were added to DSLUSR and SHTN; in addition, the CAICOM form, new for 5E9(1), is involved. See sections Section 4, Section 5.5 and the respective forms for further information.

CAs are defined on ODA forms with pairs of fields. The following table shows these pairs. The first field is the first CA for a particular CA type; the second field is the number of CAs for the CA type.

Call Appearance Field Names		
Form	First CA	Number of CAs
CAICOM	CA	CA QTY
DSLUSR	CA	NUM
	SP DNA	SP DNA QTY
	AU DNA	AU DNA QTY
	K56 DNA	K56 DNA QTY
	K64 DNA	K64 DNA QTY
	DPKT DNA	DPKT DNA QTY
	ODB DNA	ODB DNA QTY
SHTN	CA	NUM
	SP DNA	always 1
	AU DNA	always 1

NOTE: All the fields on SHTN are in the SHARED LIST.

The last CA for a particular appearance type can be calculated from the values of the field pairs above by the relation

$$\text{Last CA} = (\text{First CA} + \text{Number of CAs} - 1)$$

Since the first CA is the lower limit, 1 must be subtracted.

To determine duplicate CAs, examine corresponding DSLUSR, SHTN, and CAICOM forms. Forms may correspond in the following ways:

- CKT TN on DSLUSR, SHARED LIST TN on SHTN, or TN on CAICOM are equal;
- CKT MLHG and CKT TERM on DSLUSR, MLHG and TERM NBR (both SHARED LIST) on SHTN are equal; or
- CKT MLHG TN on DSLUSR and TN on CAICOM are equal.

Duplicate CAs are not allowed. Determining duplicate CAs is illustrated by the following examples.

1. A DSLUSR form has CKT TN of 282-2333, CA of 5, and NUM of 4.

An SHTN form exists with TN of 282-2333, CA of 7, and NUM of 2.

Further, a CAICOM form exists with TN of 282-2333, CA of 2, and CA QTY of 4.

Duplication of CAs exists, since the CA range is 5 - 8 on DSLUSR, 7 - 8 on SHTN, and 2 - 5 on CAICOM. DSLUSR and SHTN, DSLUSR and CAICOM have overlapping CA ranges.

2. A DSLUSR form has CKT TN of 282-5555, AU DNA of 10, and AU DNA QTY of 2.

An SHTN form exists with TN of 282-5555, CA of 2, and NUM of 3.

Further, a CAICOM form exists with TN of 282-5555, CA of 5, and CA QTY of 8.

Duplication of CAs exists, since the CA range is 10 - 11 on DSLUSR, 2 - 4 on SHTN, and 5 - 12 on

CAICOM. DSLUSR and CAICOM have overlapping CA ranges.

3. A DSLUSR form has MLHG of 0008, TERM of 0223, CKT MLHG TN of 282-2333, K64 DNA of 5, and K64 DNA QTY of 5.

An SHTN form exists with MLHG of 0008, TERM NBR of 0223, CA of 7, and NUM of 4.

Further, a CAICOM form exists with TN of 282-2333, CA of 4, and CA QTY of 4.

Duplication of CAs exists, since the CA range is 5 - 9 on DSLUSR, 7 - 10 on SHTN, and 4 - 7 on CAICOM. DSLUSR and SHTN, DSLUSR and CAICOM, and SHTN and CAICOM have overlapping CA ranges.

4. A DSLUSR form has MLHG of 1320, TERM of 1029, CKT MLHG TN of 282-5555, K56 DNA of 10, and K56 DNA QTY of 3.

An SHTN form exists with MLHG of 1320, TERM NBR of 1029, CA of 8, and NUM of 2.

Further, a CAICOM form exists with TN of 282-5555, CA of 10, and CA QTY of 2.

Duplication of CAs exists, since the CA range is 10 - 12 on DSLUSR, 8 - 9 on SHTN, and 10 - 11 on the CAICOM form. DSLUSR and CAICOM have overlapping CA ranges.

5.5 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2
SHTN	5902	5	1C	23.20
SRVCDESC	5985	6	27A	8.32

DSLUSR form (5908 Record) - The DSLUSR form defines the TN and status information of a DSL user. This includes attributes for circuit switched voice and data, DPKT (D-channel packet), and ODB (On Demand B-channel). This form always has a corresponding DSL form.

Twelve new fields were added in support of ATS. As mentioned in section Section 5.4, these fields defined DNAs (Directory Number Appearances) which formerly were manually programmed at the terminal.

The SP DNA field is the first DN CA for speech. The SP DNA QTY field is the number of DN CAs for speech.

ISDN routing and digit analysis require speech and audio (voiceband data, e.g., facsimile and modems) calls to be routed differently. Speech treatments should not be applied to an audio call to maintain the integrity of the bit stream. See Division 2, Section 1W for more information on audio and speech calls.

The AU DNA field is the first DN CA for audio. The AU DNA QTY field is the number of DN CAs for audio.

The K56 DNA field is the first DN CA for 56K CSD. The K56 DNA QTY field is the number of DN CAs for

56K CSD.

The K64 DNA field is the first DN CA for 64K CSD. The K64 DNA QTY field is the number of DN CAs for 64K CSD.

The DPKT DNA field is the first DN CA DPKT. The DPKT DNA QTY field is the number of DN CAs for DPKT.

The ODB DNA field is the first DN CA for ODB. The DNA QTY field is the number of DN CAs for ODB.

SHTN form (5902 Record) - The SHTN form assigns a Primary or Secondary TN or MLHG/TERM to ISDN Terminals. A telephone number which appears on more than one terminal is called a Shared TN or MLHG/TERM. Shared TNs or MLHG/TERMs are divided into Primary and Secondary TN or MLHG/TERM.

Two new fields were added to SHTN to support ATS. As mentioned in Section 5.4, these fields defined DNAs which formerly were manually programmed at the terminal.

The SP DNA field is the DN CA for speech. The AU DNA field is the DN CA for audio.

ISDN routing and digit analysis require speech and audio (voiceband data, e.g., facsimile and modems) calls to be routed differently. Speech treatments should not be applied to an audio call to maintain the integrity of the bit stream. See Division 2, Section 1W for more information on audio and speech calls.

SRVCDESC form (5985 Record) - For 5E9(1) and later, the SRVCDESC form defines all actions and their service descriptions for the ATS feature. It is used to override the default service descriptions.

6. NATIONAL ISDN 3 FEATURE DESCRIPTION

The National ISDN 3 Circuit Switching features are available with 5E10 and later Software Releases. These features support and extend the initial offering of standard BRI (Basic Rate Interface) features introduced with National ISDN 1 and 2. They implement the Standard Services Bellcore Specifications for standard BRIs.

7. NI-3 NON-INITIALIZING TERMINALS

7.1 Feature Description

The Non-Initializing Terminals feature is available for 5E10 and later. It adds to the current level of support for NIT (Non-Initializing Terminals) on a Standard ISDN interface. Before 5E10, NITs were only supported for Packet-mode calls. This feature adds support for Circuit-mode calls, and adds the capability of using a NIT with a Permanent Virtual Circuit. The feature number for this capability is 99-5E-2273. This is a secured feature with SFID 225.

A NIT is any terminal that does not perform terminal initialization, i.e., it does not send a SPID (Service Profile Identifier) to the switch as is done by a FIT (Fully-Initializing Terminal). Any FIT that does not successfully complete terminal initialization is also treated as a NIT. A NIT may be used for circuit mode and/ or packet mode calls.

With this feature, a NIT on a Standard ISDN interface can receive service in the following ways:

- By originating calls with its calling DN in the origination message, the terminal receives service provisioned for the DN.
- By originating calls without a calling DN in the origination message, the terminal receives service of the

DN provisioned as the default DN on the interface, or of default services.

- By answering calls for its DN, the terminal receives the services of the DN.
- By using a terminal programmed with a provisioned fixed TEI, the terminal receives service of the DN provisioned for the fixed TEI, including Permanent Virtual Circuit service.

7.2 Default Directory Number

Default DN allows a NIT access to the services of a user provisioned as a default DN on a BRI. It defines the user services applied when the NIT makes a call without supplying a valid calling DN, or supplying an invalid calling DN. A default DN user may be provided with circuit and/or packet services. Only one user on a BRI may be provisioned as the default DN for circuit services: only one may be provisioned as a Default DN for packet service. The same user may have the Default DN for both circuit and packet service. If a default DN is provisioned for circuit services, it takes precedence over default service to the BRI.

7.3 Fixed Terminal Endpoint Identifier

This feature provides support for NITs for use with PVC (Permanent Virtual Circuits). The PVC is active as soon as the switch can identify the terminal. For a FIT, this identification is managed through the normal initialization process. For a NIT, a provisioned fixed TEI (Terminal Endpoint Identifier) is used.

The TEI is how the terminal (NIT or FIT) is first known by the switch, and may be either Fixed (programmed into the terminal) or Automatic (generated and supplied by the switch). The Automatic TEI can be different each time the terminal is plugged in, whereas the Fixed TEI is always the value that is programmed into the terminal.

When the NIT uses a fixed TEI that has been provisioned, the switch knows as soon as the terminal is plugged in what services (i.e., PVC) to associate with the NIT. The operating company maintains this Fixed TEI value as part of the provisioned data in the switch for the user's interface. The user communicates this fixed TEI to the service provider at the time they subscribe to the PVC service.

The only time a user must be concerned with the TEI value is when they are subscribing to a PVC for use with a NIT. If a PVC is not provisioned, the switch does not allow the provisioning of a Fixed TEI.

7.4 User Operation

If the NIT is used to originate calls with a DN or terminate calls for a DN, the DN must be programmed in the terminal. If the NIT is using the Provisioned fixed TEI with the PVC interface, it must have the TEI programmed. For originating default DN or default service calls, no parameters are required to be programmed in the NIT.

7.5 Incompatibilities

Non-initializing terminals are incompatible with the following features:

- All features requiring feature buttons, such as:
 - Flexible Calling - Call Transfer
 - Flexible Calling - Conference Calling
 - Drop

— Call Forwarding Feature Button Features

— Visual Message Waiting Indicator

- Automatic Terminal Setup
- Electronic Key Telephone Service
- Terminal Key Systems
- Service Control Point Allowed
- Personal Communications Access on a C-Interface
- Network Element Services Signaling
- Message Desk Service
- Permanent Virtual Circuit without provisioned fixed TEI
- Packet Multiline Hunt Group Members without an individual DN assigned
- Shared DN
- Circuit-mode Multiline Hunt Group members (Packet MLHGs will still be able to use NITs if each NIT is assigned an Individual DN.)

Any user assigned for use by a NIT must not have any of the above features provisioned.

7.6 Limitations

A NIT may use the services of a NIT-compatible user provisioned on the BRI. Only one NIT at a time may have an active call for that user. A user with a fixed TEI provisioned can only be used by a terminal using that TEI. A FIT, receiving service as a NIT, must function in a NIT-mode, e.g., a FIT cannot depend on any NIT-incompatible features such as feature buttons or EKTS functionality for processing calls.

7.7 Automatic Association of Default Services

The Automatic Association of Default Services secured feature, which is available for 5E10 and later, is an enhancement for the NIT feature. It provides for automatically assigning a default service profile to newly created ISDN DSLs at the same time the OE and other per-line parameters are entered to create the DSL. For more information on this feature, see Division 2, Section 4A238.

7.8 Feature Assignment

Provisioning for this feature permits the following:

- NIT-compatible user assignment and default service user assignment
- Default TN user assignment
- Fixed TEI assignment

7.9 NIT-compatible User Assignment and Default Service User Assignment

For CKT (Circuit) service:

1. User must have a CKT TN
2. Do NOT assign any of the following:
 - CONFIG GRP must not be entered.
 - EKTS must not be entered or be "NONE".
 - CKT MLHG must not be entered.
 - SCP ALW must not be entered.
 - PASC must not be entered.
 - MSS (Message Service System) defined on the MSFD form must not be assigned on the CKT TN.
 - The SCP ALW field for the NESS (Network Element Services Signaling) feature must be "N".

For DPKT (D-Channel Packet) and/or ODB (On Demand B-Channel) service:

1. If DPKT service is to be assigned, DPKT TN must be entered.
2. If DPKT services are to be assigned, DPKT H PVC LCN must not be entered.
3. If ODB services are to be assigned, ODB TN must be entered.

7.9.1 On the DSL form (5907 Record):

DFLT SRV must be assigned to this DSL.

7.10 Default TN User Assignment On the SFSYS form (5713-1 Record):

The ACT field for the SFID 225 must be set to "Y" to activate all NI-3 BRI features.

7.10.1 On the DSLUSR form (5908 Record):

1. Set DFLT TN USER to "Y".

For CKT (Circuit) service:

1. Verify that no other DFLT TN USERS on the OE have CKT service. Only one default DN for CKT services is allowed on an OE.
2. User must have a CKT TN

3. Do NOT assign any of the following:

- CONFIG GRP must not be entered.
- EKTS must not be entered or be "NONE".
- CKT MLHG must not be entered.
- SCP ALW must not be entered.
- PASC must not be entered.
- MSS (Message Service System) defined on the MSFD form must not be assigned on the CKT TN.
- DPKT H PVC LCN must not be entered.
- DPKT FIXED TEI must not be entered.
- The SCP ALW field for the NESS (Network Element Services Signaling) feature must be "N".

For DPKT (D-Channel Packet) and/or ODB (On Demand B-Channel) service:

1. Verify that no other DFLT TN USERS on this OE have DPTK or ODB service.
2. If ODB services are to be assigned, ODB TN must be entered.
3. If both DPKT and ODB service are to be assigned, DPKT TN must equal the ODB TN (CHL SEL is "Y").
4. If DPKT service is to be assigned, DPKT TN must be entered.
5. If DPKT services are to be assigned, DPKT H PVC LCN must not be entered.
6. If ODB services are to be assigned, ODB TN must be entered.

On the DSL form (5907 Record):

1. DSL CLS must be "STD"

For CKT (Circuit) service:

1. DFLT SRV must not be assigned to this DSL. Note that this may not be true for 5E10 Software Updates and later Software Releases.

7.11 Fixed TEI Assignment

On the SFSYS form (5713-1 Record):

The ACT field for the SFID 225 must be set to "Y" to activate the FIXED TEI feature.

On the DSLUSR form (5908 Record):

For CKT (Circuit) service:

1. A CKT TN must be assigned
2. Do NOT assign any of the following:
 - CONFIG GRP must not be entered.
 - EKTS must not be entered or be "NONE".
 - CKT MLHG must not be entered.
 - SCP ALW must not be entered.
 - PASC must not be entered.
 - DFLT TN USER must be "N".
 - MSS (Message Service System) defined on the MSFD form must not be assigned on the CKT TN.
 - The SCP ALW field for the NESS (Network Element Services Signaling) feature must be "N".

For DPKT (D-Channel Packet) and/or ODB (On Demand B-Channel)

1. Assign DPKT service including DPKT TN.
2. Assign DPKT H PVC LCN.
3. Assign DPKT FIXED TEI. Make sure FIXED TEI is unique on this DSL
4. Assign the PVC.

7.12 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	11	23.2 23.8
SFSYS	5713-1	3	5AR	8.22

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user, and 4) defines the On Demand B-channel packet switching attributes of a DSL user. The DFLT TN USER and FIXED TEI fields were added to support the NIT feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 225 must be set to "Y"

8. NI-3 DEFAULT SERVICES USOP

8.1 Feature Description

The Default Service USOP (User Service Order Profile) feature provides a method of provisioning a minimum set of services on a National ISDN BRI interface to serve terminals which do not associate themselves with any other USOP on the interface. The feature number for this capability is 99-5E-2273.

The feature provides the ability to define one or more Default Service USOPs in the switch. Each Default Service USOP can be defined to enable Circuit Switched Voice originations to any provisioned set of the following services

- 108 Test Line
- 611 (Repair Service Bureau)
- 811 (Business Office)
- 911 (Emergency)
- BRIV (BRI Verification)

Each DSL can be individually associated with a specific Default Service USOP.

This capability allows lines with no DN or subscribed service to provide dial tone and access to the minimum set of services.

This capability allows terminals which cannot associate themselves with any of the subscribed services on the interface to still get dial tone and access to the minimum set of services.

A minimum set of services are provided to all terminals whether they are FITs or NITs and whether they associate themselves with a subscribed USOP or not. (The limitation that the terminal be capable of initiating a voice mode call is acceptable). Some terminals may initialize to a USOP selected by SPID (Service Profile Identifier), others may associate themselves with service by sending a DN, and others may not use either method of identifying themselves. Because of the possibility of different methods of associating a terminal with services, the minimum set of services will be provided by different methods, including the Default Service USOP.

All ISDN BRI access lines which are in service must provide the following minimum set of services:

- Dial Tone
- Ability to originate a voice mode call to BRIV
- Ability to originate a voice mode call to other numbers as provisioned in the switch.

The minimum set of services defined above must be provided to any terminal on the interface which can make a voice mode, non-EKTS call. This includes:

- calling party number in the setup message (could use Default DN USOP or Default Service USOP).
- a NIT (non-initializing terminal) which sends a calling party number in the setup message which is not known at that interface (could use Default DN USOP or Default Service USOP).
- a NIT (Non-Initializing Terminal) which sends a calling party number in the setup message which is known at that interface (In this case the "minimum set of services" must be provisioned with the other services in the USOP which is accessed by that DN).
- an initializing terminal which does not initialize properly because it sends a SPID not available at that interface, and then reverts to NIT protocol procedures as described above (could use Default DN USOP or Default Service USOP).

- an initializing terminal which initializes properly. In this case the "minimum set of services" must be provisioned with the other services in the USOP.

The Default DN USOP alone could meet the needs of provisioning these services but, for reasons described above, the Default Service USOP feature is offered as an alternative which in many cases would be easier to provision and more efficient (doesn't consume a DN, serves more than one terminal at a time).

Terminations to the user will be denied with default service.

8.2 User Operation Example:

A user moves into a new office and has not yet subscribed to service. The user plugs in the ISDN Fully Initializing Terminal carried from the previous location and not programmed with any SPID. The user receives dial tone because the line is provisioned with a Default Service USOP. This enables the user to call the telephone company and arrange for service to be installed for the new office.

8.3 Automatic Association of Default Services

The Automatic Association of Default Services secured feature, which is available for 5E10 and later, is an enhancement for the NIT feature. It provides for automatically assigning a default service profile to newly created ISDN DSLs at the same time the OE and other per-line parameters are entered to create the DSL. For more information on this feature, see Division 2, Section 4A238.

8.4 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DFLT SRV	5974	6	17	23.15
ISDNOPT	5941		5B	8.1

DFLT SRV form (5974 Record) - This form defines Default Service for an unknown CPE (Customer Premise Equipment) on a DSL. To support the NIT feature, the DFLT SRV group name cannot be defined as "NONE". If DFLT SRV is populated, then no terminations are allowed to the BRI.

ISDNOPT form (5941 Record) - This form defines the office parameters that must be entered when the office is an ISDN switch. The field DFLT SRV supports the NIT feature.

9. NI-3 BRI VERIFICATION

9.1 Feature Description

The NI-3 BRIV (National ISDN Basic Rate Interface Verification) feature provides the capability to identify the Office Equipment connected to a Standard ISDN BRI access line. The BRIV feature can be accessed by dialing an access code from an ISDN terminal connected to a Standard ISDN BRI access line provisioned for Circuit-Switched access (voice or data). BRIV provides the installation and maintenance personnel of a Telephone Company the ability to retrieve the OE (Office Equipment) identification value, which identifies the termination of the ISDN interface in use, right from the customer premises. When a test call is placed to BRIV, the OE identification value is displayed which identifies the termination of the ISDN interface from where the test call originated. The feature number for this feature is 99-5E-1221.

BRIV can be accessed by a 3-digit access code or a 7-digit DN. The DN(s) or access code(s) are assigned for

the "BRI Test Line" without an association with BRIV or Custom BRITL. When a terminal signals the access code or DN, the 5ESS Switch connects a user terminal to either BRIV or Custom BRITL based on the type of interface (namely, Standard or Custom) associated with the terminal. More than one access code can be assigned to the "BRI Test Line" and the Telephone Company can arbitrarily use one number when calling from standard terminals and another when calling from custom terminals. However, the switch provides BRIV or Custom BRITL capabilities based on the type of line originating the call, not on the number dialed or signaled. For more information on BRITL, see Division 2, Section 2U.

The BRIV feature is not dependent on other feature development to function. However, to be most effective in obtaining the OE identification in an installation scenario, it must be possible to access the feature on a DSL from an initializing terminal or a non-initializing terminal without knowing the SPID (Service Profile Identifier) or DN (Directory Number) associated with that DSL.

9.2 Feature Assignment

As with Custom BRITL and the 108 TL (Test Line) features, assignment of BRCS and other similar features may not be assigned to the 3-digit and 7-digit BRITL access codes. Defining the BRIV 3-digit and 7-digit access codes on the forms listed in the table below do not permit assignment of these features.

When defining access codes for BRIV, specify if the access code is the maintenance version or the billed version. If the end user uses the billing version of BRIV, "Y" must be entered in the BRITL ALW field in the DSLUSR form (5908 Record) for the corresponding DSL. However for the Standard Interface, a billed version of BRIV is not allowed, i.e., the BRITL ALW field cannot be set to "Y".

Assignment	ODA Form	Record	Number of Digits
Individual Dialing Plan	IDPICM	5601	3-Digit
Local Digit Analysis	LDIT	5300-3/5	3-Digit
PBX-DID Line Assignment	LINE	5109	7-Digit
Primary Digit Analysis	PDIT	5300-2	3-Digit

9.3 Translation Requirements

No forms were new or modified for this feature.

10. NI-3 ISDN/PCS INTERWORKING

10.1 Feature Description

For 5E10 and later, the ISDN/PCS (Personal Communications Services) Interworking is a PCS offering based on an ISDN interface between the LEC's (Local Exchange Carrier's) switch and radio controllers operated by a PCS provider. The feature number for ISDN/PCS Interworking is 99-5E-2356. It is a secured feature with SFID 228.

ISDN/PCS Interworking allows National ISDN (NI-3/NI96) BRI lines on an AIN (Advanced Intelligent Network) capable 5ESS-2000 Switch the ability to interface with RPCUs (Radio Port Control Units) and/or IBS (Intelligent Base Stations) to provide four basic capabilities fundamental to a PCS user (as well as several vertical services including Call Waiting, Three-Way Calling, and Calling Number Delivery). A PCS user is described as a user with a wireless handset who is associated with a registration area which is managed by an Access Manager located in a SCP (Service Control Point) or in a RPCU. The initial offering of PCS will support PCS users traveling at a low to moderate speed, i.e., walking or traveling in a vehicle in an area restricted by local limits.

The four basic capabilities provided by 5E10 ISDN/PCS Interworking include the ability for a PCS user to:

- Register with the PCS provider
- Originate a call
- Receive a call
- Move automatically from one RPCU to another while maintaining the call (i.e., Automatic Link Transfer; intra-switch only for 5E10)

When mature, PCS will provide three types of mobility: terminal mobility, personal mobility and service mobility. In 5E10, terminal mobility is provided. Terminal mobility is the ability of a terminal, such as a wireless handset, to access telecommunications services from different locations while in motion, and the ability of the network to locate, identify and authenticate that terminal. Personal mobility is the ability for users to access telecommunications services at any terminal or handset on the basis, for example, of a personal identifier. That is, a user may be reached any time, anywhere either on a wireline phone or a wireless phone via a personal telephone number. Service mobility is the ability for users to access the vertical features provided by land-line network from wireless telephones.

ISDN/PCS interacts with the following 5ESS-2000 Switch-based features:

- Flexible Calling (provides PCS Three-Way Calling)
- Additional Call Offering (provides PCS Call Waiting).
- ASP Off-Hook Delay
- ASP Feature Code Dialing
- ASP Terminating Attempt Triggers
- ASP NESS
- CPN/BN
- Redirecting Number Delivery
- Display and Privacy

AIN-based PCS features include:

- Profile Manipulation
- PCS Call Forwarding
- PCS Call Screening
- PCS Calling Number Identification Services.

PCS calls are transmitted over an air interface to a RP (Radio Port) and then to a RPCU (Radio Port Control Unit). The RPCU manages one or more RPs and converts the protocol between the wireless and wireline networks. The RPCUs are connected to the 5ESS-2000 Switch via ISDN BRIs. An ALT (Automatic Link Transfer) moves a PCS call from one RPCU (old) to another (new) RPCU. The new RPCU originates the ALT

request. When the switch recognizes the ALT request, transfer permission is expected from the old RPCU and a timer is started. The switch expects a response from the old RPCU granting or denying the request before the timer expires. The timer range is specified by the DSL user. If the time expires, the ALT has failed and the call at the new RPCU is cleared and the call remains at the old RPCU.

10.2 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2
ISDNOPT	5941	5	5B	8.1
SFSYS	5713	3	5AR	8.22

DSLUSR form (5908 Records) - This form is used to define the TN and other information for a DSL user. This includes circuit switching (voice and data) attributes. Two new fields were added to support PCS. The PASC (PCS Access Service on a C-Interface) field was added to indicate if ISDN/PCS Interworking is allowed—by entering "PCSI" (PCS/ISDN Interworking). The second field added for ISDN/PCS Interworking is ALT to indicate whether the DSL user is allowed to comply with a request for an ALT.

ISDNOPT form (5941 Record) - This form is used to define a set of office parameters that must be entered when the office is an ISDN switch. The ALT REQUEST field was added to specify the time allowed for the old RPCU to grant or deny permission for the PCS call to ALT.

SFSYS (5713 Record) - This form is used to define secured features. The ACT field for SFID 228 must be set to "Y" to activate this feature.

11. NI-3 INHIBIT DSL MAINTENANCE

11.1 Feature Description

For 5E10 and later, the INH DSL MAINT field was added to the RTERM form to provide the capability to disable the following tests for IDCU TR303 Remote Terminals: ISDN loopback test, ISDN corrupt CRC test, and ISDN Performance Monitoring. Analog lines and trunk are not affected.

11.2 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RTERM	5174	3	1S	18.5

RTERM (5174 Record) - This form is used to define remote terminals connected to the IDCU (Integrated Digital Carrier Unit). Added the INH DSL MAINT field to allow the capability to inhibit the ISDN loopback, corrupt CRC, and Performance Monitoring tests.

12. NI-3 CNIS INTRA-GROUP ONLY DELIVERY OPTIONING

12.1 Feature Description

The CNIGI (CNIS Intra-group Only Delivery Optioning) feature (feature number 99-5E-1451) is available with 5E10 and later Software Releases.

The CNIGI feature provides the ability to restrict for members of a terminal group CPN (Calling Party Number

) delivery, RN (Redirecting Number) delivery, delivery of CgPS (Calling Party Subaddress), and provision of ICLID (Incoming Call Line Identification) displays to intra-group calls. CNIGI has no effect on delivery of information to non-terminal group parties (i.e., residential). CNIGI is NOT a separate assignable feature; it allows existing features (e.g., ICLID, CPN/BND) to restrict delivery of information to intra-group calls. Whether or not the CNIGI restriction applies depends on the settings of the CNIGI (CNIS Intra-group) Only Delivery option for the office, business group and individual line/PRI trunk. CNIGI applies to all members of the terminal group, including National ISDN BRI/PRI, Custom BRI/PRI, and analog lines.

A new field (CNIGI) was added to the following forms to support the CNIGI feature.

TGSRFD
TGSRLPA
TGSRTPA
BFG
TGATTD
OFCOPT

The possible settings of the CNIGI option are:

- Null (not valid for OFCOPT, default for group and line)
- No Restrictions (default for OFCOPT) - no change in number delivery

The phrase "no change in number delivery" means that the calling and/or forwarding number(s) are delivered to the line/PRI for both inter-group and intra-group calls if an active number delivery feature (e.g., ICLID, CPN/BND) indicates to do so.

- Intra-group Only - no delivery of calling and/or forwarding number(s) for inter-group calls.

If a call to a member of a terminal group is an inter-group call, the following translations are used to determine whether CNIGI display/delivery restrictions on calling/forwarding number apply:

1. Check line/PRI CNIGI option (TGSRFD, TGSRLPA, TGSRMPA, TGSRTPA, and BFG)
 - If set to No restrictions, then no change in number delivery
 - If set to Intra-group only, then apply CNIGI restrictions
 - If set to Null, then proceed to next step
2. Check terminal group CNIGI option (TGATTD)
 - If set to No restrictions, then no change in number delivery
 - If set to Intra-group only, then apply CNIGI restrictions
 - If set to Null, then proceed to next step
3. Check office CNIGI option (OFCOPT)
 - If set to No restrictions, then no change in number delivery

- If set to Intra-group only, then apply CNIGI restrictions

When CNIGI restrictions apply:

- The ISDN display of the Calling Number or Redirecting Number will have "Incoming call" (National BRI) or "INCOMING CALL" (Custom BRI) in place of the actual number.
- For analog displays, a string of ten "1"s will be delivered in place of the calling number.
- The Calling Party Number Information Element will be delivered to an ISDN terminal with no calling party number and with an indication of private. There will be no delivery of Calling Party Subaddress.
- The Redirecting Number Information Element(s) will be delivered to a National ISDN terminal with no forwarding number(s) and with an indication of private.
- The Calling Party Number Information Element will be delivered to a PRI with no calling party number and with an indication of private. There will be no delivery of Calling Party Subaddress (unless unconditional delivery is specified).

12.2 User Operation

In this section there are five scenarios which illustrate CNIGI restrictions. The following are the participants in these scenarios:

- User A
 - Custom ISDN terminal with DN=708-979-1111
 - Calling Number Delivery, and ICLID features assigned
 - Member of terminal group TG1
 - Intra-group only setting of CNIS Delivery option
- User B
 - analog phone with DN=708-979-2222
 - ICLID feature assigned
 - Member of terminal group TG1
 - No restriction setting of CNIS Delivery option
- User C1
 - National ISDN CACH EKTS terminal with primary DN=708-979-3331 and secondary DN=708-979-3332
 - Calling Number Delivery, Redirecting Number Delivery, and ICLID features assigned

- Member of terminal group TG1
- Null setting of CNIS Delivery option
- User C2
 - National ISDN CACH EKTS terminal with primary DN=708-979-3332 and secondary DN=708-979-3331
 - Calling Number Delivery, Redirecting Number Delivery, and ICLID features assigned
 - Member of terminal group TG1
 - Null setting of CNIS Delivery option
- PRI trunk P
 - National ISDN PRI
 - Calling Number Delivery assigned; Calling Party Subaddress Delivery with the Conditional (do not deliver if Calling Number is private) option assigned; no Privacy Override
 - Member of terminal group TG1
 - Null setting of CNIS Delivery option
- User D
 - National ISDN terminal with DN=708-713-4444
 - No originating restriction on delivery of Calling Party Number
 - Member of terminal group TG2
- User E
 - analog phone with DN=708-355-5555
 - No originating restriction on delivery of Calling Party Number
 - residential user (no terminal group)

Scenario 1:

For this scenario:

- Intra-group only Terminal Group TG1 setting of CNIS Delivery option
- No restriction office setting of CNIS Delivery option

The sequence is as follows:

1. User D places a call to A.
2. Since D is in a different terminal group (TG2) from A (TG1) and A has an Intra-group only setting,
 - the Calling Party Number (CPN) Information Element (IE) is delivered to A with no CPN digits and an indication of presentation prohibited of network provided number.
 - The ICLID display of A shows INCOMING CALL.

Scenario 2:

For this scenario:

- Intra-group only Terminal Group TG1 setting of CNIS Delivery option
- No restriction office setting of CNIS Delivery option

The sequence is as follows:

1. User E places a call to B.
2. Although E is in a different terminal group (no terminal group) from B (TG1), since B has a No restriction setting, the CNIS Intra-group only Delivery Option feature has no effect:
 - The ICLID display of B provides the CPN of E.

Scenario 3:

For this scenario:

- Intra-group only Terminal Group TG1 setting of CNIS Delivery option
- No restriction office setting of CNIS Delivery option

The sequence is as follows:

1. User D places a call to the primary DN of C1 (708-979-3331).
2. Since D is in a different terminal group (TG2) from C1 (TG1) and C1 has a Null setting, the TG1 Intra-group only setting applies:
 - The Calling Party Number (CPN) Information Element (IE) is delivered to C1 and C2 with no CPN digits and an indication of presentation prohibited of network provided number.
 - No Calling Party Subaddress IE is sent to C1 or C2.
 - The ICLID display of C1 and C2 show Incoming call.

User C2 answers the call and receives an indication that the call has been connected and that the call is an Incoming call.

Scenario 4:

For this scenario:

- Intra-group only Terminal Group TG1 setting of CNIS Delivery option
- No restriction office setting of CNIS Delivery option

The sequence is as follows:

1. User D places a call to a party on a PBX connected to the switch through PRI P.
 2. Since D is in a different terminal group (TG2) from PRI P (TG1), and P has a Null CNIGI setting, the TG1 Intra-group only setting applies.
- The CPN (Calling Party Number) IE (Information Element) is delivered to PRI P with no CPN digits and an indication of presentation prohibited of network provided number.
 - No Calling Party Subaddress IE is sent to PRI P since the Calling Party Subaddress Delivery parameter is set to Conditional. The Calling Party Subaddress IE would be sent (if available) to PRI P if the Calling Party Subaddress Delivery parameter were set to Unconditional.

Scenario 5:

For this scenario:

- Null Terminal Group TG1 setting of CNIS Delivery option
- Intra-group only office setting of CNIS Delivery option
- User D and E have CFV (Call Forwarding Variable) active such that D forwards calls to E and E forwards calls to the primary DN of C1.

The sequence is as follows:

1. User A places a call to D.
2. Since CFV is active at D, the call is forwarded to E.
3. Since CFV is active at E, the call is forwarded to the primary DN of C1.
4. Since the primary DN of C1 is in the same terminal group as the calling party (A),
 - the ICLID display for C1 and C2 indicates A's number as the calling party number.
 - the CPN IE is delivered to C with A's number

5. Since the primary DN of C1 is not in the same terminal group as the original called party (D), and both the primary DN of C1 and TG1 have a Null setting, the office Intra-group only setting applies:
 - the ICLID display for C1 and C2 indicates Incoming call for the base number.
 - Type of Number/Number Plan, with an indication of "Presentation prohibited of network-provided number", and with an "Unknown" Reason for Redirection.
6. Since the primary DN of C1 is not in the same terminal group as the last redirecting party (E), and both the primary DN of C1 and TG1 have a Null setting, the office Intra-group only setting applies:
 - the second RN IE is delivered to C1 and C2 without RN digits, with an "Unknown" Type of Number/Number Plan, with an indication of "Presentation prohibited of network-provided number", and with an "Unknown" Reason for Redirection.

12.3 Feature Assignment

The CNIGI (CNIS Intra-group Only Delivery Optioning) feature can be used by a service provider to limit delivery for business group customers of calling party number and forwarding number information, as provided by the CNIS, CPN/BND, RN Delivery, CgPS Delivery and ICLID features, to incoming intra-group calls. There are NO user specified variables under the control of the end-user. The service provider can apply the CNIGI restriction through a combination of office, business (terminal) group, and individual line/PRI trunk options. The possible settings of this Intra-group CNIS option are:

- Null (not valid for per-office) - consult next level up
- No Restrictions - no change in number delivery
- Intra-group Only - no delivery of calling and/or forwarding number(s) for inter-group calls

The following scenario illustrates how to configure the CNIGI options to achieve a desired set of restrictions. Assume most business groups will have an Intra-group only restriction, except for one business group (TG1) which will have No restrictions. This business group (TG1) will have some lines and a PRI trunk which have Intra-group only restrictions. Another business group (TG2) is to be set up with Intra-group only restrictions, but some lines and a PRI trunk will have No restrictions. Assume that members have already been assigned to terminal groups TG1 and TG2.

OFCOPT form:

The the office CNIGI field should be changed from its default value of "NORSTRCT" to "INTRAONLY" using OFCOPT form (5509 Record), Recent Change View 8.1 (Office Options). Since the default setting for terminal groups and lines/PRI trunks is Null, all business group customers are now restricted to Intra-group only delivery of CPN, RN, and display information.

TGATTD form:

The the setting of the TG1 CNIGI field should be changed from "NULL" to "NORSTRCT" using TGATTD form (5611 Record), Recent Change View 4.4 (Terminal Group Attendant and Data). Since the default setting of lines/PRI trunks is Null, all lines/PRI trunks in TG1 are now allowed to receive information for both inter-group and intra-group calls. This change has no effect on any lines/PRI trunks which are not members of TG1.

TGSRLPA, TGSRLPA and TGSRTPA forms:

The setting of the CNIGI field for the lines and PRI trunk in TG1 which are not allowed to receive information on inter-group calls should be changed from the default value of "NULL" to "INTRAONLY" using TGSRLPA form (5607-3 Record), Recent Change View 1.29 (Terminal Group Station Restriction Line Parameters) for analog and ISDN lines, and TGSRTPA form (5607-5) Record, View 5.29 (Terminal Group Station Restriction Trunk Parameters) for the PRI trunk.

Change the setting of the lines and PRI trunk in TG2 which are allowed to receive information on inter-group and intra-group calls from the default value of "NULL" to "NORSTRCT" using TGSRLPA form (5607-3 Record), Recent Change View 1.29 for analog and ISDN lines, and TGSRTPA form (5607-5 Record), View 5.29 for the PRI trunk. The other members of TG2 which have "NULL" continue to be controlled by the office setting of Intra-group only (since TG2 setting is NULL).

12.4 Other Features Required

CNIGI is NOT a separate assignable feature; it allows existing features (e.g., ICLID, CPN/BND) to restrict delivery of information to intra-group calls. The features affected by CNIGI are summarized in the following table:

Features Affected by CNIGI	
Interface	Features
Analog	ICLID
BRI Custom	ICLID, CPN/BND
BRI National	ICLID, CNIS(CPN/BND), CNIS(RND)
PRI	ICLID, CPN/BND, CNIS(CPN/BND), CgPS Delivery, METROHUB

Note that Calling Party Number Delivery and Redirecting Number Delivery are separate subfeatures of the CNIS feature. Calling Party Number Delivery includes delivery of Calling Party Number and Calling Party Subaddress (CgPS) for BRI; for PRI, CgPS delivery is a separate feature.

The METROHUB feature needs to be active in an office to assign PRI trunks to terminal groups. For interswitch calls these are transported in the SS7 ISUP Calling Party Number parameter and the ATP (Access Transport parameter), respectively. Redirecting Number Delivery for BRI includes delivery of the first and last forwarding numbers. For interswitch calls these are transported in the SS7 ISUP Original Called Number parameter and the Redirecting Number parameter, respectively.

12.5 Compatibilities/Incompatibilities

Two features which also restrict delivery of display information are:

- the LIGI (Limited Intra-group ICLID) feature which allows the calling number and original called number to be displayed at the terminating station only when these numbers are in the same terminal group as the terminating station (Otherwise the number is marked as private.)
- the MH2 (METRO HUB2) feature which applies LIGI treatment to calls terminating to PRI trunks

When LIGI is active and CNIGI restrictions apply, CNIGI restrictions take precedence. This will result in a CNIGI display (i.e., "Incoming call") rather than an indication of private number. When MH2 is active, all inter-group calls to a PRI will be marked as private, independent of whether or not CNIGI restrictions apply.

Since LIGI and MH2 offer much less flexibility than CNIGI (e.g., LIGI applies to all lines on the switch, including residential lines), it is likely that when CNIGI is available it will be used in place of LIGI and MH2.

12.6 Interactions

The following features have interactions with CNIGI:

- ICLID (Incoming Calling Line Identification) - see "Other Features Required"
- Calling Party Number/Billing Number Delivery (CPN/BND) - see Other Features Required
- Redirecting Number Delivery (RND) - see "Other Features Required"
- METROHUB - "Other Features Required"
- Call Forwarding
 - CNIGI restrictions apply to delivery of calling number information in the NOTIFY message which is sent when a call is forwarded from a National BRI due to Call Forwarding Variable or Call Forwarding Busy Line.
 - CNIGI restrictions apply to forwarding party information delivered to the terminating party.
- Display feature - CNIGI restrictions on calling and or forwarding numbers apply whenever such call associated display information is sent to an ISDN terminal, whether in the initial SETUP message or in a subsequent message such as an INFO or CONNECT message.
- Analog Calling Name
 - CNIGI restrictions can result in "Incoming call" being displayed in place of the calling name.
- Inspect for ISDN terminals (Custom only)
 - display "INCOMING CALL" in place of the calling number or forwarding number if CNIGI restrictions apply.

The following 5E10 features have interactions with CNIGI:

- Calling Party Subaddress (CgPS) Delivery
- ISDN Calling Name Delivery
 - CNIGI restrictions can result in "Incoming call" being displayed in place of the calling name.

12.7 Translation Requirements

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26a	12.9
OFCOPT	5509	3	5i	8.1, 8.15
TGSRFD	5607-1,2	4	8a	12.21
TGSRRLPA	5607-3	4	8b	1.29
TGSRMPA	5607-4	4	8c	1.29
TGSRTPA	5607-5	8	8d	5.29
TGATTD	5611	4	12a	4.4

BFG form (5625 Record) - The BFG form is used to specify and construct BFGs for use when assigning subscriber features to analog lines or ISDN terminals. BFG is designed to assist the switch owner in the conservation of Switching Module memory and the improvement of Recent Change response time, and it cannot be used with trunks.

The new CNIGI (Calling Number Identification Services Intragroup Delivery Only) field was added to support CNIS Intra-group Only Delivery Optioning. The CNIGI field indicates whether members of the terminal group have restrictions on delivery of CPN (Calling Party Number), RN (Redirecting Number), CgPS (Calling Party Subaddress), and ICLID (Incoming Call Line Identification). Based on the CNIGI field, these may be restricted to intragroup calls only.

OFCOPT form (5509 Record) - The OFCOPT form is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices.

The new CNIGI (Calling Number Identification Services Intragroup Delivery Only) field was added to support CNIS Intra-group Only Delivery Optioning. The CNIGI field indicates whether members of the terminal group have restrictions on delivery of CPN (Calling Party Number), RN (Redirecting Number), CgPS (Calling Party Subaddress), and ICLID (Incoming Call Line Identification). Based on the CNIGI field, these may be restricted to intragroup calls only.

TGSRFD form (5607-1,2 Record) - The TGSRFD form is used to define the Terminal Group and Station Restriction Feature Definition.

The new CNIGI (Calling Number Identification Services Intragroup Delivery Only) field was added to support CNIS Intra-group Only Delivery Optioning. The CNIGI field indicates whether members of the terminal group have restrictions on delivery of CPN (Calling Party Number), RN (Redirecting Number), CgPS (Calling Party Subaddress), and ICLID (Incoming Call Line Identification). Based on the CNIGI field, these may be restricted to intragroup calls only.

TGSRLLPA form (5607-3 Record) - The TGSRLLPA form is used to define a Terminal Group and Station Restriction Line Parameter.

The new CNIGI (Calling Number Identification Services Intragroup Delivery Only) field was added to support CNIS Intra-group Only Delivery Optioning. The CNIGI field indicates whether members of the terminal group have restrictions on delivery of CPN (Calling Party Number), RN (Redirecting Number), CgPS (Calling Party Subaddress), and ICLID (Incoming Call Line Identification). Based on the CNIGI field, these may be restricted to intragroup calls only.

TGSRMPA form (5607-4 Record) - The TGSRMPA form is used to define Terminal Group and Station Restriction parameters for an MLHG MEMB (Multi-Line Hunt Group Member).

The new CNIGI (Calling Number Identification Services Intragroup Delivery Only) field was added to support CNIS Intra-group Only Delivery Optioning. The CNIGI field indicates whether members of the terminal group have restrictions on delivery of CPN (Calling Party Number), RN (Redirecting Number), CgPS (Calling Party Subaddress), and ICLID (Incoming Call Line Identification). Based on the CNIGI field, these may be restricted to intragroup calls only.

TGSRTPA form (5607-5 Record) - The TGSRTPA form is used to define Terminal Group and Station Restriction Trunk Parameter.

The TGN/MEMB NO Form is associated with the Terminal Group and Station Restriction Feature Definition Form and is keyed by TGN/MEMB. Individual TGN/MEMBs assigned a particular TGSF feature name can be given new specific values for Terminal Group ID, Forward to Directory Numbers (Originating or Terminating)

that will replace or overwrite the Default Parameter values that are defined on the TGSF Feature Definition Form.

The new CNIGI (Calling Number Identification Services Intragroup Delivery Only) field was added to support CNIS Intra-group Only Delivery Optioning. The CNIGI field indicates whether members of the terminal group have restrictions on delivery of CPN (Calling Party Number), RN (Redirecting Number), CgPS (Calling Party Subaddress), and ICLID (Incoming Call Line Identification). Based on the CNIGI field, these may be restricted to intragroup calls only.

TGATTD form (5611 Record) - The TGATTD form is used to define information (such as attendant DN, Source Billing, and SDN DAS) on a Terminal Group basis.

The new CNIGI (Calling Number Identification Services Intragroup Delivery Only) field was added to support CNIS Intra-group Only Delivery Optioning. The CNIGI field indicates whether members of the terminal group have restrictions on delivery of CPN (Calling Party Number), RN (Redirecting Number), CgPS (Calling Party Subaddress), and ICLID (Incoming Call Line Identification). Based on the CNIGI field, these may be restricted to intragroup calls only.

13. NI-3 CALL FORWARDING OVER PRIVATE FACILITIES

13.1 Feature Description

The NI-3 CFPF (National ISDN-3 Call Forwarding over Private Facilities) feature, (with feature number 99-5E-2269) is available with the 5E10 and later Software Releases.

NI-3 CFPF allows a call with the CSV (Circuit Switched Voice) CT (Call Type) to be forwarded to an on - or off-network remote DN over the private/public facilities indicated during the activation request in a National ISDN-3 environment from NI-3 compatible CPE (Customer Premises Equipment).

13.2 Private Facilities

The NI-3 CFPF feature can be used for forwarding over private facilities or public facilities, but forwarding over private facilities is only applicable for subscribers who possess a PFA (Private Facilities Access) feature or ARS (Automatic Route Selection) feature. When the NI-3 CFPF subscriber possesses private outgoing facilities such as FX (Foreign Exchange) lines, WATS (Wide Area Telephone Service), CCSA (Common Control Switching Arrangement), or senderized tie trunk facilities, and has PFA dial access or ARS access to these facilities, CFPF will permit the subscriber to use the private facilities during the Call Forwarding activation process. For the NI-3 version of the feature, the subscriber may enter the CFPF activation code or feature button, followed by the PFA (Private Facility Access) or ARS dial access code (or feature button), followed by the desired remote DN. Depending on the CFPF preconstructed feature's activation type (ACTYP), a "courtesy" call to the remote station may be set up, yet the call's completion is not required for activation. Billing of forwarded calls occurs as in normal call forwarding, however, there are no DDD (Direct Distance Dialing) charges associated with the forwarded leg when only private facilities are used.

13.3 ETS

The NI-3 CFPF feature, like the current 5ESS Switch CFPF feature, must remain compatible within ETS (Electronic Tandem Switching) networks. This service allows 5ESS Switch ETS main business customer stations to have all terminating calls automatically forwarded to another ETS on-network or off-network remote station using the ETN (Electronic Tandem Network) to on-network or off-network stations.

13.4 Preconstructed Feature

This feature requires one new preconstructed feature on the 5ESS Switch, which is required so that default parameter values will be available without requiring BRCS (Business and Residence Custom Services) MFC (Modular Feature Construction). The NI-3 CFPF feature supports features compatible on a standard BRI in NI-3. These features are the following:

/CFIPF - Call Forwarding Over Private Facilities for NI-3 (new feature for NI-3)

/CFPF - Call Forwarding Over Private Facilities (first available in the 5E5 Software Release).

/CFPFFB - Call Forwarding Over Private Facilities Feature Button (first available in the 5E6 Software Release).

All of these features will allow activation via Dialed Code or Feature Button.

13.5 Feature Activation

CFPF ACTIVATION CALL SCENARIOS

- CFPF ACTIVATION - PFA ACCESS CODE
 - CFPF act + PFA access + DN (C_TONE)
 - CFPF act + ACCT use + ACCT CODE + PFA access + DN (C_TONE)
 - CFPF act + ACCT use + ACCT CODE + ATH use + ATH CODE + PFA access + DN (C_TONE)
 - CFPF act + ATH use + ATH CODE + PFA access + DN (C_TONE)
 - CFPF act + ATH use + ATH CODE + ACCT use + ACCT CODE + PFA access + DN (C_TONE)
- CFPF ACTIVATION - PFA ACCESS CODE (WITH QUEUING)
 - CFPF act + PFAQ access + DN (C_TONE)
 - CFPF act + ACCT use + ACCT CODE + PFAQ access + DN (C_TONE)
 - CFPF act + ACCT use + ACCT CODE + ATH use + ATH CODE + PFAQ access + DN (C_TONE)
 - CFPF act + ATH use + ATH CODE + PFAQ access + DN (C_TONE)
 - CFPF act + ATH use + ATH CODE + ACCT use + ACCT CODE + PFAQ access + DN (C_TONE)
 - CFPF act + PFAQ access + DN (C_TONE) + OHQ
 - CFPF act + ACCT use + ACCT CODE + PFAQ access + DN (C_TONE) + OHQ
 - CFPF act + ACCT use + ACCT CODE + ATH use + ATH CODE + PFAQ access + DN (C_TONE) + OHQ
 - CFPF act + ATH use + ATH CODE + PFAQ access + DN (C_TONE) + OHQ
 - CFPF act + ATH use + ATH CODE + ACCT use + ACCT CODE + PFAQ access + DN (C_TONE) + OHQ

- CFPPF act + PFAQ access + DN (C_TONE) + RBQ
- CFPPF act + ACCT use + ACCT CODE + PFAQ access + DN (C_TONE) + RBQ
- CFPPF act + ACCT use + ACCT CODE + ATH use + ATH CODE + PFAQ access + DN (C_TONE) + RBQ
- CFPPF act + ATH use + ATH CODE + PFAQ access + DN (C_TONE) + RBQ
- CFPPF act + ATH use + ATH CODE + ACCT use + ACCT CODE + PFAQ access + DN (C_TONE) + RBQ
- CFPPF ACTIVATION - ARS ACCESS CODE
 - CFPPF act + ARS access + DN (C_TONE)
 - CFPPF act + ARS access + DN + ATH prompt + ATH CODE (C_TONE)
 - CFPPF act + ARS access + lead ACCT + ACCT CODE + DN (C_TONE)
 - CFPPF act + ARS access + lead ACCT + ACCT CODE + DN + ATH prompt + ATH CODE (C_TONE)
 - CFPPF act + ACCT use + ACCT CODE + ARS access + DN (C_TONE)
 - CFPPF act + ACCT use + ACCT CODE + ARS access + DN + ATH prompt + ATH CODE (C_TONE)
 - CFPPF act + ACCT use + ACCT CODE + ATH use + ATH CODE + ARS access + DN (C_TONE)
 - CFPPF act + ATH use + ATH CODE + ARS access + DN (C_TONE)
 - CFPPF act + ATH use + ATH CODE + ACCT use + ACCT CODE + ARS access + DN (C_TONE)
 - CFPPF act + ARS access + DN (C_TONE) + OHQ
 - CFPPF act + ARS access + DN + ATH prompt + ATH CODE (C_TONE) + OHQ
 - CFPPF act + ARS access + lead ACCT + ACCT CODE + DN (C_TONE) + OHQ
 - CFPPF act + ARS access + lead ACCT + ACCT CODE + DN + ATH prompt + ATH CODE (C_TONE) + OHQ
 - CFPPF act + ACCT use + ACCT CODE + ARS access + DN (C_TONE) + OHQ
 - CFPPF act + ACCT use + ACCT CODE + ARS access + DN + ATH prompt + ATH CODE (C_TONE) + OHQ
 - CFPPF act + ACCT use + ACCT CODE + ATH use + ATH CODE + ARS access + DN (C_TONE) + OHQ
 - CFPPF act + ATH use + ATH CODE + ARS access + DN (C_TONE) + OHQ
 - CFPPF act + ATH use + ATH CODE + ACCT use + ACCT CODE + ARS access + DN (C_TONE) + OHQ
 - CFPPF act + ARS access + DN (C_TONE) + RBQ

- CFPF act + ARS access + DN + ATH prompt + ATH CODE (C_TONE) + RBQ
- CFPF act + ARS access + lead ACCT + ACCT CODE + DN (C_TONE) + RBQ
- CFPF act + ARS access + lead ACCT + ACCT CODE + DN + ATH prompt + ATH CODE (C_TONE) + RBQ
- CFPF act + ACCT use + ACCT CODE + ARS access + DN (C_TONE) + RBQ
- CFPF act + ACCT use + ACCT CODE + ARS access + DN + ATH prompt + ATH CODE (C_TONE) + RBQ
- CFPF act + ACCT use + ACCT CODE + ATH use + ATH CODE + ARS access + DN (C_TONE) + RBQ
- CFPF act + ATH use + ATH CODE + ARS access + DN (C_TONE) + RBQ
- CFPF act + ATH use + ATH CODE + ACCT use + ACCT CODE + ARS access + DN (C_TONE) + RBQ

- CFPF ACTIVATION - Auto-ARS

- auto-ARS + CFPF act + DN (C_TONE)
- auto-ARS + CFPF act + DN + ATH prompt + ATH CODE (C_TONE)
- auto-ARS + CFPF act + lead ACCT + ACCT CODE + DN (C_TONE)
- auto-ARS + CFPF act + lead ACCT + ACCT CODE + DN + ATH prompt + ATH CODE (C_TONE)
- auto-ARS + CFPF act + DN (C_TONE) + OHQ
- auto-ARS + CFPF act + DN + ATH prompt + ATH CODE (C_TONE) + OHQ
- auto-ARS + CFPF act + lead ACCT + ACCT CODE + DN (C_TONE) + OHQ
- auto-ARS + CFPF act + lead ACCT + ACCT CODE + DN + ATH prompt + ATH CODE (C_TONE) + OHQ
- auto-ARS + CFPF act + DN (C_TONE) + RBQ
- auto-ARS + CFPF act + DN + ATH prompt + ATH CODE (C_TONE) + RBQ
- auto-ARS + CFPF act + lead ACCT + ACCT CODE + DN (C_TONE) + RBQ
- auto-ARS + CFPF act + lead ACCT + ACCT CODE + DN + ATH prompt + ATH CODE (C_TONE) + RBQ

Feature Activation Acronym Definitions

Acronym	Definition
ACCT use	Account Code use code (or Feature Button)
ACCT CODE	Account Code
ARS ACCESS	Automatic Route Selection use code (or Feature Button)

auto-ARS	Automatic Route Selection - auto entry
ATH use	Authorization Code use code (or Feature Button)
ATH CODE	Authorization Code
C TONE	Confirmation Tone
CFPF act	CFPF Activation Code (or Feature Button)
DN	Directory Number
lead ACCT	lead Account Code Digit
OHQ	Off-Hook Queuing (Routine or Priority)
PFA Access	PFA Access Code (or Feature Button)
PFAQ Access	PFA Queuing Access Code (or Feature Button)
RBQ	Ring-back Queuing

13.6 User Specified Variables

All the CFPF features supported in NI-3 permit the activating user to change the value of the remote (forward-to) DN via a CORC (Customer Originated Recent Change) procedure.

The new /CFIPF preconstructed feature is defined under the Call Forwarding Modular feature. As a result, this feature will have multiple parameter values that may be used to "construct" new features via BRCS MFC (Modular Feature Construction). The following line parameters that may be used for the new NI-3 /CFIPF preconstructed feature do not require BRCS MFC in order to change their values:

- Forward-To DN (FWDTODN)
- Account Code (ACCT CODE)
- Authorization Code (ATH CODE)
- Simultaneous Inter-Office Calls Limit (SIMINTER)
- Simultaneous Intra-Office Calls Limit (SIMINTRA)
- Intra-office CF Legs (i.e., "Hops") Limit (CFMAX)
- Base Station "Ping Ring" Indicator

13.7 Other Features Required

Since this feature does not require the user to access private facilities, i.e., the user may activate CFPF to a public DN, as in the "basic" CF features, there are no true prerequisite features that a customer needs in order for this feature to function properly. However, if a user needs to access private facilities either through PFA or ARS during the CFPF activation procedure, then customer must have either a PFA (e.g., /PFA), or an ARS (e.g., /ARC, /ARAD) preconstructed or constructed feature, respectively, assigned to the customer's line.

13.8 Compatibilities/Incompatibilities

The following CF features unavailable in NI-1 and NI-2 will continue to be unavailable in NI-3:

- Flexible Night Service
- Attendant Call Forwarding

13.9 Interactions

The following is a list of the detailed feature interactions:

- ARS (Automatic Route Selection)
 - ERWT (Expensive Route Warning Tone)
- PFA (Private Facility Access)
 - Senderized Facilities
- Account Codes
- Authorization Codes/Facility Restriction Levels
- Attendant Control of Facilities
- SCCOF (Selective Customer Control of Facilities)
- Speed Calling
- On/Off Hook Queuing
- Uniform Numbering Plan
- Collocated/Non-collocated ETN
- Feature Button Activation requirements

In addition, the NI-3 CFPF feature mainly interacts with the following 5ESS Switch features:

- Call Forwarding Modular Feature
 - All CFPF features assignable in analog and custom ISDN (i.e., /CFPF and /CFPFFB) are assignable in NI-3, and will "inherit" full NI-3 activation and forwarding operation, without all the TR 853 CF default parameter values. The "Feature Button" feature, /CFPFFB, is assignable in NI-3, maintains its current feature button activation/deactivation operation.
- EKTS (Electronic Key Telephone Service)
 - The "ping-ring" reminder notification must be sent to only the lead terminal in an EKTS shared DN group.
- Display
- Switching Module-2000
 - The NI-3 CFPF feature can be assigned to a DN that resides on the SM-2000, or on a SM.

13.10 Limitations

The following limitations and restrictions may be encountered by an NI-3 CFPF user:

- The NI-3 CFPF user will be blocked from accessing non-senderized (cut-through) facilities.
- All activation attempts outside the context of a call (i.e. onhook) will not permit any PFA/ARS information from being entered during the activation procedure.
- When an NI-3 CFPF feature is assigned with "Authorization Required" on RCV 1.11, all activation/deactivation attempts outside the context of a call will be blocked.
- All CF ICI (ISDN Call Identification) information previously available in outgoing displays to the originating user whose call is forwarded will be blocked. The originating user will receive no more information than if the call had terminated to the base DN normally.

13.11 Restriction Capabilities

All of the dialed activation codes that may be used to activate any NI-3 CFPF feature may be DPAT (Dialing Plan Access Treatment) restricted, as determined by the switch owner, assuming the access codes are defined in an IDP (Individualized Dialing Plan). If a CFPF access code is DPAT restricted, then specified users will be blocked from dialing the code, and thus, blocked from access to the feature.

13.12 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFWFD	5614-1/2	4	15a	12.12
CFGGRP	5964	6	7a	12.5

CFWFD form (5614-1/2 Record) - The CFWFD form defines, Call Forwarding features which allow calls completing to a customer's Directory Number to be redirected to another number. It is used to define a number of separate, but related features, by selecting various feature options for Call Forwarding.

For 5E10 and later, when CKT TN(s) and or CKT MLHG/TERMs on the DSLUSR form have DSL CLS set to "STD" on the DSL form (OE from DSLUSR form matches DSL OE on the DSL form), and are assigned a CFWFD feature with CFPF ALW set to "Y" on the CFWFD form, a SFSYS form must exist with SFID 225 (National ISDN 5E10 BRI Package) set to "Y". This feature is a Secured Feature that must be purchased by the office before a CFWFD feature with CFPF ALW set to "Y" may be assigned.

CFGGRP form (5964 Record) - The CFGGRP form is used to assign BRCS (Business and Residence Customer Service) feature actions to CPE (Customer Premises Equipment) user terminal buttons.

A data rule was modified that allows PARAM values to be entered for actions of "ARSUSE", "ARS1USE", "ARS2USE", and "ATHUSE" if GRP TYPE is "STD".

Also in 5E10 and later, the CFPF feature can be assigned with an action CFBN.

14. INTER-EXCHANGE CARRIER PRESELECT INDICATION ON X.75' PACKET TRUNKS

14.1 Feature Description

The Inter-exchange Carrier Preselect Indication on X.75' Packet Trunks (feature number 99-5E-2283) is available with 5E10 and later Software Releases.

The ICPI (Inter-exchange Carrier Preselect Indication) is a utility packet mode networks. It is used to pass an indication on an X.75 or X.75' packet trunk that the end-user (originating DTE/CPE) has subscribed to Inter-exchange Carrier Preselect. The ICPI utility is generated by packet switch nodes that have insufficient routing information to decide if an Inter-exchange Carrier is required to complete a call.

This feature allows Switch owners to connect packet devices to a 5ESS-2000 Switch through X.75' interface that do not have the logic necessary to route calls and need to forward the user's Preselected Inter-exchange Carrier through ICPI utility.

This feature essentially enhances and standardizes the 5ESS-2000 Switch X.75' packet trunk interface. It does not directly impact the end-user.

14.2 Feature Assignment

The end-user for this feature is a packet switched DTE/CPE connected on a packet switch directly connected to the 5ESS-2000 Switch. The end-user, can be assigned preselected IC.

The service provider can provision the IC Preselect field (on the TRUNK form (5204 Record), Recent Change View 5.5) to "Y" when the 5ESS-2000 Switch is directly connected to packet switch node that generates ICPI utility.

The IC Preselect field on the TRUNK form (5204 Record), Recent Change View 5.5 cannot be changed unless the X.75' trunk group member is Out-of-Service.

14.3 Interactions

This feature has interactions with RPOA (Registered Private Operating Agency) Selection utility. When both ICPI and RPOA utilities are present in a call request received on an X.75' packet trunk, the RPOA Selection utility will be used to route the call.

The Recent Change technician can not modify the IC Preselect parameter on Recent Change View 5.5 unless the X.75' trunk group member is Out-of-Service.

14.4 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TRUNK	5204	3	2C	5.5

TRUNK form (5204 Record) - The 5204-1/2 Record is used to define each member of a Trunk Group in a 5ESS Switch Office. The trunk information that is entered on this record is unique to the individual member of a Trunk Group. Trunk information that is common to the entire Trunk Group is entered on the TKGRP form (5202 Record).

The IC PRESELECT field was moved from Packet Switching X.75 Only Utility Indicators to the Packet Switching X.75P/X.75 Utility Indicators. The functionality of the IC PRESELECT field has changed.

15. NI-3 CALLING NAME FOR BRI

15.1 Feature Description

For 5E10 and later, the I-CNAM (ISDN Calling Name for BRI) feature provides for Calling Name Delivery and Calling Name Identification Services (Name/Number Privacy features) as part of the National ISDN-3 feature

set. The feature number for I-CNAM is 99-5E-2264.

The I-CNAM capability extends the delivery of calling party name information previously available for analog subscribers under the LASS Analog Calling Name feature to both Custom and National ISDN BRI subscribers on either a flat-rate or usage sensitive basis. The I-CNAM delivery of calling name information applies to both CSV (Circuit Switched Voice) and CSD (Circuit Switched Data) calls.

This feature also extends the delivery of calling name and/or original called name information available to Custom ISDN BRI terminals to National ISDN BRI terminals for intra-business group calls (i.e. calls between two parties with the same BCID (Business Customer ID)) under the EDS CND (Electronic Directory Service Calling Name Display) feature. EDS CND delivery of calling name and/or original called name information also applies to both CSV and CSD calls but is available only on a flat-rate basis.

For both I-CNAM and EDS CND, the name information that is delivered consists of up to fifteen name characters, a private indication, or an unavailable indication. The name information is obtained from either an SCP (Service Control Point) database using SS7 signaling (e.g. an AIN-SCP or LIDB database), or from a local AP (Attached Processor) database (for intra-business group calls using the EDS CND feature) at the time of call termination. The I-CNAM feature utilizes the same SS7 Translations Type and SSN (Subsystem Number) as is provisioned on the switch for the LASS Analog Calling Name feature.

The ISDN Calling Name Identification Services portion of the I-CNAM feature allows the calling parties to select the presentation status of their name on a per-call basis via a dial code or a feature button basis. The same set of Calling Name Identification Services supported under the LASS Analog Calling Name feature using dial codes:

- NNDA (Name Number Display Allowed)
- NNP (Name Number Private)
- NAP (Name Private)

are supported under I-CNAM using feature button (a.k.a. feature key) procedures. Feature button access to the Calling Name Identification Services will be provided for both Custom and National ISDN BRI terminals.

In addition, as with LASS Analog Calling Name, the presentation status of the calling name may be linked to the presentation status of the calling number with the office option to "BQPN (Block Queries for Private Numbers)".

One change is being introduced with I-CNAM. In order to align with service uniformity requirements for NI-3, multiple invocations of the Calling Name Identification Services (i.e. PCP (Per Call Privacy) number toggle, NNDA, NNP, or NAP) on a single call will be prohibited. The only exception is that an analog or BRI caller will be able to invoke PCP number toggle followed by the name toggle (NAP), or vice versa. Any other combination of dial code or feature button invocations will not be allowed, as will any attempt to invoke a single Calling Name Identification Service (e.g. PCP number toggle) more than once.

Both the name delivery portion of the I-CNAM or EDS CND and the prohibition of multiple invocations of the Calling Name Identification Services are secured under the NI-3 Secured Feature. To use either of these capabilities, the NI-3 Secured Feature must be purchased and active in the office. The use of dial codes or feature buttons to invoke the Calling Name Identification Services is not secured under the NI-3 Secured Feature.

15.2 Translation Requirements

See Figure 4 for I-CNAM form flow.

New and Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
CFGGRP	5964	6	7A	12.5
DISPMSG	5980	6	23	8.65
DSL	5900	5	1H	23.2
				23.8
EDSFD	5961-1	6	4A	12.38
SFSYS	5713-1	3	5AR	8.22
SRVCDESC	5985	6	27A	8.32

CFGGRP form (5964 Record) - This form is used to assign BRCS feature actions to CPE user terminal buttons. For the I-CNAM feature, three new button ACTIONS were added.

DISPMSG form (5980 Record) - This form is used to define the messages that will be displayed on the user's ISDN terminal for LASS (Local Area Signaling Services) features. For I-CNAM feature, the DISP ID entries for "INSP" (Inspect) were increased 1 - 15. Entries 13 -15 for INSP were added to ODA default input data.

DSL form (5907 Record) - This form has two major purposes: 1) it defines the attributes of a DSL, and 2) it defines the attributes of the B1 and/or B2 channel of the DSL. New data rules apply to Standard BRIs where "STD" is entered in the DSL CLS field.

EDSFD form (5961-1 Record) - This form is used to define Electronic Directory Service features with various combinations of options. The /EDS option was added for the I-CNAM feature for 5E10 and later.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 225 must be set to "Y".

SRVCDESC form (5985 Record) -This form defines all actions and their service descriptions for ATS (Automatic Terminal Setup). New standard default data was added to the 5985 record for I-CNAM.

16. GLOSSARY

ACO	Additional Call Offering
ACVT	Attendant Control of Voice Terminals
AIN	Advanced Intelligent Network
ALT	Automatic Link Transfer
AP	Attached Processor
AR	Automatic Recall
ARS	Automatic Route Selection
ATP	Access Transport Parameter
ATS	Automatic Terminal Setup
BBG	Basic Business Group
BCID	Business Customer ID
BQPN	Block Queries for Private Numbers
BRCS	Business and Residence Customer Service

BRI	Basic Rate Interface
BRIV	Basic Rate Interface Verification
CA-ICOM	Call Appearance Intercom
CACH EKTS CA	Call Appearance
CCSA	Common Control Switching Arrangement
CFFP	Call Forwarding Over Private Facilities
CFV	Call Forwarding Variable
CGPS	Calling Party Subaddress
CKT	Circuit
CMISE	Common Management Information Service Element
CNGI	Calling Number Identification Services Intragroup Delivery
CNIGI	CNIS Intra-group Only Delivery
CORC	Customer Originated Recent Change
CPE	Customer Premises Equipment
CPN	Calling Party Number
CgPS	Calling Party Subaddress
CSD	Circuit Switched Data
CSD LIMIT	Call Reference Busy Limit
CSD NBLIMIT	Call Notification Busy Limit
CSV	Circuit Switched Voice
CSV LIMIT	Call Reference Busy Limit
CSV NBLIMIT	Call Notification Busy Limit
CT	Call Type
DN	Directory Number
DDD	Direct Distance Dialing
DNA	DN Appearances
DPKT	D-channel packet
DSL	Digital Subscriber Line; also called a BRI Basic Rate

EDS CND	Electronic Directory Service
EKTS	Electronic Key Telephone Service
ETN	Electronic Tandem Network
ETS	Electronic Tandem Switching
FAs	Feature Activators
FB-ICOM	Feature Button Intercom
FI	Feature Indicators
FIT	Fully-Initializing Terminal
FX	Foreign Exchange
I-CNAM	ISDN Calling Name for BRI
I-CNIS	ISDN Calling Number Identification Services
ICI	ISDN Call Identification
ICLID	Incoming Call Line Identification
IDCU	Integrated Digital Carrier Unit.
IDPs	Individualized Dialing Plans.

IE - Information Element

LASS	Local Area Signaling Services
LIGI	Limited Intra-group ICLID
MEMB	Multi-Line Hunt Group Member
MFC	Modular Feature Construction
MH2	Metro Hub 2
MSS	Message Service System
NAP	Name Private
NESS	Network Element Services Signaling.
NI-3	National ISDN-3
NI-2	National ISDN-2
NIT	Non-Initializing Terminal
NNDA	Name Number Display Allowed

NNP	Name Number Private
ODB	On Demand B-channel.
PCP	Per Call Privacy
PCS	Personal Communications Services
PDUs	Protocol Data Units
PFA	Private Facility Access
PVC	Permanent Virtual Circuits
RN	Redirecting Number
RND	Redirecting Number Delivery
ROSE	Remote Operations Service Element
RP	Radio Port
RPCU	Radio Port Control Unit
RPOA	Registered Private Operating Agency
SCCOF	Selective Customer Control of Facilities
SCP	Service Control Point
SPID	Service Profile Identifier
SR	Station Restriction
SSN	Subsystem Number
TEI	Terminal Endpoint Identifier
TG	Terminal Group
TGSR	Terminal Group and Station Restrictions

TKS - Terminal Key System

TN	Telephone Number
TPs	Terminal Processes
TR	Technical Reference
WATTS	Wide Area Telephone Service

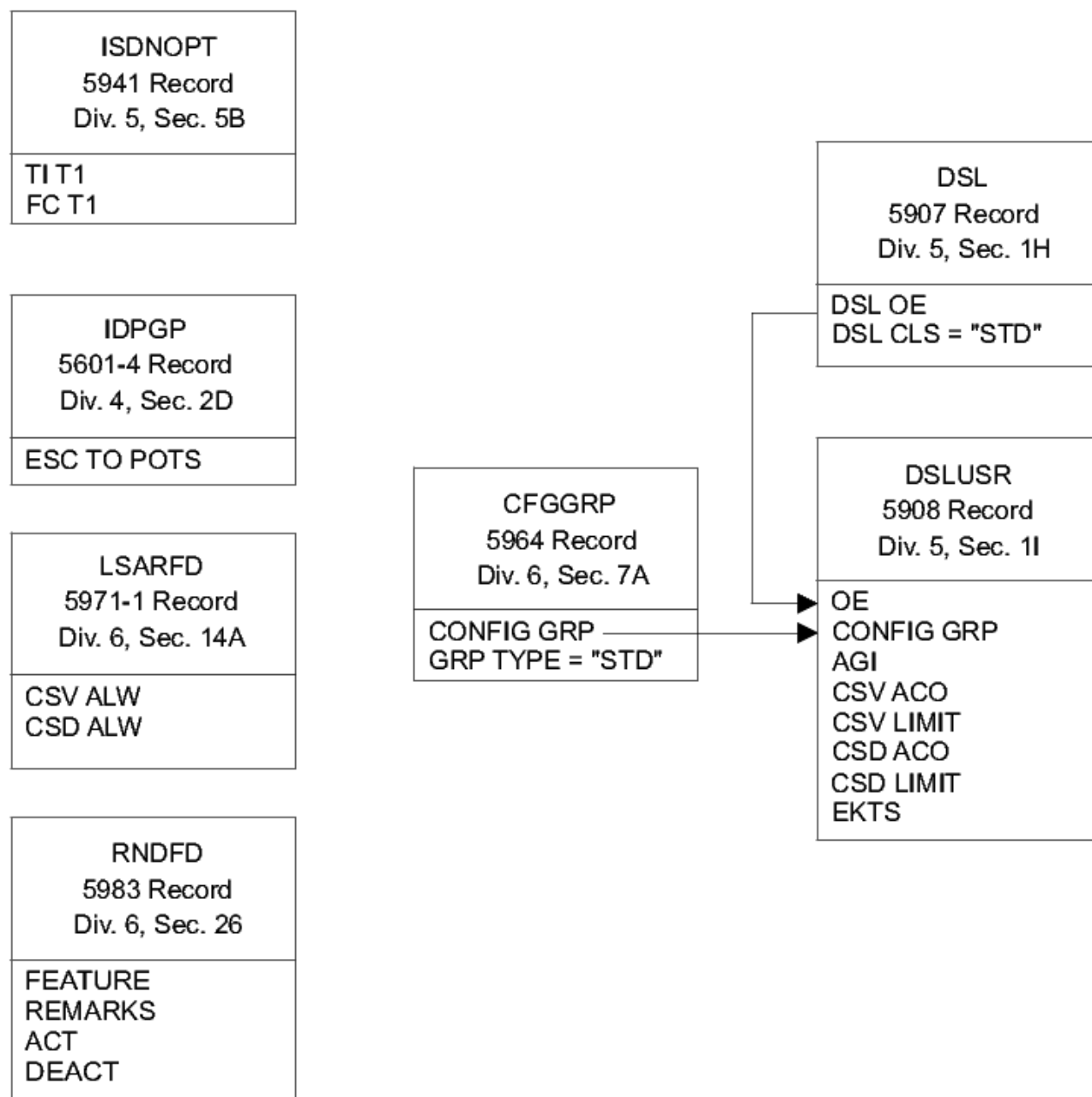
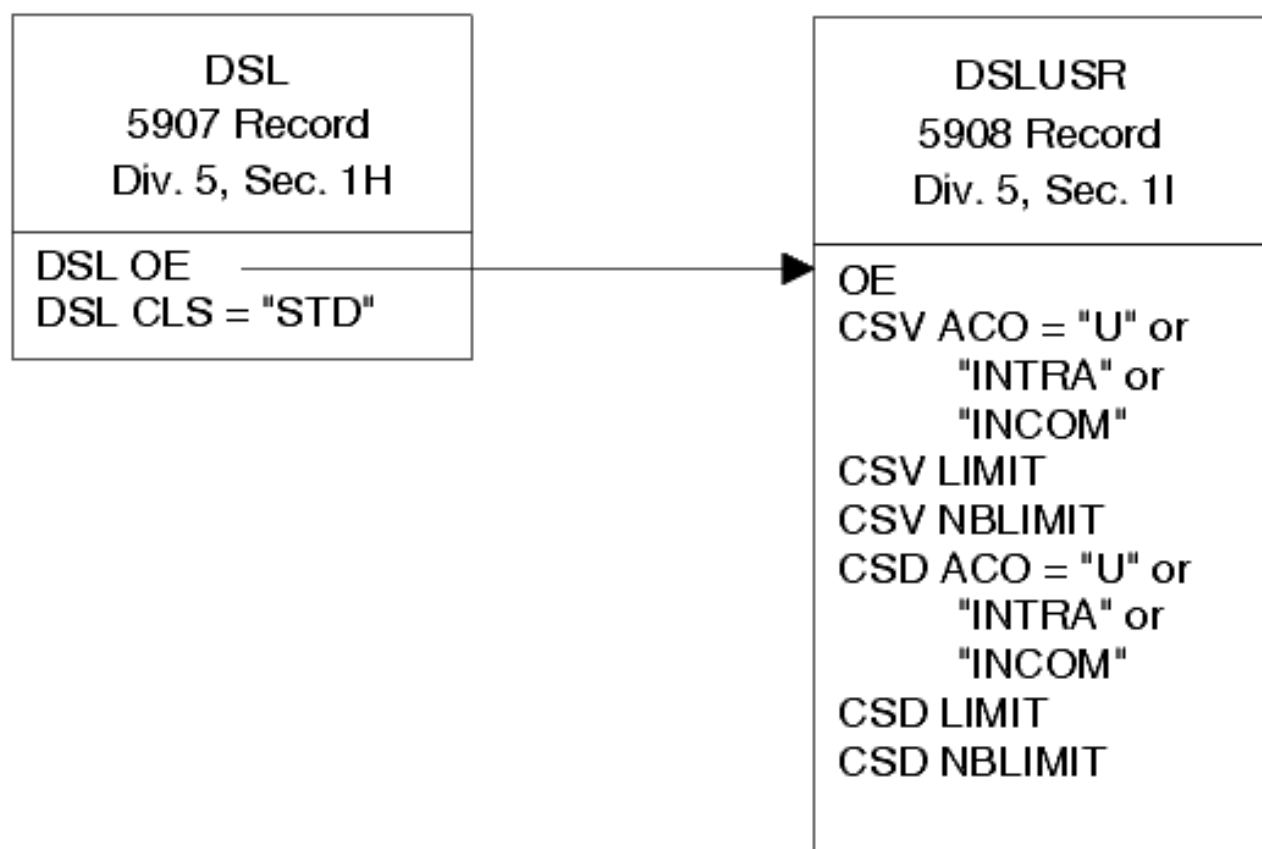
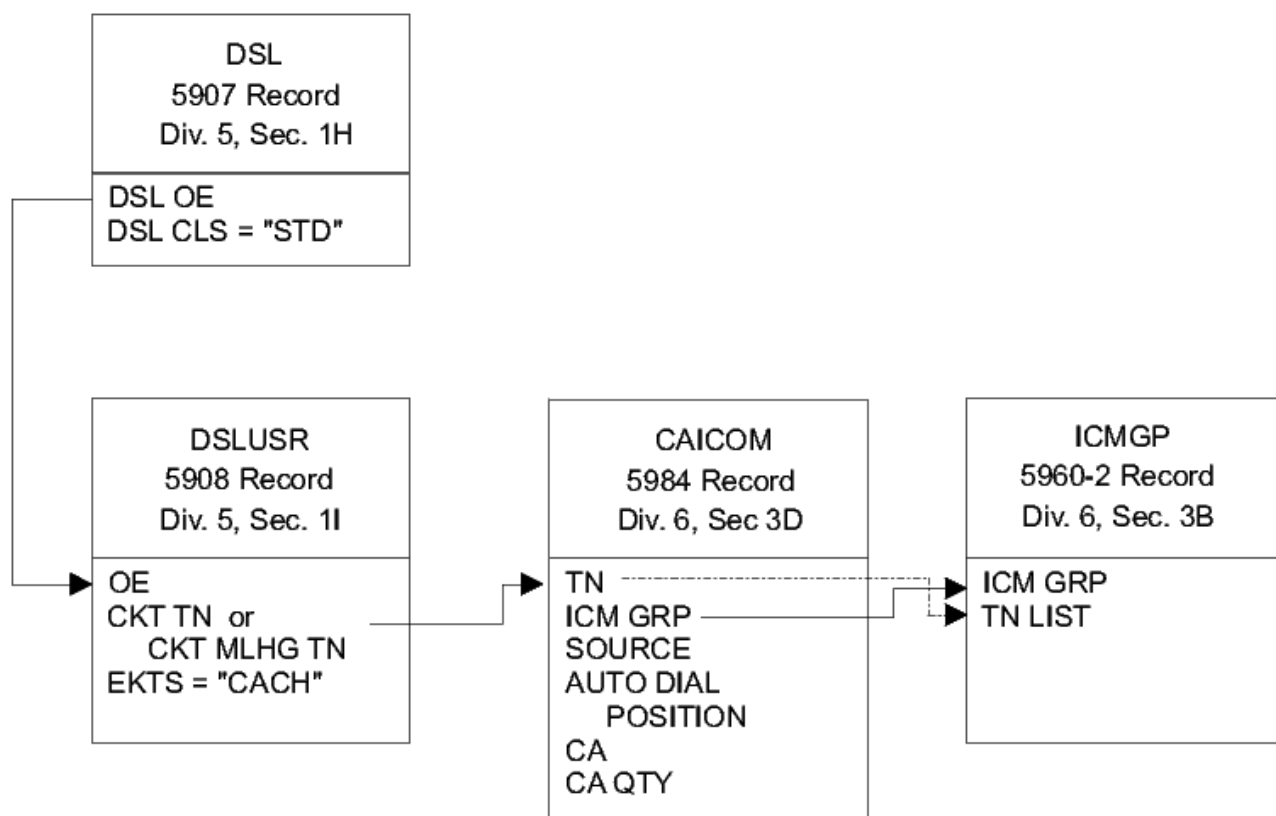


Figure 1 STANDARD BRI FORMS



Note: CSV ACO and/or CSD ACO may be "INTRA" or "INCOM" only if the ACO subscriber is assigned a TGSR feature.

Figure 2 NATIONAL ISDN 2 ACO FORM FLOW



----- (Optional)

Figure 3 NATIONAL ISDN 2 EKTS CA-ICOM FORM FLOW

Purchase NI-3 BRI Features

SFSYS 5713-1Record Div. 3, Sec. 5AR
SFID 225 ACT = "Y"

Define DSL Attributes

DSL 5907 Record Div. 5, Sec. 1H
DSL CLS

Assign BRCS feature actions

CFGGRP 5964 Record Div. 6, Sec. 7A
ACTION

Define messages displayed on
ISDN terminal

DISPMMSG 5980 Record Div. 6, Sec. 23
DISP ID

Define Electronic Directory Service
features

EDSFD 5961-1 Record Div. 6, Sec. 4A

Define actions and service
descriptions for ATS

SRVCDESC 5985 Record Div. 6, Sec. 27A

Figure 4 NATIONAL ISDN 3 FORM FLOW FOR I-CNAM

SEC. 1AN: ISDN INTERCOM

1. FEATURE DESCRIPTION

1.1 The ISDN Intercom feature is available with 5E4(2) and later Software Releases.

The ISDN Intercom feature allows a user on an ISDN station set to use a dedicated button to call another group member. The caller has the option of using this dedicated button alone or with additional dialed digits.

In the 5E4(2) Software Release, the caller can use a dedicated button alone or with another single digit. This digit, 0 through 9, represents the position of a member in an ISDN Intercom group. The maximum number of members for a group in the 5E4(2) Software Release is 10.

In 5E5 and later Software Releases, an ISDN Intercom group can have a maximum of 100 members. In reaching another ISDN member, a caller can use a dedicated button alone or with an additional two digits, 00 through 99, which represent the position of each ISDN Intercom group member.

A Configuration Group can have up to eight ISDN station sets, each of which may have a maximum of 254 buttons. Four of the 2032 (8 * 254) available buttons can be reserved for the ISDN Intercom feature.

The ISDN Intercom feature is permitted for individual lines only. Members of a multiline hunt group or members of a trunk group are not allowed access to this feature. Each line that uses the ISDN Intercom feature must be in a Configuration Group.

1.2 Assume the following office environment scenario.

A set of five managers share the services of a single administrative assistant. Each manager would like to invoke an ISDN intercom call to the administrative assistant as easily as possible and the administrative assistant would like to reach each of the five managers as quickly as possible. The six parties could make up a single ISDN Intercom group. A single ICMGP form could define the six members of the group, assign a position to each party and list each party's telephone number. For the sake of the example, the ICMGP form would appear as follows:

TN List	
Position	Primary TN
0	5551001
1	5551002
2	5551003
3	5551004
4	5551005
5	5551006

The first five POSITIONS (0-4) represent the five managers, while POSITION 5 represents the administrative assistant. An ICMFD form could meet the requirements of the five managers. The form would define a FEATURE with the group (ICM GRP field) and have the SOURCE field set to "AUTO". The DIALED POSITION (or AUTO DIAL POSITION) field would be set to "5". A manager who wishes to talk to the administrative assistant would press the dedicated button on the ISDN station set to connect to the party at POSITION 5, the administrative assistant. A digit need not be dialed to reach the administrative assistant.

Another ICMFD form for the same group would define the FEATURE used by the administrative assistant to quickly reach each of the managers. The SOURCE field for this ICM GRP would be set to "DIAL". For the administrative assistant to reach managers in POSITIONS 0 to 4, dialing a digit for a specific manager's TN after pressing the ISDN Intercom button is required.

2. TRANSLATION REQUIREMENTS

CFGGRP form (5964 Record) - This form is used to indicate which of the four (maximum) buttons available within a Configuration Group are dedicated to ISDN Intercom usage. Each selected button is associated with a FEATURE, an ACTION and a PARAM entry. The FEATURE entry must be defined in the FEATURE field of an ICMFD form (5960-1 Record). The ACTION entry must be "I1ICOM", "I2ICOM", "I3ICOM" or "I4ICOM". The PARAM field must not be entered.

DSLUSR form (5908-2 Record) - This form is used to assign an ISDN user to a Configuration Group through an entry in the CONFIG GRP field.

ICMFD form (5960-1 Record) - This form is used to define an ISDN Intercom feature. The feature can only be assigned to individual lines using the LINEFA form (5112 Record), the associated CLUSTER form (5600 Record) or the BFG form (5625 Record).

The four members of the GROUP LIST on the ICMFD form correspond to the BUTTON(s) selected for the ISDN Intercom feature for a Configuration Group on a CFGGRP form.

The SOURCE field on the ICMFD form determines whether digits must be dialed after the button on an ISDN station set is pressed. For the 5E4(2) Software Release, if the SOURCE field is "AUTO", then one digit (0-9) must be entered in the field DIALED POSITION. For 5E5 and later Software Releases, if the SOURCE field is "AUTO", then either one (0-9) or two digits (00-99) must be entered in the AUTO DIAL POSITION field. The digit or digits point to the position of a telephone number in the ISDN Intercom group. The user is automatically routed to the number without further dialing.

For the 5E4(2) Software Release, if the SOURCE field is "DIAL", then digits cannot be entered in the DIALED POSITION field. For 5E5 and later Software Releases, if the SOURCE field is "DIAL", then digits cannot be entered in the AUTO DIAL POSITION field. "DIAL" determines whether the user must dial one or two digits after the button is pressed. The digit or digits point to a telephone number in the ISDN Intercom group.

ICMGP form (5960-2 Record) - Lists the seven-digit telephone number for each member of an ISDN Intercom group. The value for the POSITION field on this form relates to a digit or digits entered in a field on an ICMFD form. For the 5E4(2) Software Release, this field is DIALED POSITION. For 5E5 and later Software Releases, this field is AUTO DIAL POSITION. The digit entered in these fields points to the desired POSITION on the ICMGP form and its related PRIMARY TN. The PRIMARY TN field contains the telephone number for a specific ISDN Intercom group member.

For example, if the SOURCE field on an ICMFD form is set to "AUTO" and the corresponding DIALED POSITION (or AUTO DIAL POSITION) field is "8", then a user that presses the button for ISDN Intercom is connected to the party whose telephone number is in the PRIMARY TN field in POSITION 8 on the ICMGP form. The ICMGP form is keyed by the field ICM GRP (ISDN Intercom group). This field links the list of telephone numbers to the ICMFD form where each button is associated with an ICM GRP.

Alternately, if the SOURCE field on an ICMFD form is set to "DIAL" and a user wishes to connect to a particular ISDN Intercom group member, the user must press the ISDN Intercom button and then dial the digit or digits that identify the POSITION and PRIMARY TN for that member on the ICMGP form associated with the ICM GRP of interest.

ICMLPA form (5960-3 Record) - Allows a user to override the default parameters for an ISDN Intercom feature if they are inappropriate.

SEC. 1AO: FOREIGN AREA TRANSLATOR

1. FEATURE DESCRIPTION

For 5E6 and later Software Releases, operating companies can make use of a FAT (Foreign Area Translator) LDIT during digit analysis. The FAT/LDIT performs further digit analysis on LDITs (5300-3 Records) that are interpreting common dialed or impulsed digit strings.

For 5E5 and earlier Software Releases, when a switch office has to define multiple LDITs (Local Digit Interpreter Tables), any foreign area NPAs expanded through six-digit analysis have to be built and maintained in all LDITS. By defining an LDIT as a FAT/LDIT, all local LDITs are able to point to this FAT/LDIT for additional digit analysis. This additional digit analysis (expansion of the foreign area NPA) is only required once in a switching office which results in substantial SM memory savings and reduction in administration of LDIT tables.

A switching office has several different rate areas each requiring separate LDITs for proper digit analysis. For example, the home NPA for this particular office is 708, and this office also does six-digit analysis on the neighboring NPA of 815 (815000 - 815999). In 5E5 and earlier Software Releases, the expansion of the 815 six-digit codes is required in all of the local LDITs (see Figure 2). This requires additional memory in each SM that contains the LDITs as well as administration of keeping the expansion of 815 updated in all the LDITs.

By using a FAT/LDIT, the six-digit analysis of the 815 NPA is only done once (see Figure 3). All of the local LDITs have 815 defined with a CALL TYPE of "FAT", therefore, a FAT/LDIT is built with a FAT/LDIT number of 815. The NXX codes 000 - 999 for the 815 NPA are expanded in this FAT/LDIT. Since call processing "escapes" to the FAT/LDIT for 815, the NXX codes for 815 will never be expanded in the local LDIT. By only expanding the 815 codes once in an office, SM memory and administration costs are saved.

1.1 Memory Savings

Memory recovery through the use of FATs is not supported. The LTG (Large Terminal Growth) process does support LDIT modification and memory recovery.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
LDIT	5300-3/5	3	3C	9.3
SMLDIT	5315	3	3AB	9.25

SMLDIT form (5315 Record) - For 5E6 and later Software Releases, the SMLDIT form contains a required field called FAT. This field is used to indicate whether or not this LDIT is to be pointed to by other LDITs, i. e., this field is used to define a FAT/LDIT. Enter "Y" if this FAT/LDIT is to be pointed to by other LDITs to continue digit interpretation; the default value is "N".

If "Y" is entered, the FAT/LDIT table number must be in the range 200 - 999, must not point to another FAT/LDIT, and cannot be assigned directly to any lines or trunks in an office. Also, the LIST OF SWITCHING MODULES must include all SM lists on all LDITs which make reference to this FAT/LDIT. For example, if LDIT 1 is located on SMs 1, 2, and 3; LDIT 2 is located on SMs 3, 4, and 5; and LDITs 1 and 2 both point to FAT/LDIT 815; then the SM list for FAT/LDIT 815 would consist of SMs 1, 2, 3, 4, 5.

LDIT form (5300-3/5 Record) - When a CALL TYPE of "FAT" is entered on this form, call processing will

"escape" to the FAT/LDIT assigned on the SMLDIT form (5315 Record) for further digit interpretation. The "FAT" CALL TYPE can not be entered on a FAT/LDIT (a FAT/LDIT cannot point to another FAT/LDIT). Also, the "FAT" CALL TYPE is not applicable to the CONFLICT RESOLUTION TABLE or the MLDIT form (5300-5 Record).

When the CALL TYPE is "FAT", the value of INCOMING DIGITS on this LDIT form must be in the range 200 to 999 since this represents the FAT/LDIT table number (FAT/LDITs must be in this range); and must be equal to the LDIT value defined on a SMLDIT form where the FAT field has an entry of "Y" (Yes). Digit interpretation continues on the FAT/LDIT form indexed by the value of the INCOMING DIGITS. Therefore, the NBR OF DIGITS field should not include the digits which are used to index the FAT/LDIT form (see Figure Figure 1).

When this value of INCOMING DIGITS is received, digit analysis continues on the FAT/LDIT; therefore, this value of INCOMING DIGITS cannot be expanded on the local LDIT table. For example, if 815 is interpreted in the LDIT where CALL TYPE is "FAT", the 815 codes (000 - 999) are expanded on the FAT/LDIT table (table index in the range 200 - 999) and not on the LDIT. Since the CALL TYPE is "FAT" for the 815 NPA, the 815 codes will never be expanded on the LDIT.

An IMPLIED NPA cannot be entered on a FAT/LDIT. Also, Code Conversion CALL TYPE's ("EMER", "LOCDA", "REPAIR", and "BUSOFC") cannot be assigned on FAT/LDITs.

A TYPE OF CI CALL or CI TYPE value of "WZ1" (World Zone 1) is allowed on FAT/LDITs, however, instead of this value being related to the first three digits of INCOMING DIGITS, it is related to the FAT/LDIT table number.

LDIT form (LDIT 1, 2, etc.) - RC View 9.3

INC DIGITS	CALL TYPE	CI TYPE	NBR OF DIG
800210	INWATS	SAC	10
800220	VACANT	NONCI	6
708636	NORMAL	INTRA	10

SMLDIT form - RC View 9.25

LDIT	LIST OF SMs
1	1, 2, 3, 4
2	3, 4, 5, 6

6-Digit Translation Without FAT

LDIT form (LDIT 1, 2, etc.) - RC View 9.3

INC DIGITS	CALL TYPE	CI TYPE	NBR OF DIG
800	FAT		
708636	NORMAL	INTRA	10

LDIT form (FAT/LDIT 800) - RC View 9.3

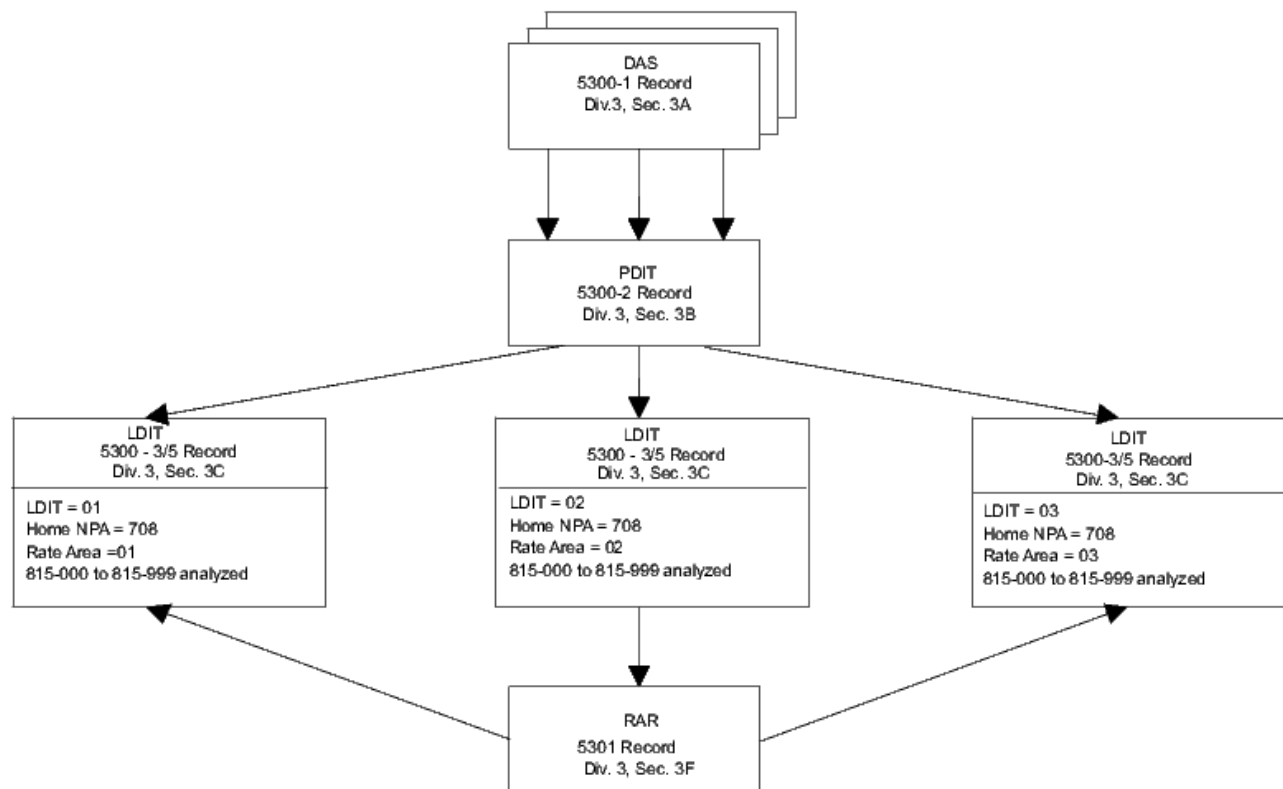
INC DIGITS	CALL TYPE	CI TYPE	NBR OF DIG
210	INWATS	SAC	7
220	VACANT	NONCI	3

SMLDIT form - RC View 9.25

LDIT	FAT	LIST OF SMs
1	N	1, 2, 3, 4
2	N	3, 4, 5, 6
800	Y	1, 2, 3, 4, 5, 6

6-Digit Translation With FAT

Figure 1 SAMPLE 6-DIGIT TRANSLATION CONVERSION TO FAT

**Figure 2 SAMPLE DIGIT ANALYSIS WITHOUT FAT**

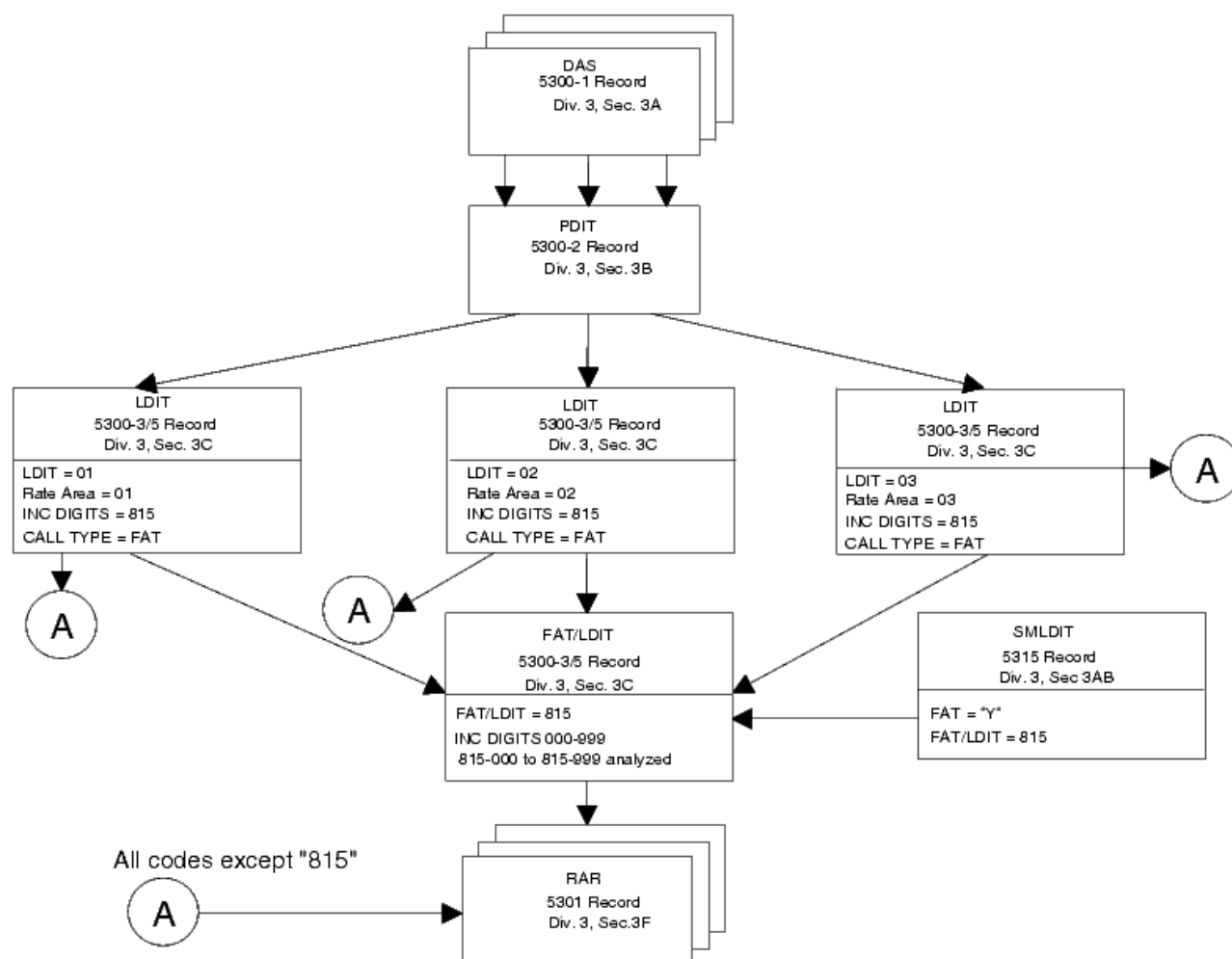


Figure 3 SAMPLE DIGIT ANALYSIS WITH FAT

SEC. 1AP: AMA LONG DURATION RECORDING ENHANCEMENTS

1. FEATURE DESCRIPTION

Available for 5E10 and later, AMA (Automatic Message Accounting) Long Duration Recording Enhancements has the AT&T feature number 99-5E-2326. Prior to this feature, long duration calls records were produced at midnight with no option to change that time. A long duration connection is defined as a call on which, at a scheduled record generation time, both calling and called parties remain "off-hook" ("connected" for carrier timing) and the elapsed time and/or carrier elapsed time of the call already exceeds 1440 minutes (24 hours).

This feature allows the time when long duration call records are produced to be changed. The scheduled record generation time is the time of day when the switch produces the long duration records. The default time is midnight. For log duration connections, two types of AMA (Automatic Message Accounting) records are created, designated as **first records** and **continuation records**.

The **first record** is generated at the occurrence of the first scheduled record generation time after its elapsed time is over 1440 minutes. For internetwork calls, the first record is generated at the occurrence of the first scheduled record generation time after its carrier elapsed time is over 1440 minutes. A continuation record is generated at each subsequent record generation time and at disconnect time.

A **continuation record** must be generated at each record generation time that occurs between the time a call's first record is made and call disconnect. A continuation record must also be generated at call disconnect.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5l	8.1

OFCOPT form (5509 Record) - This form supplies various miscellaneous office options and parameters.

The field LDC GEN TIME was added which assigns the time of day to generate AMA Long Duration Call records. The time is entered as HH:MM where HH is 00 - 23 and MM is 00 - 59. Midnight is entered as 00:00.

SEC. 1AQ: CPN/BN TRANSMITTAL AND OPTIONING

1. FEATURE DESCRIPTION

The CPN/BN (Calling Party Number/Billing Number) transmittal and CPN/BN Optioning to the Terminating User capability is available with 5E6 and later Software Releases.

The CPN identifies the originator of a call. It is provided by the originating end office or, if the originating interface is ISDN (BRI or PRI), a PBX or CPE (Private Branch Exchange or Customer Premises Equipment). A user-provided CPN is included in the CPN IE (Information Element) of the Q.931 SETUP message from the CPE and can be 1 to 15 digits. A CPN provided by the switch should be a 10-digit number (NPANXXXXXX) that can be dialed to reach the calling station.

BN is used for billing identification. It is usually a 10-digit number provided by the originating end office. It may or may not be the same as the CPN and may or may not be unique.

A PRI has a single BN associated with it. This number is used as the BN for any calls received over the PRI. Analog lines and BRIs have BNs associated with the DN (Directory Number) of the interface. A terminal on a BRI may have a BN associated with each DN on the terminal.

When a call is made, the following attributes of the CPN and BN are determined and sent in the SETUP message to the end office of the called party: the presentation indicator, screening indicator, uniqueness indicator, type of address and numbering plan identification. In this feature description, these attributes may be collectively referred to as calling party information.

2. CPN/BN TRANSMITTAL IN 5ESS PRIVATE NETWORK ENVIRONMENT

This capability allows a 5ESS PBX (Private Branch Exchange) to send CPN information to a public switch or another PBX over PRIs. This is done for both CSV and CSD (Circuit-Switched Voice and Circuit-Switched Data) calls. Only the CPN is sent from the PBX to the public network; the BN is never sent to the public network. The public switch provides the BN for calls originating on a PBX.

The PBX may also receive calling party information on incoming calls over PRIs. For calls from a public switch, the PBX can specify (on a trunk group basis) which number, CPN or BN, is preferred or which is to be delivered. The PBX must subscribe to receive this information on an exclusive (CPN or BN only) or preferred (CPN preferred or BN preferred) basis. Only the CPN can be delivered for calls originating from another PBX.

The PBX can use this calling party information for features used by the called party, such as CPN/BN optioning or Calling Number Delivery.

3. CPN/BN OPTIONING TO THE TERMINATING USER

CPN/BN Optioning delivers the CPN or BN of the calling party to the terminating user (called party) over an ISDN interface. The originator of the call may be using an analog or ISDN interface and may be making a CSV or CSD call. Also, an all-call or per-call Directory Number privacy may be used to prevent the CPN/BN from being sent to the terminator.

If the terminator subscribes to CPN/BN Optioning, CPN/BN information must be used to format CPN IE sent in the SETUP message to the terminating user. The terminating user must have BRI or PRI (Basic Rate or Primary Rate Interface) to the 5ESS switch. The terminating user can subscribe to one of the following options: CPN only, BN only, CPN preferred or BN preferred.

The call may be intra-switch, intraLATA or interLATA.

4. TRANSLATION REQUIREMENTS

The newly added CPNBNFD (Calling Party Number/Billing Number Feature Definition) form (5982 Record) names and defines the feature options selected for each line or MLHG using a CPN/BN feature. Included with this record is a list of preconstructed features which are automatically provided in the ODA database at the time of office registration and which cannot be modified. Any line or MLHG that uses a CPN/BN feature must also have a CLASS OF SERVICE of either "INDIV", "ISDN" or "ISATND" assigned on a Line Class Code form (5306 Record) and a feature assignment on the appropriate LINEFA (5112 Record) or MLHLNFA (5113 Record) form, a CLUSTR form (5600 Record) or BFG form (5625-1/7 Record). Only one CPNBNFD Feature Name is allowed on a combination of a LINEFA or MLHLNFA form, a BFG form or CLUSTR form.

An analog shared TN is unable to use CPN/BN data. Therefore, a CPN/BN feature that is assigned to a primary shared analog line or MLHG must have the SHRD DN field on this form set to "ALL".

5. TRUNK TRANSLATIONS

The Calling Party Number SCRNRNG (Screening Ranges) form (5212 Record) has been added to screen user-provided CPNs delivered over a PRI from a PBX or CPE. This is done by entering the PBX ID identifier and a range of valid NPA-NXX and HIGH/LOW values listed in the SCREENING RANGES field of this form. The CPN SCRNRNG field and the PBX ID of the TKGRP form (5202 Record) determine which CPNs are to be screened.

The far-end office may not send the CPN in the full 10-digit NPANXXXXXX form (i.e., NPA may not be included). A 7-digit TN will be changed to a 10-digit TN via the NOC (Normalized Office Code) form (5501 Record) before screening is done. To prevent screening failures, the NPA CODE and OFFICE CODE fields of the NOC form should be entered for every NXX that may be sent from the far-end office.

The PBX ID Assignment form (5213 Record) is a new output only record added in 5E6 to track PBX identifiers already assigned on a TKGRP form, the trunk group they have been assigned to and whether or not CPNs are to be screened for PRIs on that trunk group.

The following fields have been added to the TKGRP form with the 5E6 Software Release.

The CPN BN OPT field indicates the CPN/BN option subscribed to by a PRI for CSV or CSD calls. The options are "NONE", "CPNONLY", "CPNPREF", "BNONLY", "BNPREF" and "CPNUP". This field defaults to "NONE". The TKGRP form contains suggested CPN BN OPT assignments for different switch configurations interconnected via PRIs.

To indicate whether or not private DNs are to be sent over a PRI, a "Y" or "N" is entered in the PRIV OVER field. Normally, private DNs are not sent from a public switch (CO or toll) to a PBX (Private Network Switch). The default for this field is "N".

CPN SCRNRNG determines whether a user-provided CPN will be screened on incoming CSV or CSD calls over a PRI. The TKGRP form contains CPN SCRNRNG assignments for different switch configurations interconnected via PRIs.

A "Y" in the CPN DISC field determines whether a user-provided CPN is discarded and replaced with a network-provided CPN. (A network-provided CPN or default directory number, is placed in the MAIN DN field, explained below.) The CPN is discarded when it has not been screened or fails to meet screening criteria. A "N" (No) in this field means that the user-provided CPN is used as the CPN and is never discarded. The TKGRP form contains suggested CPN DISC assignments for different switch configurations interconnected via PRIs.

The MAIN DN field contains a default directory number that is used when a user-provided CPN is discarded or when the user does not provide a CPN for CSV or CSD calls. This field accepts a 10-digit directory number in the form of NPANXXXXXX.

6. ROUTING AND CHARGING TRANSLATIONS

The new "ACTCPNBN" and "DCTCPNBN" entries for the ACTION field of PDIT (Prefix/Feature Digit Interpreter) (5300-2 Record) form will either activate or deactivate the CPN/BN feature depending on the CALL TYPE field, which is also entered on this form.

7. BRCS FEATURES TRANSLATIONS

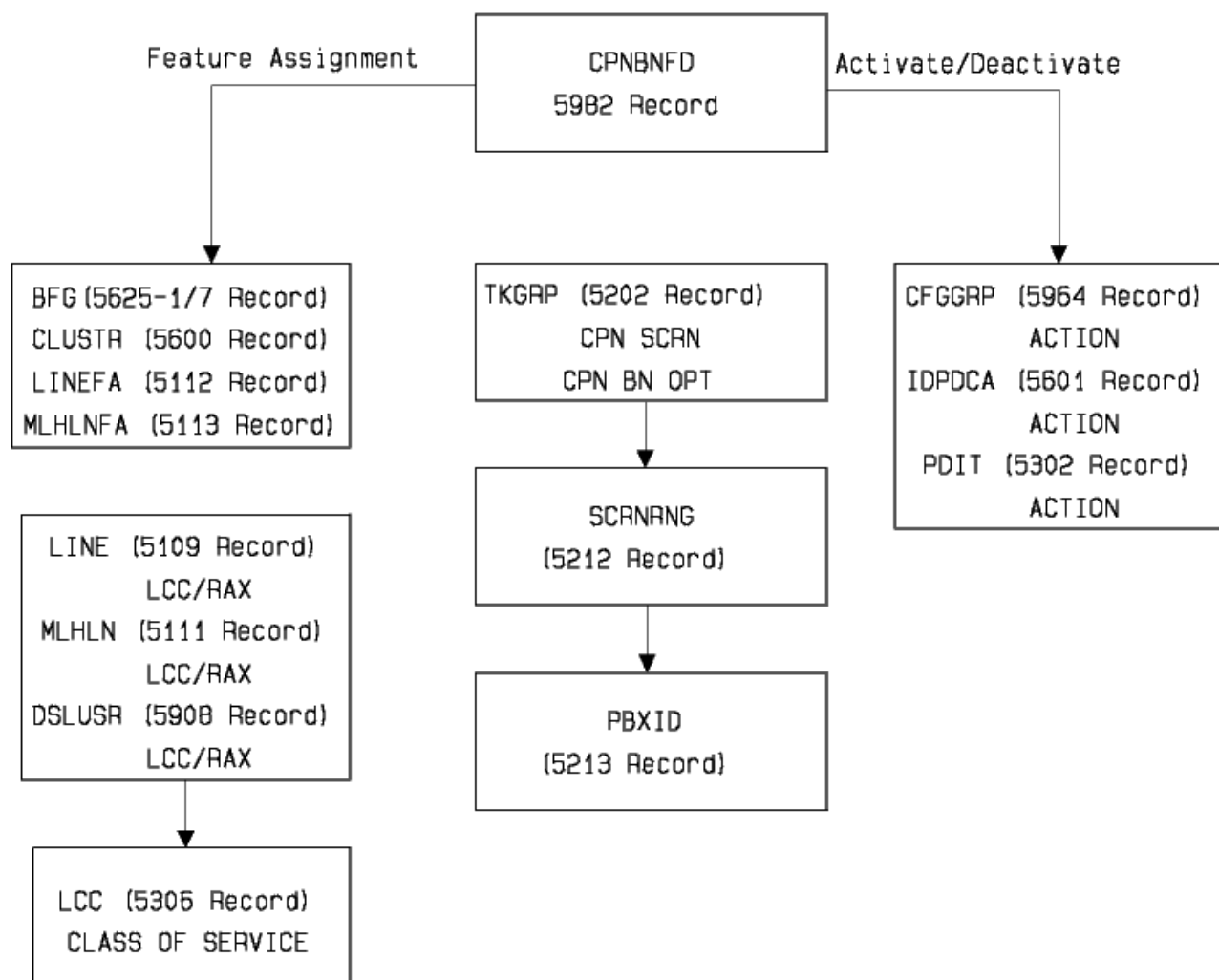
The IDPDCA (Individualized Dialing Plan Dialed Code Assignment) form (5601-1/2 Record) defines the dialed codes used with Individualized Dialing Plans. The entries "ACTCPNBN" and "DCTCPNBN" have been added to the ACTION field of this form to activate or deactivate a CPN/BN feature via dialed code. The corresponding FEATURE entry must appear on a CPNBNFD form (5982 Record) with ACT set to "CODE".

The BRCS Feature Grouping (BFG) Construction form (5625 Record) contains a listing of Modular Feature abbreviations and their associated parameters. The "CPNBNFD" entry has been added to this listing for the CPN/BN feature.

8. ISDN BRCS TRANSLATIONS

The DSLUSR form (5908 Record) has added the CPN SCRIN field. This field determines ("Y" or "N") whether a user provided CPN from an ISDN terminal will be screened. This field is required and defaults to "N". The DSLUSR form defines the status and parameters of a digital subscriber line.

The CFGGRP (Configuration Group Definition) form (5964 Record) can be used to activate or deactivate a CPN/BN feature with a terminal button when an ACTION entry of "CPNBNFBT" is entered and "CODE" is entered in the fields ACT and DEACT of the CPNBNFD form (5982 Record).

**Figure 1 CALLING PARTY NUMBER/BILLING FORM FLOW**

SEC. 1AR: 5ESS SWITCH SOFTWARE RESOURCES INCREMENTAL GLOBAL PARAMETERS

1. FEATURE DESCRIPTION

The SRE INCREMENTAL GLOBAL PARAMETERS feature is available with 5E9(2) and later Software Releases. It is used to facilitate efficient utilization of memory per SM or SM-2000. With 5E9(2) and later, there are four 5ESS Switch software configurations: Basic, Standard, Loaded and SM-2000. Prior to 5E9(2), software configurations had fixed memory sizes. For 5E9(2) and later, software configurations are based upon the hardware peripherals in the SM and the size of software resource registers. A software resource is defined as a dynamic ODD (Office Dependent Data) data structure, or data block register, which provides the necessary memory to support various service requirements.

The SREINC form (5547 Record) is used to increment software resource data blocks. This form is intended for use via Recent Change View 8.40 in those rare cases where system messages indicate that a data block register is in danger of exceeding memory allocation. This may occur if a particular service requires an unanticipated growth in the number of registers or when very large ISDN applications experience increasingly high call activity.

Before making any updates to software resources, please refer to AT&T 235-070-100, Administration Guideline Section for Software Engineerable Resources, SM RESOURCE OVERLOAD CONTROL which discusses software resource calculations. See Division 3, Section 5AW for the SREINC form.

SEC. 1AT: HOME INTERCOM/SINGLE LINE VARIETY PACKAGE

1. FEATURE DESCRIPTION

HI/SVP (Home Intercom/Single Line Variety Package) is available with 5E6 and later Software Releases. The feature consists of two options.

1.1 The Home Intercom Basic Feature

Allows users to establish a talking path between 2 or more extensions on a single-party analog line. To create a Home Intercom Basic call, the end-user goes off-hook, receives dial tone, dials their own telephone number and hangs up after receiving busy-tone. After the phone is put on-hook, the switch applies distinctive ringing pattern B (the default pattern) to all extensions on that line. When one or more extensions go off-hook, the ringing stops on all extensions and a voice path is established between all extensions that go off-hook. The voice path remains established until all extensions go on-hook or until the MAX TALK TIME value, defined on the OFCOPT form (5509 Record), is exceeded.

When a Home Intercom subscriber has Multi-Distinctive Ringing, defined on the MTNDR form (5550 Record) and a "Y" is entered in the MDNL RING field on the HIFD form, the Master TN will receive the default Multi-Distinctive Ringing pattern and the dependents will receive the ringing patterns assigned on the MTNDR form.

When a Home Intercom subscriber has Multi-Distinctive Ringing, defined on the MTNDR form and a "N" is entered in the MDNL RING field on the HIFD form, the Master TN will receive the default Home Intercom Ringing pattern B and the dependents will receive the ringing patterns assigned on the MTNDR form.

For more information on Home Intercom see 235-190-101.

1.2 Single Line Variety Package - includes the following enhancements:

- ICD (Intercom Code Dialing): Allows a subscriber to activate a Home Intercom call via dial code rather than dialing his/her own telephone number.

NOTE: ICM CODE DIAL must have a "Y" entered on the associated HIFD form (5628 Record) and the dial code must be defined on the IDPDCA and/or PDIT form with an ACTION of "HIRINGB".

- SID (Selective Intercom Dialing): Allows a subscriber to activate a Home Intercom call via dial code which will provide one of 4 distinctive ringing patterns.

NOTE: SEL ICM DIAL must have a value of "Y" and ICM CODE DIAL must have a value of "Y" entered on the associated HIFD form and the ACTIONS (i.e., "HIRINGA", "HIRINGB", "HIRINGC" and "HIRINGG") must be assigned to the dial codes on the IDPDCA (5601 Record) and/or PDIT forms (5300-2 Record).

- SCT (Selective Call Transfer): Allows a subscriber to transfer an outside call to another extension on the same line by flashing to place an outside call on hold, invoking one of the 4 ringing patterns via dial code and hanging up. A private conference (PRIV CONF = "Y" on the associated HIFD form) may be provided to allow extensions on the same line to talk before reconnecting the outside call.

NOTE: SEL CALL TRANS and SEL ICM DIAL must have a "Y" entered on the associated HIFD

form and the ACTIONS (i.e., "HIRINGA", "HIRINGB", "HIRINGC" and "HIRINGG") must be assigned to the dial codes on the IDPDCA and/or PDIT forms. DH (Dialable Hold): Allows a subscriber to flash to place an outside call on hold, dial the Dialable Hold dial code, go on-hook and resume the call from any extension on the same line within the time assigned on the OFCOPT form in the MAX HOLD TIME field. If the call is not picked up, a ringback will be sent to the subscriber.

- **NOTE:** DIAL HOLD must have a "Y" entered on the associated HIFD form and the dial code must be defined on the IDPDCA and/or PDIT form with an ACTION of "HIDHOLD".

2. FEATURE ASSIGNMENT

2.1 Office Set-Up

Enter the following fields on the OFCOPT form (5509 Record):

- MAX RING TIME - This field indicates how long ringing will be applied before the call is dropped during Home Intercom Basic, ICD, SID and SCT activation.
- MAX TALK TIME - This field indicates how long a Home Intercom Basic, ICD and SID call can be connected before dial tone will be provided.
- MAX HOLD TIME - This field indicates how long an outside party can be placed on hold during Dialable Hold activation before ringback is provided.

2.2 Subscriber Assignments

A pre-constructed or constructed feature, defined on the HIFD form (5628 Record), may be assigned only to a single-party analog line via a LINEFA form (5112 Record), an associated CLUSTER form (5600 Record) or an associated BFG form (5625 Record).

2.3 Dial Codes

The dial codes must be defined on the PDIT form (5300-2 Record) and/or IDPDCA form (5601-1/2 Record) to provide activation for ICD, SID and DH. The dial codes must be assigned the following ACTIONS with their corresponding features:

- "HIRINGA" - (SID) - provides repeated pattern of 2 seconds on and 4 seconds off (normal ringing pattern).
- "HIRINGB" - (ICD or SID) - provides repeated pattern of 0.8 seconds on, 0.4 seconds off, 0.8 seconds on, followed by 4 seconds off.
- "HIRINGC" - (SID) - provides repeated pattern of 0.4 seconds on, 0.2 seconds off, 0.4 seconds on, 0.2 seconds off, 0.8 seconds on, followed by 4 seconds off.

3. TRANSLATION REQUIREMENTS

3.1 LINE TRANSLATIONS

LINE form (5109 Record) - This form is used to define the Home Intercom subscriber. The subscriber must have a CLASS OF SERVICE of "INDIV" and a TERMINATING TREATMENT of "AGING" or "INDIV" on the

associated LCC form (5306 Record). The following fields must be entered:

- SHARED = "N"
- SERHLN = blank
- MFRI = "N"
- ASSOC OE TYPE = blank

LINEFA form (5112 Record) - This form is used to assign the Home Intercom feature to a line (defined on the LINE form). The AC field must be set to "N".

3.2 ROUTING AND CHARGING TRANSLATIONS

PDIT form (5300-2 Record) - Home Intercom dial codes for the Office Dialing Plan must be defined on this form. The ACTIONS are "HIRINGA", "HIRINGB", "HIRINGC", "HIRINGG" and "HIDHOLD".

3.3 BRCS TRANSLATIONS

OFCOPT form (5509 Record) - This form is used to define the office parameters associated with the Home Intercom feature. The corresponding fields are MAX RING TIME, MAX TALK TIME and MAX HOLD TIME.

CLUSTR form (5600 Record) - This form allows the Home Intercom feature to be assigned to a user by grouping features together under a CLUSTER name.

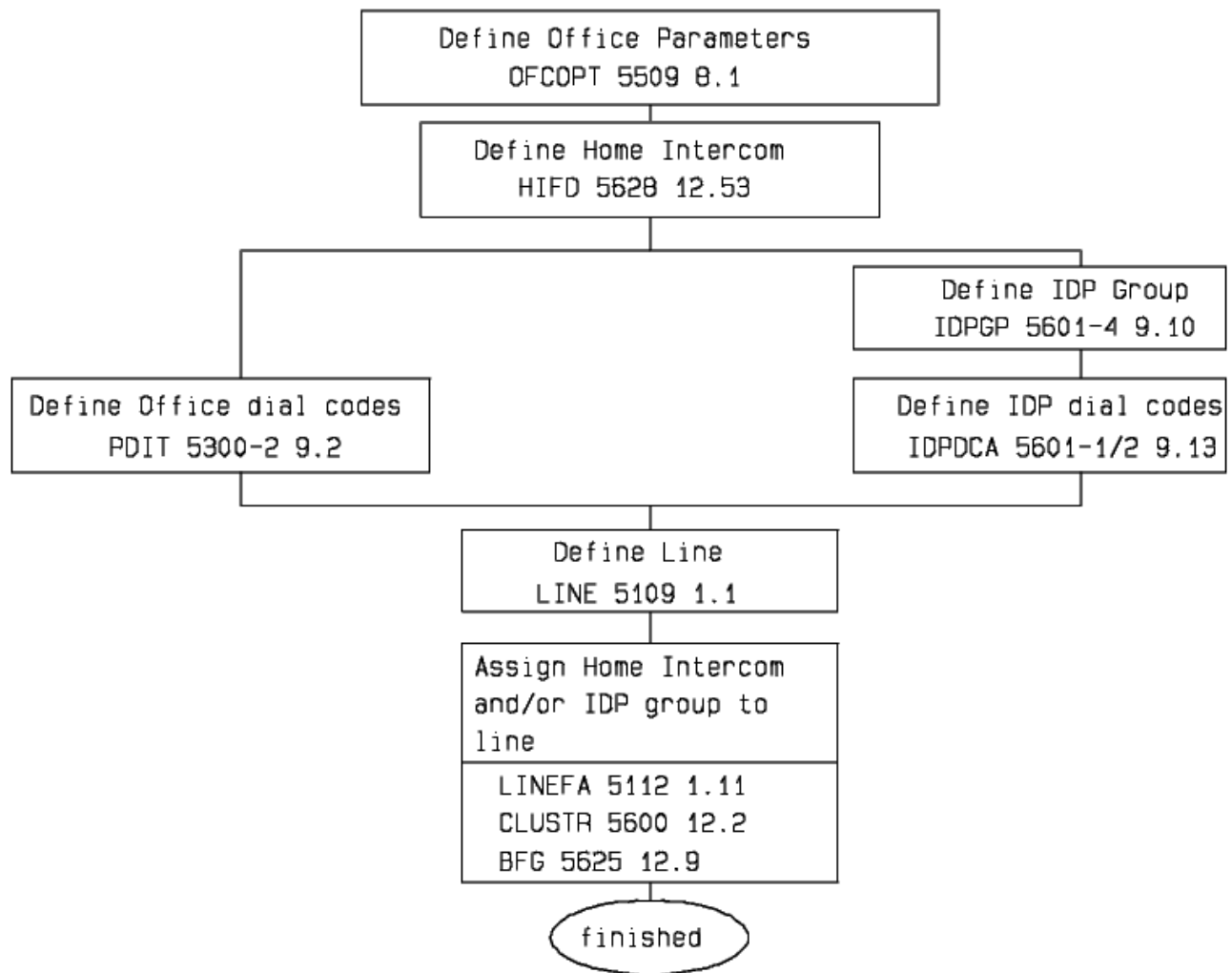
IDPDCA form (5601 Record) - Home Intercom dial codes for the Individual Dialing Plans may be defined on this form. The corresponding ACTIONS are "HIRINGA", "HIRINGB", "HIRINGC", "HIRINGG" and "HIDHOLD".

The AC field must be set to "N".

BFG form (5625 Record) - This form allows the Home Intercom feature to be assigned to a user by grouping features together under a BFG NAME.

HIFD form (5628 Record) - This form is used to define the Home Intercom feature. The following preconstructed features are available:

- "/HI*" - Wildcard feature
- "/HIBAS1A" - Home Intercom Basic 1A
- "/HIBASIC" - Home Intercom Basic
- "/HISVP" - Home Intercom Single Line Variety
- "/HISVP1A" - Home Intercom Single Line Variety 1A

**Figure 1 HOME INTERCOM FORM FLOW**

SEC. 1AV: SOURCE BILLING FOR ATTENDANT EXTENDED CALLS

1. FEATURE DESCRIPTION

Source Billing for Attendant Extended Calls is available with 5E6 and later Software Releases. This feature allows the source parties billing TN to replace the attendants billing TN on all billing records (AMA and MDR) that result from an attendant extended call.

When a call comes into an attendant to be extended, the originating party is put on hold and the attendant begins the second leg of the call. If the attendant belongs to a terminal group and the Source Billing feature is active (SRC BILL field = "Y" on the TGATTD form), the following checks must be made:

- The source party and the attendant must be in the same terminal group, defined on the TGSRFD form (5607-1/2 Record).
- The source party must be a Centrex line, FX (Foreign Exchange) trunk, or a regular or Centrex tie trunk.

If the above checks pass, the source party's billing TN will replace the attendants TN in the billing record. Otherwise, the call will be billed to the attendant. For FX trunks and tie trunks, the billing TN must be assigned to the trunks on the side where the attendant is located.

note: When the source party is a trunk, the call to the attendant is originated from another switch. Also, the Terminal group feature, defined on the TGSRFD form, must be assigned to the Centrex lines and to the trunks on the side where the attendant is located.

2. TRANSLATION REQUIREMENTS

The following forms are used to define the terminal groups associated with this feature. See FIGURE 1 for the form flow.

2.1 LINE TRANSLATIONS

LINEFA form (5112 Record) - This form is used to assign the terminal group to a line (source party and/or attendant).

MLHLNFA form (5113 Record) - This form is used to assign the terminal group to a hunt group member (source party and/or attendant).

2.2 TRUNK TRANSLATIONS

TKGRPFA form (5206 Record) - This form is used to assign the terminal group to a trunk group (source party).

2.3 BRCS TRANSLATIONS

TGSRFD form (5607-1/2 Record) - This form is used to define the terminal group feature for the attendant and the source party.

TGSRLPA form (5607-3 Record) - This form is used to assign terminal group parameters to a line (source party and/or attendant).

TGSRMPA form (5607-4 Record) - This form is used to assign terminal group parameters to a hunt group

member (source party and/or attendant).

TGSRTPA form (5607-5 Record) - This form is used to assign terminal group parameters to a trunk (source party).

TGATTD form (5611 Record) - This form is used to activate Source Billing for an attendant. The SRC BILL field must have a value of "Y" to activate Source Billing.

CLUSTR form (5600 Record) - This form allows the terminal group to be assigned to the attendants and/or source party by grouping features together under a CLUSTER NAME.

BFG form (5625 Record) - This form allows the terminal group to be assigned to the attendants and/or source party by grouping features together under a BFG NAME.

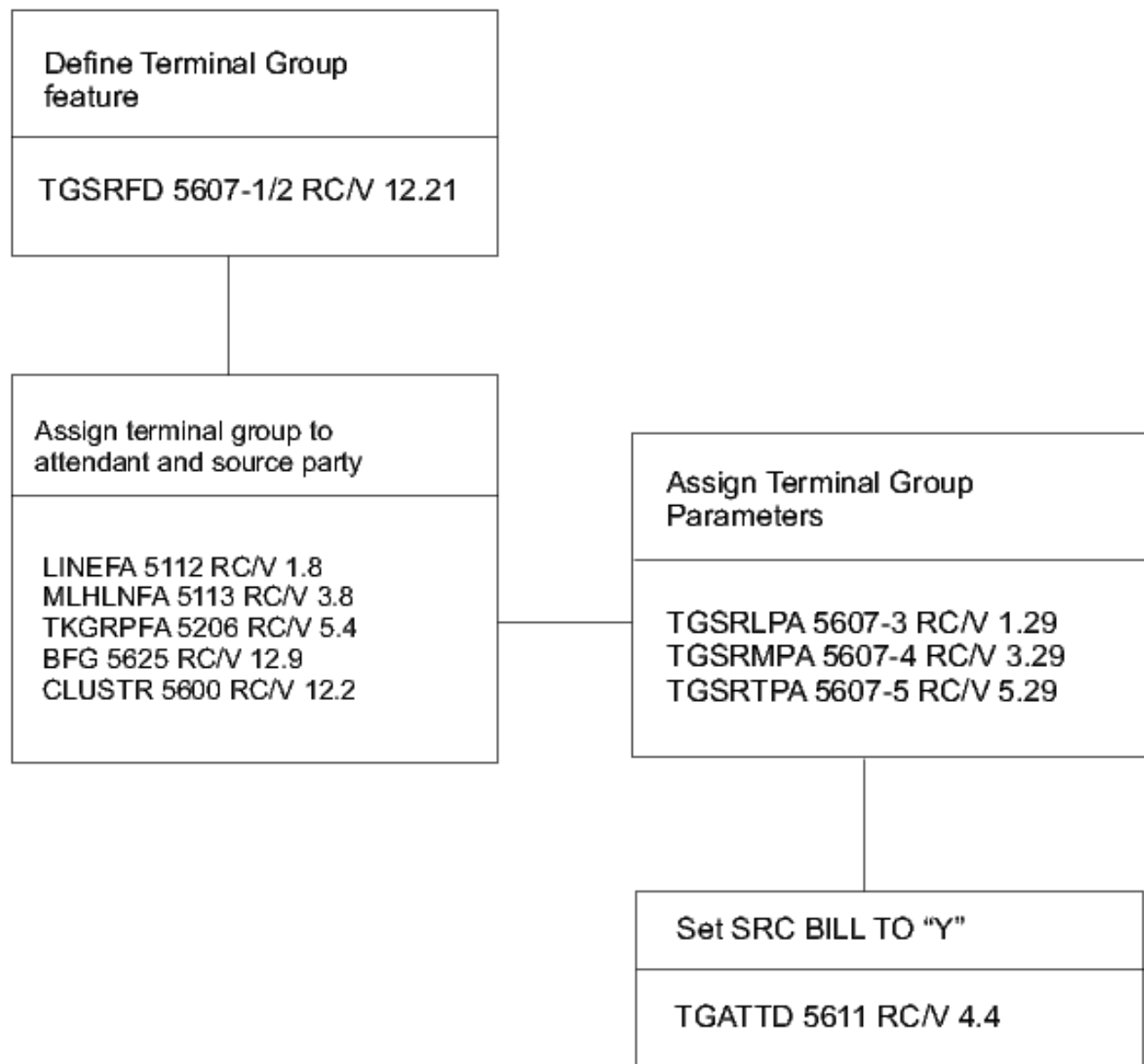


Figure 1 SOURCE BILLING FORM FLOW

SEC. 1AW: BRCS SUPPLEMENTARY SERVICES FOR ISDN CIRCUIT-SWITCHED DATA CALLS

1. GENERAL

The BRCS Supplementary Services for ISDN CSD (Circuit-Switched Data) calls feature is available with 5E6 and later Software Releases. It allows BRCS supplementary services originally developed for CSV (Circuit-Switched Voice) calls to apply to CSD calls, as well. BRCS Supplementary services now available for CSD calls are:

- ARS (Automatic Route Selection)
- ATH (Authorization Codes)
- PFA (Private Facilities Access)
- Account Code
- MDR to CL (Message Detail Recording to Customer Location)
- ICLID (Individual Calling Line Identification)

Since the ARS, ATH and PFA services are the only BRCS supplementary services requiring new or modified office dependent data, CSD requirements for only these services will be included in the Translation Guide.

2. TRANSLATION REQUIREMENTS

2.1 Automatic Route Selection

CSD requirements for the ARS service are included in Division 4, Section 9a. The ARS GROUP NAME field has been renamed CSV ARS GROUP. This field and the CSD ARS GROUP field have been added to the ARSFD form (5608 Record) and to the BFG form (5625 Record). The GROUP TYPE field has been added on the ARSGPA form (5608-2 Record) in order to determine if the ARS group is for Circuit-Switched Voice or Circuit-Switched Data calls.

If the default parameters on the ARSFD form are inappropriate or unspecified, an CSV ARS GROUP and/or CSD ARS GROUP can be assigned on a ARSLPA form (5608-3 Record), ARSMPA form (5608-4 Record) or ARSTPA form (5608-5 Record).

A CSD ARS GROUP will use the existing CSV ARS GROUP to do digit analysis in the optionally selected Private Network Dialing Plan available to ARS service users. Therefore, an ARS GROUP NAME on a PNDP form (5608-10/11 Record), PNINFO form (5608-12 Record), PNOFFON form (5608-13 Record) or PNONOFF form (5608-14 Record) cannot be defined as a CSD group on the ARSGPA form (GROUP TYPE is "CSD").

2.2 Authorization Codes

CSD requirements for the ATH service are included in Division 4, Section 20a. The ATH GROUP NAME field has been renamed CSV ATH GROUP. This field and the CSD ATH GROUP field have been added to the ATHFD form (5619 Record) and to the BFG form (5625 Record).

If the default parameters on the ATHFD form are inappropriate or unspecified, an CSV ATH GROUP and/or

CSD ATH GROUP can be assigned on a ATHLPA form (5619-5 Record), ATHMPA form (5619-6 Record) or ATHTPA form (5619-7 Record).

2.3 Private Facilities Access

CSD requirements for the ATH service are included in Division 4, Section 10a. The PFA GROUP field has been renamed CSV PFA GROUP. This field and the CSD PFA GROUP field have been added as default parameters to the PFAFD form (5609 Record) and to the BFG form (5625 Record). The GROUP TYPE field has been added on the PFAGPA form (5609-5 Record) in order to determine if the PFA group is for circuit-switched voice or circuit-switched data calls.

If the default parameters on the PFAFD form are inappropriate or unspecified, an CSV PFA GROUP and/or CSD PFA GROUP can be assigned on a PFALPA form (5609-6 Record), PFAMPA form (5609-7 Record) or PFATPA form (5609-8 Record).

SEC. 1AX: ALLOW CRAFT TO SET AMA PERCENT FULL ALARM LEVELS

1. FEATURE DESCRIPTION

AMA (Automatic Message Accounting) records generated by the 5ESS Switch are stored on AMA disk pairs (AMA mass storage). Periodically these data are read from AMA mass storage to a tape, or sent over an AMA Teleprocessing data link to an HOC (Host Collector), freeing up space in AMA mass storage for additional AMA data generated by the switch. An office option allows single stream or dual stream AMA recording (See AMA METHOD field on the OFCOPT form (5509 Record)). In single stream recording, all AMA data are stored in the same AMA mass storage region. In the dual stream option, two independent regions of AMA mass storage are provided and AMA records are assigned on a per SM basis to be stored in one region or the other. If either region of AMA mass storage becomes 100% full, further AMA data will be discarded by the switch. These alarms apply to both streams. If one stream is full one message will be given. If both streams are full, two messages are given. Alarms are presently provided to indicate when the occupancy of either region of AMA mass storage reaches certain levels. Minor, major, and critical alarms are generated when the occupancy of either stream reaches 70%, 90%, and 100% respectively. Prior to the 5E8 Software Release, these alarm levels are fixed.

For 5e8 and later, the occupancy levels of primary AMA mass storage that trigger minor, major and critical switch alarms can be determined and set by office personnel. Alarm levels may be set from 0% to 100% in increments of 1%. If a value of 0% is chosen for the minor alarm, the alarm cannot be retired. It is not likely that a value of 0% would be chosen, but if it were chosen, a system real-time problem should not occur. The minor alarm does not periodically repeat. The major and critical alarms repeat every 15 minutes while they are in effect.

The alarm levels for minor, major, and critical alarms will be in increasing order; and no two can differ by less than 2%. The default levels are: minor alarm 70%, major alarm 90%, and critical alarm 100%. The minor alarm must be at least 2% less than the major alarm. Similarly, the major alarm must be at least 2% less than the critical alarm. Because of these restrictions, the range of the minor alarm is 0% to 96%, the range of the major alarm is 2% to 98%, and the range of the critical alarm is 4% to 100%.

2. FEATURE ASSIGNMENT

The minor, major, and critical alarms are office parameters and are entered on the OFCOPT form (5509 Record).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1

OFCOPT form (5509 Record) - This form is used to define global office parameters. The MIN AMA ALRM sets the percent of total AMA disk storage for a minor alarm; the MAJ AMA ALRM sets the percent of total AMA disk storage for a major alarm; and the CRIT AMA ALRM sets the percent of total AMA disk storage for a critical alarm.

SEC. 1AY: FEATURE GROUP B CARRIER IDENTIFICATION CODE EXPANSION

1. FEATURE DESCRIPTION

Feature Group B Carrier Identification Code Expansion is available in 5E8 and later Software Releases.

1.1 Carrier Identification Codes

CICs (Carrier Identification Codes) are used in dialing plans, administrative reports, MF (Multi-Frequency) and CCS7 (Common Channel Signaling System 7) signaling sequences to indicate the desired IC (Interexchange Carrier) for a call. CICs are used in EA (Equal Access) dialing plans. Previously these plans were:

- FGB (Feature Group B) dialing is 950-0/1XXX,
- FGD (Feature Group D) dialing is 10XXX,

where XXX is the CIC unique to the carrier.

These dialing plans provide non-discriminatory interconnections between the LECs (Local Exchange Companies) and ICs. CICs were limited to 3 digits, allowing a maximum of 1,000 codes.

CICs must be allocated in a non-discriminatory manner; thus, ESPs (Extended Service Providers), as well as ICs, must be granted a CIC on request; therefore CIC numbers were increased from 3 to 4 digits to accommodate all requests.

1.2 Feature Group D

Feature Group D allows the telephone subscriber to specify the IC by a PIC (Presubscribed Interexchange Carrier) or by dialing the CAC (Carrier Access Code) of 10XXX, where XXX is the CIC (Carrier Identification Code). The CIC or PIC routes InterLATA domestic and international calls through the public network via the designated InterLATA carrier. FGD has evolved to use ISDN facilities and CCS7 signaling as well as MF facilities.

1.3 Feature Group B

Feature Group B was originally intended as a temporary mechanism for deployment of EA in the public network. Subscribers would dial 950-WXXX to reach an IC until the originating office could conform to FGD (10XXX or presubscription) and the subscribers could be educated to use the FGD access. However, FGB remains popular, largely due to its attractive rate structure.

In addition to unregulated long distance carriers, the FGB interface is being used by various ESPs. The ability to receive ANI with FGB is desired by most ESPs.

1.4 Feature Definition

FGB CIC expansion consists of the following aspects:

1. The FGB dialing plan is expanded to accommodate 10,000 possible FGB CICs by changing from 950-WXXX, to 950-XXXX, where XXXX becomes the 4-digit code. Currently assigned FGB carrier codes are extended to 4 digits by prepending the current 3-digit code with a 0.

2. The linkage between FGB and FGD CICs is eliminated. Some carriers or ESPs only desire one interface (FGB or FGD) and not both. With this feature, it is possible to have an FGB carrier with CIC equal to 0555, and an entirely different FGD carrier with CIC equal to 555. The switch provides completely separate administration and call processing (routing) of the FGB and FGD CICs, even though they are the same numerically. This separation makes data administration easier for the OTC (FGB carriers require much less static ODD than do FGD carriers), and also allows FGB to evolve independently from FGD.
3. Transition Access capability to reach an FGD carrier via 950 dialing continues to be provided for FGB carriers 0/1XXX to FGD carriers XXX.

1.5 Network Upgrade

It is recommended that network components be upgraded in the following order:

1. Upgrade OSSs — All systems should be capable of receiving 4-digit information from the switch.
2. Upgrade LEC switches — This requires the feature be deployed in each switch in the network. It is recommended that the access tandems be upgraded before any of the subtending end-offices.
3. Switch conversion — When all components are in place, the capability can be phased in separately for trunk signaling, product interfaces, and dialing.

1.6 Evolution of Pre-compliant FGB Carrier to 5E8 Compliant Carrier

There is no ODA support for evolution of Pre-Compliant FGB translations in 5E7 to the fully compliant 4-digit FGB feature in 5E8. It will be necessary for the office using the Pre-Compliant feature, if it chooses to evolve to the compliant feature, to change the ODD manually after retrofit. The Pre-Compliant translations will be preserved by the retrofit.

The steps needed to change a Pre-compliant FGB carrier to a compliant carrier are as follows:

Originating Side - End Office or Access Tandem

1. Assume the office is using the Pre-Compliant FGB feature, to provide access to FGB carrier 3288.
2. Line originations have standard screening (nothing unusual).
3. As an example, calls dialed 950-3288 are translated by LDIT 1 as TYPE OF CI CALL of "NONCI". This is a seven digit translation. Destination index is 10, and route index is 955. The calls are routed out of the office on trunk group 705, which is a direct IC trunk group to the carrier. (In the case of an Access Tandem, the INDIT form (5309 Record) (RC View 9.5) would replace the LDIT form (5300-3/5 Record) (RC View 9.3).

The following table gives the pertinent values entered:

LDIT / INDIT FORM	
FIELD	VALUE
LDIT	1
INCOMING DIGITS	9503288
CALL TYPE	NORMAL
TYPE OF CI CALL	NONCI

NBR OF DIGITS	7
CODE INDEX	10
ROUTE INDEX	955
DESEP	201

1. The office retrofits from 5E7 to 5E8.
2. Insert a new FGB carrier in the ODD using the ICF form (5305 Record) (RC/V View 10.3), as follows:

ICF FORM	
FIELD	VALUE
CARRIER ID	3288
FEAT GRP	B
ACCESS TYPE	ITRM
FGB CDI	10
FGB RTI	955

Note that the carrier-specific CDI and RTI on the new ICF form (RC View 10.3) are the same as used for the Pre-compliant carrier.

1. Update the LDIT (or INDIT for Access Tandem) to translate the call as a compliant FGB call. The only change required is to change the value of the TYPE OF CI CALL field to INTRM:

LDIT / INDIT FORM	
FIELD	VALUE
LDIT	1
INCOMING DIGITS	9503288
CALL TYPE	NORMAL
TYPE OF CI CALL	INTRM
NBR OF DIGITS	7
CODE INDEX	10
ROUTE INDEX	955
DESEP	201

1. Repeat the above steps for each Pre-Compliant FGB carrier to convert it to a compliant carrier.
2. When all Pre-compliant carriers have been converted in this manner, de-activate the Pre-Compliant FGB Feature by changing LDIT in the originating local office to translate 950-3288 as an FGB call. This will prevent the use of the Pre-compliant feature after evolution, and help insure that all new FGB carriers are added as compliant carriers.
3. You may wish to revise your translations to translate a smaller number of digits for the calls dialed 950-XXXX. This will recover some memory, and improve the digit analysis performance. You should only do this after all Pre-compliant carriers have been converted to compliant carriers.

Terminating Side - End Office or Access Tandem

Pre-compliant FGB Feature documentation suggested a method to provide terminating end billing for FGB carriers with 4-digit CICs using Private Facility trunks and a CGIDX (5302-1 Record) AMA CALL TYPE of "DMRTM". If this method was used, you will need to re-engineer the incoming trunk groups to make use of the fully compliant feature.

1. For those Private Facility trunks established to carry such incoming calls, re-engineer the trunk groups to become Interexchange Carrier trunks. Insert the 4-digit CARRIER ID in the TKGRP form (5202 Record) (RC View 5.1), and set FEAT GRP to "B". The BILLING DN field should be blank.

2. Change the CHGI (Charge Index) on the RAR form (5301 Record) for such calls to point to an AMA CALL TYPE of "FGBTL" instead of the type "DMRTM" previously used for billing.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CARSCR	5551	3	6B	1.60
CDIM	5300-6	3	3E	9.7
CTTU	5518	3	5R	14.4
FIXRT	5301-1	3	3G	10.1
ICF	5305	3	3R	10.3
IDPGP	5601-4	4	2D	9.10
INDIT	5309	3	3V	9.5
LDIT	5300-3/5	3	3C	9.3
LINE	5109	3	1I	1.6, 1.8
MCRTIDX	5304	3	3Q	10.4
MLDIT	5300-3	3	3C	9.15
MLHLN	5111	3	1K	3.2
OFCOPT	5509	3	5I	8.1
ROTL	5512	3	5L	14.2
RSMCAR	5421	3	4V	26.22
RTIDX	5303	3	3P	10.2
TKEDSLD	5209	3	2K	5.34
TKGRP	5202	3	2A	5.1
TLWS	5511	3	5K	14.3
TODCL	5610-2	4	11B	4.5
TPRCC	5464	3	4BQ	27.6
TPRNPA	5465	3	4BR	27.5
TREAT	5461-4	3	4BL	26.33

2.1 Line Translations

LINE form (5109 Record) - This form defines the office Equipment Number and features for each telephone number in a 5ESS Switch.

A new crosscheck for PIC refers to CARRIER ID and FEAT GRP on the ICF form.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular Multi-Line Hunt Group.

A new crosscheck for PIC refers to CARRIER ID and FEAT GRP on the ICF form.

2.2 Trunk Translations

TKGRP form (5202 Record) - This form defines parameters for each Trunk Group in a 5ESS Switch.

The CARRIER ID field is expanded from three to four digits, 0 - 999 for FGD, 0 - 9999 for FGB. A new key field, FEAT GRP, is added to distinguish between an FGB carrier and an FGD carrier. The FGB BILL field is no longer valid. FEAT GRP will act as a replacement.

A modified cross check for CARRIER ID refers to CARRIER ID and FEAT GRP on the ICF form.

TKEDSLD form (5209 Record) - This form defines EDSL (Extended Digital Subscriber Line) Call by Call features assigned to a B-channel trunk group.

A modified cross check for CARRIER ID refers to CARRIER ID and FEAT GRP on the ICF form.

2.3 Routing and Charging Translations

LDIT form (5300-3/5 Record) - This form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

A new enumeration "INTRM" is added to the TYPE OF CI CALL and CI TYPE fields for an FGB Interim incoming trunk call dialed by the originator as 950XXXX.

MLDIT form (5300-3 Record) - This form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

A new enumeration "INTRM" is added to the TYPE OF CI CALL and CI TYPE fields, for an FGB Interim incoming trunk call dialed by the originator as 950XXXX.

CDIM form (5300-6 Record) - This form defines carrier specific Code Indexes and Route Indexes for the CI (Carrier Interconnect) capability.

The CARRIER ID field is expanded from three to four digits, 0 - 999 for FGD, 0 - 9999 for FGB. A new key field, FEAT GRP, is added to distinguish between an FGB carrier and an FGD carrier.

A new form check supports FEAT GRP. A modified cross check for CARRIER ID refers to CARRIER ID on the ICF form.

FIXRT form (5301-1 Record) - This form defines Routing and Charging treatment of Fixed Route Types.

Two enumerations are no longer valid for the FIXED ROUTE TYPE field, "10XXERR" and "950ERR". They are replaced by "OEASERR".

RTIDX form (5303 Record) - This form defines each Route Index in a 5ESS switch.

SIGNALING PROTOCOL enumerations "EA" and "FGB" are modified to reflect the identification code expansion.

MCRTIDX form (5304 Record) - This form defines routing for various BRCS capabilities.

SIGNALING PROTOCOL enumerations "EA" and "FGB" are modified to reflect the identification code expansion.

ICF form (5305 Record) - This form defines the characteristics of InterLATA (Local Access Transport Area) carriers.

The CARRIER ID field is increased from three digits to four digits. A new key field, FEAT GRP, is added to distinguish between Feature Group B and D.

A new field, MEASUREMENT, is added to indicate if a carrier needs traffic measurements. A new field, TRANS CARR, is added to give the Feature Group D transition carrier ID for Feature Group B carriers.

Existing fields, TRANS CDI and TRANS RTI are renamed as FGB CDI and FGB RTI, respectively.

INDIT form (5309 Record) - This form defines the initial digit analysis and subsequent treatment of impulsed digits from all Incoming and Two-Way Trunks based upon the initial digits received.

A new enumeration "INTRM" is added to the TYPE OF CI CALL field, for an FGB Interim incoming trunk call dialed by the originator as 950XXXX. The enumeration "TRANS" is no longer valid.

2.4 OSPS Translations

For more information on OSPS Translations for Feature Group D, see Division 2, Section 3E.

RSMCAR form (5421 Record) - This form defines the routing indexes to a carrier from an RSM (Remote Switching Module).

The CARRIER ID field is expanded from three to four digits, 0 - 999 for FGD, 0 - 9999 for FGB. A new key field, FEAT GRP, is added to distinguish between an FGB carrier and an FGD carrier.

Existing fields, TRANS CDI and TRANS RTI are renamed as FGB CDI and FGB RTI, respectively.

TREAT form (5461-4 Record) - This form assigns the special and normal SET TIME IDs when the ITNA (Improved Third Number Acceptance) feature is applied to the call.

A new crosscheck for CARRIER refers to CARRIER ID and FEAT GRP on the ICF form.

TPRCC form (5464 Record) - This form defines the countries that DIOR (Direct International Originations) can terminate to.

A modified crosscheck for CARRIER refers to CARRIER ID and FEAT GRP on the ICF form.

TPRNPA form (5465 Record) - This form defines the terminating point restrictions data for a DIOR (Direct International Origination) call with a domestic forward number.

A modified crosscheck for CARRIER refers to CARRIER ID and FEAT GRP on the ICF form.

2.5 Miscellaneous Translations

OFCOPT form (5509 Record) - This form defines various miscellaneous office options and parameters.

A modified crosscheck for CARRIER ID refers to CARRIER ID and FEAT GRP on the ICF form. A new crosscheck for SERV SWITCH PT? refers to FEAT GRP, CARRIER TYPE, NS CDI and NS RTI on the ICF form. A new crosscheck for PSEUDO CARR refers to CARRIER ID and FEAT GRP on the ICF form.

TLWS form (5511 Record) - This form defines each TLWS (Trunk and Line Work Station) associated with a 5ESS Switch.

A modified crosscheck for CARRIER ID refers to CARRIER ID and FEAT GRP on the ICF form.

ROTL form (5512 Record) - The ROTL (Remote Office Test Line) form interfaces with existing CAROT (Centralized Automatic Reporting On Trunks) systems through the DDD Network. This form stores the security call-back telephone numbers of all CAROTS that can access the 5ESS Switch trunks (outgoing and 2-way) in this office, and also defines the maintenance mode of the CAROT.

A modified crosscheck for CARRIER ID refers to CARRIER ID and FEAT GRP on the ICF form.

CTTU form (5518 Record) - This form defines the CTTUs (Central Trunk Test Units), used to test trunks and lines from a remote location.

A modified crosscheck for CARRIER ID refers to CARRIER ID and FEAT GRP on the ICF form.

2.6 Secure Features Translations

CARSCR form (5551 Record) - This form is used by the operating company to assign carrier line screening information to an individual TN or to an MLHG and MLHG member for a particular carrier.

A modified crosscheck for CARRIER ID refers to CARRIER ID, FEAT GRP, and SCDSRNING on the ICF form.

2.7 BRCS Translations

IDPGP form (5601-4 Record) - This form defines the options associated with IDPs (Individualized Dialing Plans).

A modified crosscheck for GPIC refers to CARRIER ID and FEAT GRP on the ICF form.

TODCL form (5610-2 Record) - This form defines the TOD activities that will occur on a particular line, terminal, or trunk group at a specified time.

A modified crosscheck for PARAMETER refers to CARRIER ID and FEAT GRP on the ICF form.

SEC. 1AZ: MESSAGE DETAIL RECORDING ASSIGNMENT TO SIMULATED FACILITIES GROUP FEATURE ENHANCEMENT

1. FEATURE DESCRIPTION

The MDR (Message Detail Recording) Assignment To SFG (Simulated Facilities Group) Feature Enhancement is available for 5E8 and later Software Releases. This feature enhances all versions of the MDR feature on the 5ESS Switch by allowing a craft person to assign the MDR to an SFG on a per group basis. Although SFGs may be used for OUTWATS, INWATS, ESSX, EDSL, CCSA, SDN, Megacom, Megacom 800 and six-port conference, this MDR feature enhancement can only be implemented with SFGs used for OUTWATS.

Currently MDR can only be assigned on a per line or per trunk basis. This can cause MDR to be generated for all calls associated with that line or trunk. This new feature enhancement allows MDR records to be generated only when the user utilizes an SFG. This feature eliminates unnecessary records for a user when only records utilizing SFGs are desired.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PFASFG	5609-3A/B	4	10C	7.3
MDRGP	5624-2	4	25B	24.33

PFASFG form (5609-A/B Record) - This form is used to define SFGs which allow controlling access to physical groups such as lines, trunks and special circuits.

Two new fields, MDR GP and MDR ACT, were added to the PFASFG form (5609-3A Record). The MDR GP field allows the customer to assign an MDR GP on an SFG basis. The MDR ACT field activates the MDR capability.

New crosschecks for MDR GRP refer to SFG TYPE and MDR ACT on the PFASFG form and to ORIG PRIV and INC PRIV on the MDRGP form.

A new crosscheck for MDR ACT refers to MDR ACT and MDR GRP on the PFASFG form.

For more information, please refer to Division 4, Section 10C of the TG-5.

MDRGP form (5624-2 Record) - This form is used to define the group information for MDR.

MDR GROUP STATUS on this form is not applicable to MDR GRP which is assigned SFG TYPE "OUTWATS".

A modified crosscheck for PACKET MDR refers to PACKET MDR on the MDRGP form and MDR GRP on the PFASFG form.

For more information, please refer to Division 4, Section 25B of the TG-5.

SEC. 1BA: SERIES COMPLETION ON ISDN LINES

1. FEATURE DESCRIPTION

Beginning with the 5E6 Software Release, this capability implements Series Completion on BRI (Basic Rate Interface) lines for CSV (Circuit-Switched Voice) calls. The Series Completion feature links DN's in a prearranged order. A call is hunted (series completed) to the next member of a linked list until an idle member is found or until 16 attempts have been made to series complete a call. This feature is not allowed for CSD calls.

Series Completion is similar to Call Forward Busy Line except that each call leg is not billed.

With ISDN, as with analog lines, the feature is assigned per DN (including secondary DN's). A Series Completion Group can consist of all analog lines, all ISDN lines or a mixture of the two. A group can also include Shared DN's.

The Busy Line Precedence List for ISDN BRI lines is the following:

- LASS (Local Area Signaling Service)
- Call Pickup
- CFV (Call Forward Variable)
- ACBC (Automatic Call Back Calling)
- Series Completion
- CFBL (Call Forwarding Busy Line)

The Busy Line Precedence List for analog lines is the following:

- LASS (Local Area Signaling Service)
- Call Pickup
- DCW (Dial Call Waiting)
- CFV (Call Forward Variable)
- ACBC (Automatic Call Back Calling)
- Series Completion
- CWT (Call Waiting Terminating)
- CFBL (Call Forwarding Busy Line)
- CWO (Call Waiting Originating) and Attendant Camp-On

ISDN equivalents to analog call waiting features are not found in the above ISDN precedence list. The ISDN equivalent to CWT is MCA. IPC (Initiated Priority Call) is the ISDN equivalent to analog DCW. OPC (Originating Priority Calling) is the ISDN equivalent to analog CWO.

In all cases, normal call appearances are searched to determine the idle/busy condition. For IPC and OPC calls, priority call appearances are searched. If there are no available call appearances for termination, the called DN is considered busy.

The two types of Series Completion groups are Regular and Circular. In the Regular group, the last member of the list is not marked to series complete. In a Circular group, the last member series completes back to the first member of the group.

NOTE: Series Completion back to a member other than the first member of a group is allowed, but it is considered an irregular configuration which can create timing problems and interfere with the feature's operation.

The length of a linked list is limited only by switch resources.

For calls to an ISDN line on either a BRI or a DSL MDSL (Multiplexed), the called party is considered series completed when all normal call appearances associated with the DN are occupied. Calls to an MDSL should also be considered series completed when both B channels associated with the MDSL where the called DN resides are occupied. Series Completion on both Analog and ISDN lines must only be allowed on the nonhunt DN of MLHG (Multiline Hunt Groups), not on the hunted DN(s) of an MLHG.

The following DNs may not assign this feature: hunted DNs of Multi-Line Hunt Groups, an ISDN default DN, dependent DNs of MDNL (Multiple Directory Numbers per line) with distinctive ringing, all multi-party lines (including two-party), modem pools, Line Time Slot Bridging Lines, coin lines, coinless public lines, intercept lines, trunks, PODS (Plain Old Digital Subscriber) lines. Figure 1 contains a list of line types and classes of service that can be series completed to and series completed from.

2. TRANSLATION REQUIREMENTS

Series Completion must be defined with a 7-digit entry in the SERHLN field on the LINE (5109 Record), MLHLN (5111 Record), DSLUSR (5908 Record) or the SHTN (5902 Record). The SERHLN field on the LINE, MLHLN and SHTN forms has been updated with the 5E6 Software Release to include the CSD call option with the Series Completion feature.

3. ISDN/PACKET SWITCHING TRANSLATIONS

The DSLUSR form (5908 Record) defines the telephone number and status of a DSL (Digital Subscriber Line) user. (DSL is also referred to as a BRI.) This form also defines the CSD attributes for a DSL user. The SERHLN field has been added to DSLUSR with the Series Completion capability. SERHLN defines the 7-digit telephone number (NXXXXXX) to be hunted to.

SERHLN has also been added to the SHTN form (5902 Record) to define a 7-digit telephone number hunted to a shared TN number (i.e., a number that appears on more than one terminal).

The no-display field BCK LNK has been added to both DSLUSR and SHTN for commonality with Recent Change and Verify.

Type of Line/Service Class	Series Complete Form	Series Complete To
INDIV	YES	YES
Analog Nohynt DN of MLHG	YES	YES
911	YES	Only to 911
PBX	YES	YES
Analog Non-Dedicated PVN	YES	YES
Analog LTSB	NO	YES
Analog Multi-Party	NO	YES

Analog Hunted DN of MLHG	NO	YES
Analog Intercept	NO	NO
Analog Coin Line	NO	NO
Analog Charge Call	NO	NO
Analog PVN Dedicated, Direct	NO	NO
Connect/Remote Access		
Analog Dependent DN of MDN/MDNL	NO	NO
Analog Modem Pool	NO	NO
ISDN	YES	YES
ISDN Shared/Unshared Primary	YES	YES
ISDN Shared/Unshared Secondary	YES	YES
ISATND (Nohunt DN of MLHG)	YES	YES
ISDN Non-Dedicated PVN	YES	YES
ISDN Hunted DN of MLHG	NO	YES
ISDN Modem Pool	NO	NO
ISDN PODS	NO	NO
ISDN Default DN	NO	NO
ISDN PVN Dedicated, Direct	NO	NO
Connect/Remote Access		
ISDN Intercept	NO	NO
*TN not Associated with OE	NO	YES

Note: Analog or ISDN Circuit TN not associated to the port cannot have Series Completion

Figure 1 LINE ASSIGNMENTS AND CLASS OF SERVICE ALLOWING SERIES COMPLETION

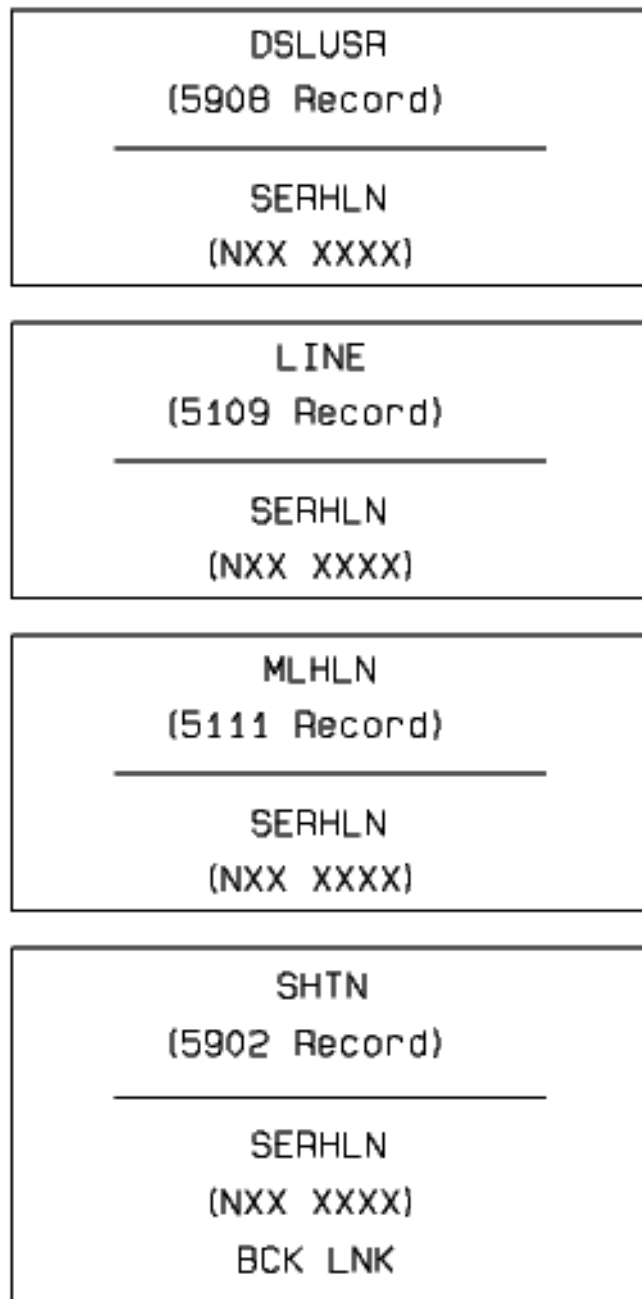


Figure 2 SERIES COMPLETION FEATURE FORM FLOW

SEC. 1BB: CSD QUEUING

1. FEATURE DESCRIPTION

The CSD (Circuit Switched Data) Queuing capability automatically queues CSD calls to a CSD MLHG when all the members of the hunt group are busy. This feature is available with the 5E6 and later Software Releases.

For CSD calls that are end-to-end Q.931 signaling (i.e., BRI or CCS7 trunks), the originator of the call is informed via Q.931 signaling that the call is being queued. If the call is not end-to-end Q.931 signaling, the calling party is informed via in-band signaling.

The CSD Queuing capability can also display the status of an MLHG queue on supervisor consoles (or DSL monitors) with display capabilities. A DSL monitor is any ISDN terminal that can request or display the status of CSD calls in an MLHG queue. It may or may not be an ISDN Attendant console. It can be a non-MLHG console.

A DSL monitor can monitor up to eight MLHG queues. MLHGs to be monitored can be analog or ISDN, voice or CSD. ISDN Attendant MLHGs cannot be monitored. Each MLHG can be monitored by three separate DSL monitors.

A DSL monitor contains a separate QSFB (Queue Status Feature Button) for each MLHG monitored. The QSFB is used to request or display the status for a particular MLHG queue.

A DSL monitor can have from one to eight QSFBs. Each QSFB is associated with a QTWL (Queue Threshold Warning Lamp). When the number of calls queued for an MLHG exceeds a preset threshold, the QTWLs are lit on all consoles monitoring this MLHG. The QTWL only indicates that the queue threshold has been exceeded. It does not indicate how long the calls have been queued.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLQMON	5904	5	1E	23.17
QUFD	5617-1/2	4	18A	12.40
QUGPA	5617-3/4	4	18B	3.40
CFGGRP	5964	6	7A	12.5

Figure 1, "ODP and IDP Action Requirements", on the BRCS form (Div. 2, Sec. 1F) has defined eight new ACTIONS for the CSD Queuing Feature. The entries in "ODP and IDP Action Requirements" are the ACTIONS used for IDPs, ODPs, and Feature Buttons. The new entries LQxDISP, where x represents the numbers 1 through 8, correspond to the MLHGLIST elements 1 through 8 entered on the DSLQMON form (5904 Record). LQxDISP indicates whether the status of MLHGLIST 1 through MLHGLIST 8 can be requested and displayed on a DSL queue monitor. As "ODP and IDP Action Requirements" indicates, CSD Queuing cannot be used in ODP and IDP.

2.1 ISDN/PACKET SWITCHING TRANSLATIONS

DSLQMON form (5904 Record)- has been added for 5E6 and later Software Releases to map queue monitor information. The form contains a list of MLHGs that are to be monitored. Other fields are DSLQMON telephone number, the MLHG number and the MLHG terminal number.

2.2 BRCS TRANSLATIONS

QUFD form (5617-1/2 Record) - provides queuing for calls attempting to terminate to the listed Directory Number of a MLHG when all members are busy. The "CSD" option has been added for 5E6 and later Software Releases to the QUEUE TYPE field to indicate queuing of CSD calls.

Also added to the QUFD form for 5E6 and later Software Releases is the field QMON THRESHOLD. An entry of 1 to 255 in this field determines the limit for the QTWL. When the number of calls in the queue is greater than the entry in QMON THRESHOLD, the QTWL on the console monitoring a particular MLHG is lit.

QUGPA form (5617-3/4 Record) - contains the Modular Queuing parameters for an MLHG when the default parameters on the QUFD form are inappropriate or unspecified. The QUGPA form has also added the QMON THRESHOLD field for 5E6 and later Software Releases to determine the limit of calls queued before the QTWL is lit.

2.3 ISDN BRCS TRANSLATIONS

CFGGRP form (5964 Record) - has added the ACTIONs LQxDISP (where x is 1 through 8) for 5E6 and later Software Releases to represent the Display Status of MLHG Queues 1 through 8 on the DSLQMON form. When a feature button associated with a particular action is pressed, the queue status data associated with its MLHG is displayed.

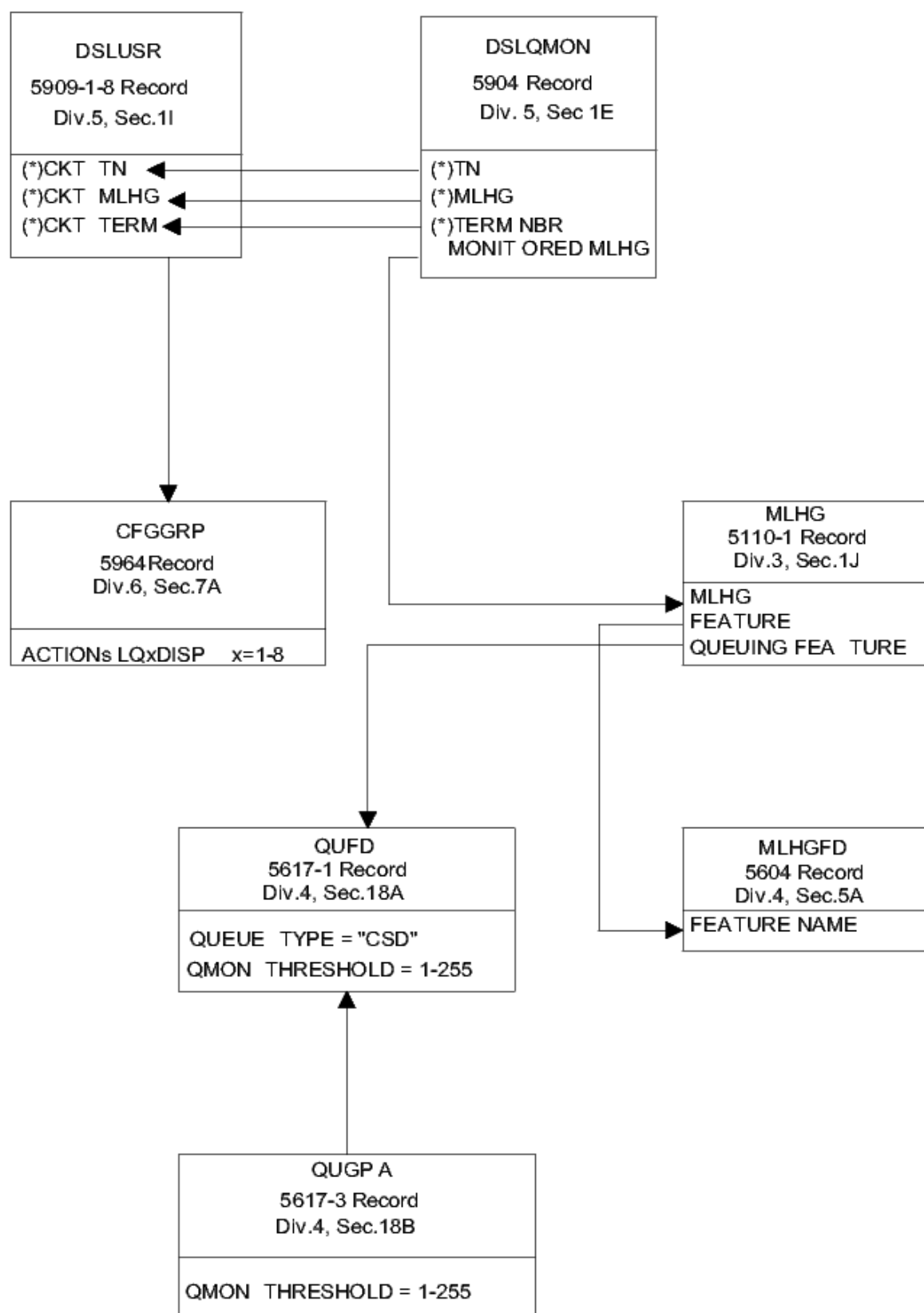


Figure 1 CSD QUEUING FEATURE FORM FLOW

SEC. 1BC: ISDN CSD CALL FORWARDING HUNT GROUP

1. FEATURE DESCRIPTION

With the 5E6 and later Software Releases, the Call Forwarding feature is available for CSD (Circuit-Switched Data) subscribers with ISDN BRI (Basic Rate Interface). This capability includes the ISDN CSD Call Forwarding feature and CSD Hunt Group Transfer feature.

The following individual features are covered:

- Call Forwarding Variable
- Call Forwarding Incoming Only
- Call Forwarding within a Group Only
- Call Forwarding Busy Line
- Call Forwarding Busy Line Incoming Only
- Call Forwarding Don't Answer All Calls with Variable Timing
- Call Forwarding Don't Answer Incoming Only

The Hunt Group Transfer Feature can be activated through the CF features on the CSD hunt group. The CF features listed above can be assigned to a CSD MLHG.

2. TRANSLATION REQUIREMENTS

The CFWFD (Call Forwarding Feature Definition) form is used to select the options used in call forwarding. The FWD CONDITION field on this form has added the following enumerations:

- DBSY - Forward a CSD call when Busy
- DIDL - Forward a CSD call when Idle
- DBTH - Forward a CSD call when Busy or Idle

SEC. 1BD: ENHANCED 911 EMERGENCY SERVICE

1. FEATURE DESCRIPTION

1.1 E911 Overview

The Enhanced 911 feature, available for 5E7 and later Software Releases, provides feature transparency with E911 service offered on the 1/1A ESS Switch. E911 connects a caller who dials 911, or another number designated to receive 911 treatment, to an emergency service bureau. In addition, E911 offers the following features.

It eliminates the problem of telephone office boundaries not coinciding with municipal boundaries by allowing 911 calls originated from a station in a particular district (town, zone, etc.) to be routed to the primary PSAP (Public Safety Answering Point) designated to serve that district.

It provides for display of the calling telephone number at the PSAP attendant's position, and it allows the attendant to selectively transfer the call to one of six secondary PSAPs based upon the caller's location.

E911 is a secured feature and must be turned on by a Lucent Technologies SEE (System Equipment Engineer) before the feature can be fully provisioned. (See Feature Assignment.)

NOTE: When the call goes out over an SS7 ISUP trunk, (e.g., to the tandem) population of the Calling Party Number parameter is covered by the following: When the PBX Calling ID feature (for information on this feature (99-5E-7431), see Division 2, Section 4A550) is enabled, using SFID 550, and a call is originated from a Private Facility trunk (PF, PFLASH, PFITT) with a non-blank MAIN DN, and the call is routed out of the switch on an outgoing SS7 trunk, a Calling Party Number parameter is included in the outgoing IAM message with the MAIN DN coded in the Address signal subfield. For more complete information, see the *LASS Feature Document 235-190-130*.

1.2 E911 Network Architecture

A 5ESS Switch provisioned with the E911 feature (Figure 1) can serve as a local office for 911 calls from its own lines and as an E911 tandem office for 911 calls from other local offices (called subtending end offices) in the 911 service area. The switch routes calls to one or more PSAPs and may optionally support an attached ESA (E911 Service Adjunct) processor.

NOTE: The term "tandem" is used in this section to indicate an office's function as a "control office" for E911 calls.

PSAP (Public Safety Answering Point)

A PSAP is a location (or equipment at a location) where emergency attendants receive 911 calls. Since calls may require one or more public services, the attendant has the ability to transfer calls to a secondary PSAP, e.g., police, fire, or ambulance.

ESA (E911 Service Adjunct)

The 5ESS Switch can provide E911 service with or without an ESA processor. If the E911 tandem office will route 911 calls based on the callers' telephone numbers, i.e., by selective routing, then an ESA is required.

When selective routing is not necessary, e.g., when telephone office and municipal boundaries coincide, proper routing can be determined by the trunk group or dialing plan.

1.3 E911 Service Area Example

As an example of E911 service, suppose the service area consists of two towns, Town A and Town B (Figure 2). 911 calls that originate from these towns are routed to one PSAP where attendants speak with the caller, determine the type of service required, and transfer the call to the appropriate destination, i.e., police department, fire department, etc. Attendants in this example transfer the calls with the selective transfer option of the E911 feature.

When the PSAP is busy, calls are routed to the local police department, i.e., calls originated from Town A are routed to Police Department A, and calls originated from Town B are routed to Police Department B.

Each town has its own police and fire department, but Town A is divided into two fire districts served by separate stations. Both towns are served by the same ambulance service.

As shown in the diagram in Figure 2, the 911 service area is divided into three ESZs (Emergency Service Zones), each defined by a specific set of service providers for the zone. In this example, each ESZ is represented in data by an ESN (Emergency Service Number) which translates to the primary PSAP, an alternate PSAP (the local police department), and three selective transfer locations (police, fire, and ambulance).

If a customer in Emergency Service Zone 2 dials 911, (s)he is connected to an E911 attendant at the PSAP. If the customer reports a fire, the attendant activates the "Fire" button on the console, automatically transferring the caller to Fire Department A2 in Town A. With the selective transfer option, the attendant does not need to determine the town or fire district from which the customer is calling.

1.4 E911 Routing Features

The E911 feature includes several methods for routing to a PSAP: selective and non-selective routing, alternate routing, default routing, and stand-alone routing.

Selective Routing: The term "selective routing" refers to the E911 tandem office capability to route a 911 call based, not on the dialed digits, but on the ANI of the calling station. From the caller's ANI, the switch determines the Emergency Service Zone where the call originated and routes the call to the primary PSAP for that zone.

For Selective Routing, the ANI to ESN translations are stored in the ESA. The ANI information received over a trunk, or the billing number associated with a line, is sent as a ten-digit ANI to the ESA which returns the corresponding ESN. The call is routed to the primary PSAP associated with the ESN. If the call cannot be completed to the primary PSAP, it is routed to an alternate location. If Selective Routing is specified, but the ANI is unavailable or the ESA query fails, the call is routed to a default location.

Non-Selective Routing: For Non-Selective (Non-ESA) Routing, the ESN is determined from the trunk group or dialing plan. The 5ESS Switch is either not equipped with an ESA, or if equipped with an ESA, the ESCO (Emergency Service Central Office) associated with the originating trunk group or line (dialing plan) indicates that selective routing is not to be applied to the 911 call.

Alternate Routing: Alternate Routing is a standard service available for each PSAP. It provides the capability for a traffic-busy PSAP, a PSAP on night duty, or a PSAP experiencing a power failure to have 911 calls routed to a predesignated location.

If a PSAP trunk group is assigned a call forwarding option (see the RERTE TN field on the TKGRP form), that routing option takes precedence over alternate routing. If the call forwarding option does not apply, or if its corresponding PSAP is busy, then the 911 call is routed using the alternate route and backup alternate route

DNs from the ESN form (5540 Record).

When a 911 call is routed to an alternate location, the NPD (Numbering Plan Digit) and ANI are flashed on the PSAP display.

Default Routing: Default Routing provides the capability to automatically route a 911 call to a predesignated (default) PSAP, or some other location, when selective routing fails because the ANI is unavailable or garbled, the ESA is inaccessible, or the ESA returns an invalid ESN value.

For E911 calls that originate in other offices, a default ESN assignment is associated with the incoming trunk group or the dialing plan. For line originations, the default ESNs are associated with the dialing plan.

When a 911 call is routed to a default location, the NPD and ANI are flashed on the PSAP display.

Stand-Alone Routing: The switch provides standalone routing when an E911 caller is served by an SM (Switching Module) that is unable to communicate with the CMP (Communication Module Processor). Since ESN routing data is stored on the CMP, an SM operating in stand-alone mode or failing to communicate with the CMP, is unable to obtain the appropriate ESN to route the call. In this case, the switch routes the call to the primary PSAP specified in the stand-alone routing data stored in the SM.

Stand-alone routing is also used when an ESCO cannot be derived from the calling station.

When a 911 call is routed using stand-alone data, the NPD and ANI are flashed on the PSAP display.

1.5 E911 Transfer Features

When an E911 attendant must transfer a call to another location (a secondary PSAP), the attendant may have up to three options: selective transfer, fixed transfer, and manual transfer.

Selective and fixed transfer are dependent upon the configuration of CAMA PSAP equipment at the attendant's location. They require that the PSAP transmit specific codes to the E911 tandem switch. The switch translates the codes through the IDP or ODP associated with the PSAP trunk group.

The format of the codes is normally "*XY", where an asterisk is followed by two digits, X and Y. In selective transfer codes, X is usually 1, and Y is a value from 1 - 6. In fixed transfer codes, X is normally 2 and Y is 0 - 9.

Selective Transfer: Selective Transfer is a feature which allows a PSAP attendant to transfer a 911 call to the correct secondary PSAP without the primary PSAP attendant having to determine and manually dial the digits for the correct destination. Each attendant may have up to six selective transfer keys labeled with types of emergency service, e.g., police, fire, etc.

To initiate a selective transfer, the attendant operates a key for the type of secondary PSAP desired (e.g., Fire). The E911 tandem office automatically determines the specific secondary PSAP to serve the calling station (e.g., Fire Department B) and selectively transfers the 911 call to that secondary PSAP.

The 5ESS Switch transfers the call to the correct PSAP location based on the access code (*1X, where X is 1 - 6) sent by the PSAP and transfer information contained in the ESN form. Up to six Selective Transfer points may be identified in the ESN form.

Fixed Transfer: Fixed Transfer is a feature which allows a PSAP attendant to transfer a 911 call to a specific PSAP location by operating a single key. The attendant determines the destination and operates the key associated with that (fixed) destination.

For example, if the caller requests Ambulance Service A, the attendant can operate a key that automatically transfers calls to Ambulance Service A.

This feature requires the primary PSAP to send an appropriate dial code (*2X) to request routing to the desired secondary PSAP. The Fixed Transfer dial codes must be translated on the E911 tandem switch through a two-digit Speed Calling feature or an IDP (Individual Dialing Plan) assigned to the PSAP trunk.

Manual Transfer: The Manual Dial Transfer capability allows the PSAP attendant to determine the specific destination desired and manually dial the directory number of the destination or the associated speed calling code if one exists.

1.6 E911 ANI Display Features

ANI Display

When the switch routes a 911 call to an E911 CAMA PSAP, it transmits an 8-digit ANI in the format NPD-NXX-XXXX. The NPD (Numbering Plan Digit) and directory number are displayed at the attendant position. The NPD, a 1-digit number associated with an NPA, allows the E911 attendant to identify the NPA of the 911 caller when the PSAP serves multiple NPAs.

Flash Calling Display

Flash Calling Display causes the 911 Calling Party Number to be flashed at the attendant position. This feature indicates to the PSAP attendant that the 911 call may require special attention or handling. When a 911 call is routed to an alternate or default location, or is routed using SM stand-alone data, the calling party number is flashed. Also, calls that may require special attention, such as those from hospitals, chemical plants, or schools, may be assigned an ESN that has the Flash Calling Display option activated.

1.7 E911 Translations Testing - 5E8 and Later Software Releases

The E911 feature can be provisioned in a test configuration that permits telephone company personnel to test E911 routing without disrupting the handling of live 911 calls. During the test period, B911 (Basic 911) translations are left in place, and 911 calls translate to call type "EMER" in the ODP (Office Dialing Plan).

Test digits other than 911 must be assigned on the digit analysis forms (PDIT or LDIT) with a CALL TYPE of "EMER" and with a TRIG NBR that matches the TRIG NBR specified in the NSTRIG form (5324 Record) to identify E911 calls.

After the test period is completed, the switch can be cut over to E911 processing by modifying the digit analysis forms for the 911 (or other specified) digits. The CALL TYPE must be "EMER", and the TRIG NBR field must be set to the TRIG NBR specified in the NSTRIG form.

2. FEATURE ASSIGNMENT

Because the E911 translations for a tandem office are complex, this "FEATURE ASSIGNMENT" section presents the translations functionally (as shown in Figure 5). The next section, "TRANSLATION REQUIREMENTS", discusses each field added or modified for the E911 feature. It presents the forms alphabetically and may be used as a reference.

NOTE: Some form tables in the following section show field values in parentheses. These values are sample data meant to show relationships between forms. Actual data will be determined by the switch owners.

2.1 E911 Office Data Translations

For each E911 tandem office, the feature must be unlocked, the ESA or non-ESA option specified, E911 call limits established, and the 911 timing delay defined.

E911 Feature Lock

E911 is a Secured Feature which may be turned on through Recent Change or ODA. In ODA the feature must be activated by a Lucent Technologies SEE who, after verifying that the E911 feature has been purchased for the office, sets FEATURE ID 61 to "S" on the SFSYS form (5713 Record). For more information about activating Secured Features, see Division 2, Section 4A.

SFSYS Form	
Field	Value
FEATURE ID (61)	"S"

ESA Option

If the E911 tandem has an attached ESA processor, the E911 OPTION field must be set to "ESA" on the OFCOPT form (5509 Record), and the DSL link that connects the switch with the ESA must be defined on a DSLAP form.

OFCOPT Form	
Field	Value
E911 OPTION	"ESA"

DSLAP Form	
Field	Value
E911 SITE	"Y"
ALARM	"Y"

Non-ESA Option

If the E911 tandem does not have an attached ESA processor, the E911 OPTION field must be set to "NONESA" on the OFCOPT form.

OFCOPT Form	
Field	Value
E911 OPTION	"NONESA"

E911 Call Limits

To prevent 911 facilities from being flooded by an influx of calls from one area, call limits are established to control the number of 911 calls accepted from any one source. The process for enforcing these call limits is called "choking".

Calls over a dedicated E911 trunk group are automatically choked by the size of the trunk group. When all trunks are in use, no additional calls can be sent over the trunk group until one of the trunks becomes available. The maximum load of 911 calls delivered from subtending end offices to the E911 tandem over dedicated trunks depends on the engineering of those trunk groups for the E911 service area.

Calls originating from lines in the E911 office and from non-dedicated trunk groups must be choked at the tandem by simulated facility groups. These sources are controlled separately by SFGs specified on the OFCOPT form and defined on the PFASFG form (5609-3 Record).

The E911 LN SFG field on the OFCOPT form specifies an SFG that limits the number of 911 calls originated in the office. If a call is placed on a line or on a PBX trunk (E911 TYPE set to "PBXNONDED" on the TKGRP

form (5202 Record)), it is subject to the call limit specified in the SFG SIZE field on the PFASFG form. When the maximum number of calls are active, the caller receives reorder treatment. Additional 911 calls from within the office cannot be completed to an E911 facility until one of the active calls terminates.

Similarly, the E911 TRK SFG field on the OFCOPT form specifies an SFG that limits the number of E911 calls originated from trunk groups with E911 TYPE "NONDED". It restricts the calls from all non-dedicated E911 trunks in the office.

OFCOPT Form	
Field	Value
E911 LN SFG	(52)
E911 TRK SFG	(53)

PFASFG Forms		
Field	Value	Value
SFG NBR	(52)	(53)
SFG TYPE	E911LNE	E911TRK
SFG SIZE	1 - 511	1 - 511

911 Timing Delay

The 911 TIMING DELAY field controls interdigital timing performed after a Basic 911 or E911 call is detected on an originating line. The field may be set to 0 - 3 seconds. If the timing delay is 1, the switch will wait 1 to 2 seconds before processing the call; if 2, 2 to 3 seconds; if 3, 3 to 4 seconds.

When TIMING DELAY is 0, the switch does no timing after the digits 911 (or equivalent) are collected and the emergency service call is recognized. Processing of the call proceeds immediately.

When TIMING DELAY is other than 0, the switch will delay for the period indicated by the field value, waiting for additional digits to be dialed. If no digits are dialed and the timing period ends, processing of the emergency service call continues. If an additional digit is dialed during the timing period, the call is routed to reorder tone.

The 911 delay field is intended to distinguish true emergency service calls from calls that are dialed in error. For example, a caller wishing to dial the 914 area misdials the numbers as 911-555-1212. With a 911 timing delay the caller's error will be detected.

- **WARNING:** This delay should be used with caution. Delay timing can cause legitimate emergency service calls to be routed to reorder, for example, when the caller dials 9111 in the anxiety of the moment. The service provider must carefully consider whether the 911 delay capability should be used.

OFCOPT Form	
Field	Value
911 TIMING DELAY	0 - 3

2.2 PSAP Trunk Translations

Trunks that connect the E911 tandem switch to PSAP locations must be defined and assigned features according to standard trunk provisioning procedures. A special tone must be defined for the PSAP trunks.

2.2.1 PSAP Trunk Provisioning

PSAP trunks, like other trunks on the 5ESS Switch, must be defined on the TKGRP and TRUNK forms. This section discusses fields that apply specifically to the E911 feature; for explanations of other fields generally used for trunks, see the TG-5 sections for the appropriate forms.

The TRK DIR, TRKCLS, INPUTSING, OUTPUTSING, E911 TYPE, and CAMA PSAP fields must be defined according to the TKGRP Form table which follows.

TKGRP Form	
Field	Value
TRK DIR	"2W"
TRKCLS	"PFLASH"
INPUTSING	"TT"
OUTPUTSING	"MF"
BILLING DN	Should be entered
MAKE BUSY KEY	(Optional)
E911 TYPE	"NONDED"
CAMA PSAP	"Y"
PSAP RERTE TN	(Optional)
RERTE ACT	Y/N
WINK START	16 (Recommended)
ABND TIMER	18 (Recommended)

A Telephone Number must be entered in the BILLING DN field if PSAP-originated (e.g., transferred) calls routed through an IDP are to be properly billed.

The MAKE BUSY KEY, PSAP RERTE TN, and RERTE ACT fields determine whether or not call forwarding options will be assigned to the PSAP trunk group. Three options are available.

- Night service and/or power failure call forwarding only. This feature forwards calls to the RERTE TN only if a scan point specified in the MAKE BUSY KEY is activated due to night service or a PSAP power failure. To provision this feature a 7- or 10-digit telephone number must be entered in the RERTE TN field, a scan point number must be entered in the MAKE BUSY KEY field, and RERTE ACT must be "N".
- Traffic-busy forwarding only. This feature forwards calls to the RERTE TN only if the PSAP is traffic-busy. To provision this feature, a 7- or 10-digit telephone number must be entered in the RERTE TN field, the MAKE BUSY KEY field must be blank, and RERTE ACT must be "Y".
- Night service/power failure and traffic-busy forwarding. This feature forwards calls to the RERTE TN if either the scan point specified in the MAKE BUSY KEY is activated (night service or power failure), or the PSAP is traffic-busy. To provision this feature a 7- or 10-digit telephone number must be entered in the RERTE TN field, a scan point number must be entered in the MAKE BUSY KEY field, and RERTE ACT must be "Y".

Individual trunks within PSAP trunk groups must have IDLE STATE, IN START DIAL, and OUT START DIAL fields specified as shown in the following TRUNK Form table.

TRUNK Form	
Field	Value
IDLE STATE	"ON"
IN START DIAL	"DLTN"
OUT START DIAL	"WINK"

If an Automatic Trunk Test Table number is entered in the ATTTN field of the TKGRP form, it must be defined on an AUTO form (5505-1/2 Record) with the following values.

AUTO Form	
Field	Value
AUTOMATIC PROGRESSION TEST TYPE	"PB"
PERMANENT BUSY	8

2.2.2 BRCS Feature Assignment

PSAP trunks may be assigned any or all of the following BRCS features: Multiway Calling, Individualized Dialing Plan, and Speed Calling. Features may be assigned via TRUNKFA, TKGRPFA, or associated CLUSTR forms.

Multiway Calling Feature: A multiway calling feature must be assigned to PSAP trunks for attendants to transfer calls. The feature must have the auto-threeway option, e.g., the preconstructed feature /MWMFE.

Individualized Dialing Plan Feature: If an IDP (Individualized Dialing Plan) feature is assigned to PSAP trunks, it must be capable of translating selective and fixed transfer codes sent from the PSAP, as well as digits dialed by the attendant for manual transfers. These may include telephone numbers and speed call codes. If the PSAP trunk group is not assigned an IDP feature, these codes and numbers must be translated through the ODP (Office Dialing Plan).

Each selective transfer code of the form "**1X" (where X is 1 - 6) must be assigned an ACTION of SELnXFER, where n is 1 - 6 and maps to the corresponding selective transfer TNn (n is 1 - 6) on the ESN forms of 911 callers.

Fixed transfer codes are of the form "**2X", where X is 0 - 9, and 2X is a speed call code. The IDP must recognize the fixed transfer "**2X" codes by assigning them an ACTION of "AD2USE".

Speed Calling Feature: A 2-digit speed calling feature must be assigned to PSAP trunks if the attendants have fixed transfer keys. Otherwise, it is optional. If an SC feature is assigned, the PSAP may send the fixed transfer "**2X" codes, and the attendant may manually dial these and additional speed calling codes (*2X, *3X, *4X). All codes must be translated through the dialing plan, IDP or ODP, associated with the PSAP trunk.

2.2.3 Tone Definition

When an E911 attendant attempts a selective transfer for which no TN is defined on the caller's ESN form, the switch returns a 120 ipm (interruptions per minute) tone. This tone must be defined on the TNTYPE form (5504 Record) with TONE TYPE set to "HIGH120" and TIMED set to "N".

TNTYPE Form	
Field	Value
TONE TYPE	"HIGH120"
TIMED?	"N"

2.3 E911 Incoming Trunk Translations

A subtending end office delivers 911 calls to the tandem office over dedicated or non-dedicated E911 trunks. If the trunk carries traffic other than 911 calls, it is considered a "non-dedicated" trunk. If it carries only 911 calls, and terminal maintenance test calls, it is a "dedicated" trunk.

All incoming trunks and trunk groups must be defined with standard trunk translations. Only fields specific to E911 call handling are discussed in the following sections.

Dedicated E911 Incoming Trunks

A dedicated trunk group is defined on the TKGRP form with E911 TYPE set to "DED", "DIRANI", or "DIRNOANI".

Dedicated trunks from subtending end offices must be capable of delivering ANI to the E911 office if the ESA selective routing feature is to be used. When E911 TYPE is "DED", TRKCLS must be "CAMAANI", "LTOLLCON", or "TTOLLCON". If TRKCLS is "LTOLLCON" or "TTOLLCON", INPULSING must be "ISUP7".

Dedicated E911 trunk groups that originate from Step-by-Step offices consist of direct connect trunks with E911 TYPE "DIRANI" or "DIRNOANI". If the trunks transmit the caller's ANI, the E911 TYPE is "DIRANI"; if they do not carry ANI, the type is "DIRNOANI". Both types of trunk groups must have TRKCLS "CAMAANI". Trunk group members typically have IN START DIAL set to "IMMED" on the TRUNK form; they may not have INSTART DIAL set to "DIRC".

All dedicated trunk groups must be incoming only (TRK DIR "INC"), and must be assigned a valid ESCO that is defined on an ESCO form.

- **NOTE:** If the end office serves two NPAs, two dedicated E911 trunk groups must be used because the ESCO, assigned on a per trunk group basis in the E911 tandem office, determines the NPD.

TKGRP Form	
Field	Value
E911 TYPE	"1ANPD", "DED", "DIRANI", "DIRNOANI", "NONDED", "PBXNONDED", "TNDM TNDM".
TRK DIR	"INC"
TRKCLS	Note 1
INPULSING	Note 2
ORIG NPA	Note 3
OFFCODE	Note 3
ESCO	Must be entered

- **NOTE:** 1:If the trunk group is direct connect (E911 TYPE is "DIRANI" or "DIRNOANI"), TRKCLS must be "CAMAANI"; otherwise, if the trunk group is dedicated (E911 TYPE is "DED"), TRKCLS must be "CAMAANI", "LTOLLCON", or "TTOLLCON".

- **NOTE:** 2:If TRKCLS is "LTOLLCON" or "TTOLLCON", INPULSING must be "ISUP7".

- **NOTE:** 3:If TRKCLS is "CAMAANI", values must be entered in the ORIG NPA and OFFCODE 1 fields; the ORIG NPA is sent to the ESA in the query for the ESN.

Non-Dedicated E911 Incoming Trunks

A non-dedicated trunk group is defined on the TKGRP form with E911 TYPE set to "NONDED" or "PBXNONDED".

TKGRP Form	
Field	Value
E911 TYPE	"NONDED" or "PBXNONDED"
E911 CPN	Y/N
ESCO	(Optional) See Warning 1 below.
DAS	(5)

If the trunk group has TRKCLS "EDSL" or "EDSLHM", the E911 CPN field applies. It must be set to "Y" if the calling party number, rather than the trunk billing number, is to be used for ESA queries.

Two methods are possible for obtaining the ESCO for 911 calls via non-dedicated trunks. The ESCO is obtained from either the TKGRP form or from the DAS form. If the TKGRP ESCO number is entered, then that ESCO is used for routing. Otherwise, if the TKGRP ESCO is not entered, the ESCO obtained from the DAS form is used.

- **NOTE:** However, if the Wireless E911 feature (SFID 298) is active, the TKGRP ESCO number must be entered for incoming ISUP7 trunk groups that carry wireless E911 traffic.

DAS Form	
Field	Value
DIGIT ANALYSIS SELECTOR	(5)

ESCO	(Optional) See Warning 1 below.

- **WARNING: 1:**The ODA software does not require that an ESCO be specified on the TKGRP or DAS form for every non-dedicated trunk group in an E911 tandem office. If an ESCO is not assigned to a 911 call via one of these forms, the call is routed using the SM stand-alone data for the SM on which the call originates. See Figure 3 .

Non-dedicated trunks are provisioned on TRUNK forms according to standard procedures.

2.4 E911 Tandem Office Local 911 Calls

When a 911 call originates from a line in the E911 tandem office, the DAS form determines the ESCO for the caller. If the office serves two or more NPAs, separate DAS forms must be defined to yield a different ESCO for each NPA.

DAS Form	
Field	Value
ESCO	Should be entered. See Warning 2 below.

- **WARNING: 2:**The ODA software does not verify that an ESCO is assigned on a DAS form for every voice line in an E911 office. If the switch cannot associate an ESCO with a 911 call via a DAS form, it routes the call using SM stand-alone data for the SM on which the call originates. See Figure 3 .

2.5 9-1-1 Digit Analysis Translations - 5E8 and Later Software Releases

The digits dialed by the 911 caller or sent to the E911 tandem office from a subtending end office must be translated on a PDIT form (5300-2 Record) or LDIT form (5300-3/5 Record). The switch recognizes an E911 call when either it arrives at the switch on an E911 direct connect trunk, or the analyzed digits are translated on a PDIT or LDIT form with a CALL TYPE of "EMER" and a value entered in the TRIG NBR field. An INDIT form that translates 911 digits from a trunk must have the LDIT field set to "Y".

The TRIG NBR on the PDIT or LDIT form matches a TRIG NBR defined on an NSTRIG form that has APPLICATION set to "E911".

PDIT (or LDIT) Form	
Field	Value
DIGITS TO INTERPRET (INCOMING DIGITS)	911 (See Note below this table.)
CALL TYPE	"EMER"
TRIG NBR	(7)

- **NOTE:** If digits 1 or 11 are expected on E911 dedicated incoming trunks, they must be translated in the INCOMING DIGITS field of the LDIT form.

NSTRIG Form	
Field	Value
TRIG NBR	(7)
APPLICATION	"E911"

2.6 PSAP Routing Translations

Since E911 calls are routed based, not on digits dialed, but on the location of the calling party, translations are required to determine the PSAP to which the call will be routed. (See Figure 3 .)

ESCO Translations

The ESCO from the TKGRP or DAS form determines whether or not the 911 call will be selectively routed (based on the ANI of the caller). It also associates a default ESN and an NPD with the 911 caller.

When selective routing is required, the SEL RT field on the ESCO form must be set to "Y"; then the caller's ANI is used to query the ESA for the ESN. If the ANI is garbled or the ESA query fails, the default ESN from the ESCO form is used.

If selective routing is not required, SEL RT must be "N"; then the default ESN is used. If an end office does not send ANI or does not require selective routing, the ESCO for that office may have SEL RT set to "N".

The NPD field is a 1-digit field that can be set to a value from 0 - 3. Since an E911 service area may serve multiple NPAs, the NPD indicates the NPA from which a 911 call originated. The switch sends the CAMA PSAP eight digits, which consist of the NPD from the ESCO form followed by the caller's ANI.

ESCO Form	
Field	Value
ESCO	(001)
ESN	(005)
NPD	(0)
SEL RT	Y/N

ESN Translations

The ESN, obtained from an ESA query or from the ESCO form, translates to a primary PSAP TN, one or two alternate PSAP TNs, and a list of selective transfer TNs. It also determines if calls from the ESN should be flashed at the attendant console.

The primary PSAP is the initial answering point for a 911 call.

The primary PSAP or subsequent answering points (secondary PSAPs) can generate a selective transfer code that is translated in digit analysis to an action code that indexes the selective transfer list.

If a PSAP provides ANI display, the FLASH field on the ESN form determines whether or not the ANI display should be flashed to alert the attendant for special 911 call situations. If only some customers within an Emergency Service Zone, e.g., lines from a chemical factory, require the Flash Calling Display option, they must have a different ESN than other customers in the ESZ.

ESN Form	
Field	Value
ESN	(005)
FLASH	Y/N
PRIM PSAP	(911-2345)
ALT1 PSAP	(911-4215)
ALT2 PSAP	(Optional)
TN1	(Optional)
TN2	(Optional)
TN3	(Optional)
TN4	(Optional)
TN5	(Optional)
TN6	(Optional)

SM Stand-Alone Translations

ESN processing is performed on the 5ESS Switch CMP (Communications Module Processor). When an SM is unable to communicate with the CMP, or when an ESCO cannot be associated with the 911 call (its data is not available to send to the CMP), the ESN and its accompanying routing and selective transfer information is

inaccessible. Stand-alone data establishes a set of routing and selective transfer numbers the SM uses for these cases.

One stand-alone ESN form must be defined for each SM. These required forms must have only the SM number as a key field; the DAS field must be blank.

If more than one set of emergency stand-alone numbers is required for 911 calls on an SM, distinctions can be made through the DAS associated with the caller. Additional ESN forms can be defined with SM and DAS as keys. In this way, multiple 911 calling areas can be routed to different emergency numbers.

When a 911 call requires stand-alone routing on an SM, the operational software looks first for an ESN form with the SM and DAS. If the form does not exist, it uses the ESN form for the SM (with a blank DAS).

When a 911 call is routed using SM stand-alone data, the caller's NPD and ANI are always flashed on the E911 attendant console at a CAMA PSAP. The flash indicates to the attendant that the call may require special attention — in this case because it was routed with stand-alone data.

ESN Form (Required for each SM)	
Field	Value
SM	(001)
PRIM PSAP	(452-7791)
ALT1 PSAP	(654-1278)
ALT2 PSAP	(Optional)
TN1	(Optional)
TN2	(Optional)
TN3	(Optional)
TN4	(Optional)
TN5	(Optional)
TN6	(Optional)

ESN Form (Optional for SMs)	
Field	Value
SM	(001)
DAS	(02)
PRIM PSAP	(463-7462)
ALT1 PSAP	(654-1278)
ALT2 PSAP	(Optional)
TN1	(Optional)
TN2	(Optional)
TN3	(Optional)
TN4	(Optional)
TN5	(Optional)
TN6	(Optional)

2.7 PSAP DN Translations

Digit analysis of primary and alternate PSAP TNs and selective transfer TNs assigned on the ESN Form, and PSAP reroute TNs assigned on the TKGRP Form, must be translated through the DAS and screening index specified in the E911 fields of the OFCOPT form. This provides uniform screening rules for all PSAP-related calls.

Each of these TNs should be defined on a LINE form (5109 Record) where the route index that translates to the TGN for the PSAP is entered in the RTI field. Normal translations proceed through the RAR form with screen index matching E911 SCR, code index from a digit analysis form, prefix set to "NONE", and RTI set to "REGL". The Charge Index should translate to a FREE call.

OFCOPT Form	
Field	Value
E911 DAS	(12)
E911 SCR	(0123)

The LDIT associated with the E911 DAS must be distributed to all operational SMs via the SMLDIT form.

Alternatively, the PSAP DN can be set up as a PBX DID (Direct Inward Dial) line by defining it on the LINE form (5109 Record) with the route index (RTI) field entered.

3. TRANSLATION REQUIREMENTS

This section describes new ODA forms and fields added for the E911 feature. As a reference for the preceding FEATURE ASSIGNMENT section, this section presents the new and modified forms in alphabetical order.

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DAS	5300-1	3	3A	9.1
DSLAP	5963	6	6A	24.7
ESCO	5541	3	5AO	9.41
ESN	5540	3	5AN	9.40
IDPDCA	5601	4	2B	1.26
NSTRIG	5324	3	3AK	9.35
5E8 and later				
OFCOPT	5509	3	5I	8.1
PDIT	5300-2	3	3B	9.2
PFASFG	5609-3	4	10C	7.3
SFSYS	5713	8	12	8.22
TKGRP	5202	3	2A	5.1
TNTYPE	5504	3	5D	8.6

DAS form (5300-1 Record) - The DAS form is used to define each Digit Analysis Selector in the switch. For the E911 feature, the ESCO field was added.

The ESCO (Emergency Service Central Office) field identifies the originating office or calling area of a 911 caller. When a 911 call originates from a line in the E911 tandem office or arrives at the office on an incoming trunk that does not have an ESCO explicitly assigned on the associated TKGRP form, the DAS form determines the ESCO. If the office serves two or more NPAs, separate DAS forms must be defined to yield a unique ESCO for each NPA.

If the switch cannot associate an ESCO with a 911 call, it routes the call to a PSAP determined by SM stand-alone data.

The ESCO entered in this field must be defined on an ESCO form.

DSLAP form (5963 Record) - This form is used to define the data links connecting an AP (Application Processor) and the 5ESS Switch. For the E911 feature, the E911 SITE field has been added.

If the E911 serving office is equipped with an ESA (E911 OPTION on the OFCOPT form is "ESA"), the data link between the 5ESS Switch and the ESA must be defined on this form. One, and only one, DSLAP form must be specified with E911 SITE set to "Y". The ALARM field on that form must be "Y".

ESCO form (5541 Record) - The ESCO form is new for the E911 feature. It is used to define an ESCO (Emergency Service Central Office) that identifies the originating office or calling area of 911 callers. Each ESCO translates to a default ESN, an NPD, and a selective routing indicator.

- **ESCO:** An ESCO is associated with a 911 call through the dialing plan or trunk group. When the call originates in the E911 tandem office, the ESCO is determined from the DAS form. When the call arrives on a trunk, the ESCO is taken from the TKGRP form unless an ESCO is not assigned or is invalid; then, it

is taken from the DAS form. It is recommended that an ESCO be assigned to every DAS form used for voice calls. If a 911 call cannot be associated with an ESCO through the trunk group or dialing plan, the call is routed using the SM stand-alone data defined in the ESN form.

- **ESN:** An ESN represents a set of emergency services assigned to a specific address. The ESN assigned to the ESCO is used by the operational software when selective routing is not required (SEL RT = "N"), and when a selective routing query to the ESA fails. The ESN must be defined on an ESN form, which determines PSAP and selective call transfer telephone numbers for the caller.
- **NPD:** The Numbering Plan Digit represents the NPA of the originating 911 call. The NPD and ANI are sent to the PSAP where they are displayed on the attendant's screen.
- **SEL RT:** The SEL RT (Selective Routing) field determines if the switch will query the ESA for the ESN of the caller. When SEL RT is "Y", a query is sent to the ESA to retrieve an ESN determined by the caller's ANI. When SEL RT is "N", selective routing is not required (e.g., all callers associated with the ESCO are assigned the same ESN), and the ESN on this form is used to route the E911 call.

ESN form (5540 Record) - The ESN form, which is new for the E911 feature, is used for two purposes. First, it is used to define an ESN, a set of telephone numbers for the emergency services a 911 caller may require. Second, it is used to define SM stand-alone data, a set of emergency numbers for a 911 call that arrives at an SM that is unable to communicate with the CMP.

ESN forms can be entered only if the E911 feature has been enabled on the SFSYS form (5713 Record).

The ESN form contains the following fields.

- **ESN:** The Emergency Service Number defines a set of emergency services, e.g., police, fire, hospital, within a particular district or zone. The ESN for an E911 call is retrieved from the ESA when Selective Routing is specified on the ESCO form. When ESA selective routing fails or is not applicable, the default ESN from the ESCO form is used.
- **SM and DAS:** When an SM is in stand-alone mode, is unable to communicate with the CMP, or cannot determine an ESCO for the E911 caller, SM stand-alone data is used to determine the PSAP. SM stand-alone records are defined in ESN forms with SM (or SM and DAS) key field(s). For each operational SM on the switch, one ESN form must be defined with SM entered and DAS blank.

If more than one set of emergency stand-alone numbers is required for 911 calls arriving at an SM, additional ESN forms can be defined with SM and DAS as keys. Through the DAS associated with the caller, multiple 911 calling areas can be routed to different emergency numbers.

When a 911 call requires stand-alone routing on an SM, the switch looks first for an ESN form with the SM and DAS. If the form does not exist, it uses the ESN form for the SM (with a blank DAS).

- **FLASH:** This field indicates if the caller's NPD and ANI should be flashed at the PSAP terminal to indicate that the call may require special handling. FLASH may be "Y" only when ESN is entered.
- **PRIM PSAP:** The Primary Public Safety Answering Point is the TN to which the E911 call is initially routed.
- **ALT1 PSAP:** If the primary PSAP is unavailable, the E911 call is routed to the first alternate PSAP, the telephone number specified in this field. (Note that if PSAP rerouting is activated, the switch first

attempts to forward the 911 call to the reroute TN specified on the PSAP's TKGRP form. If forwarding fails, alternate routing occurs.)

- **ALT2 PSAP:** When both the primary and first alternate PSAPs are unavailable, the E911 call is routed to the second alternate PSAP if a telephone number is specified in this field.
- **SELECTIVE TRANSFER TNs (1 - 6):** These telephone numbers correspond to six Selective Transfer keys on the PSAP attendant's console. If the attendant depresses one of the keys or enters the equivalent *1X code, the 911 call is transferred to the TN corresponding to the ACTION code on the digit analysis form (PDIT or IDPDCA). For example, if the *12 code translates to ACTION "SEL2XFER", the 911 call is transferred to the number stored in the SELECTIVE TRANSFER TN2 field.

IDPDCA form (5601 Record) - This form is used to define the dialed codes associated with IDPs (Individualized Dialing Plans). For the E911 selective transfer option, six new values have been added to the ACTION and CONFLICT ACTION fields.

The enumerations SELxXFER, where x is 1 - 6, correspond to six selective transfer keys on the PSAP attendant terminal and to the associated *1X codes. These codes determine the SELECTIVE TRANSFER TN (from the ESN form) to which the 911 call may be transferred when the PSAP trunk is assigned an IDP feature.

NSTRIG form (5324 Record) - For 5E8 and later, this form associates a trigger number with a service that may require a query to an external database. For the E911 feature, at least one NSTRIG form must be defined with APPLICATION set to "E911".

The value "E911" is a valid entry for the APPLICATION field. It identifies 911 calls when the dialed digits (e.g., 9-1-1) are assigned a CALL TYPE of "EMER" in the PDIT or LDIT form, and the TRIG NBR on that form matches a TRIG NBR defined on an NSTRIG form that has APPLICATION set to "E911".

OFCOPT form (5509 Record) - This form determines miscellaneous office options and parameters. For the E911 feature, five new fields have been added.

- **E911 OPTION:** This field specifies what type of E911 processing the switch supports: none, E911 with an ESA, or E911 without an ESA.
- **E911 DAS, E911 SCR:** The E911 DAS and E911 SCR fields specify the DAS and Screening Index used for routing telephone numbers found in the ESN data. These fields and their associated digit analysis and routing forms must be capable of translating all primary and alternate PSAP TNs and SELECTIVE TRANSFER TNs (1 - 6) assigned on ESN forms, and any PSAP RERTE TNs assigned on TKGRP forms. Because the E911 DAS supports all TNs specified in the stand-alone data, the LDIT associated with the DAS must be distributed to every SM in the office, i.e., it must be specified on an SMLDIT form (5315 Record) for every operational SM.
- **E911 LN SFG, E911 TRK SFG:** These two fields specify the Simulated Facility Groups used to restrict the number of simultaneously active E911 calls. The E911 LN SFG restricts the number of calls originating from lines and PBXs; the E911 TRK SFG restricts the number of calls incoming over non-dedicated trunk groups.
- **911 TIMING DELAY:** This field determines whether or not the switch will wait a specified period of time after the 911 (or equivalent) digits are dialed. When a timing delay is specified, the switch will send a call to reorder if the caller dials additional digits during the timing period; if no further digits are dialed, the call is processed normally. This applies to both B911 and E911.

PDIT form (5300-2 Record) - This form defines a prefix/feature digit interpreter. For the E911 feature six new ACTION values were added for the selective transfer option.

The enumerations SELxXFER, where x is 1 - 6, correspond to the six selective transfer keys on the PSAP attendant terminal and to the associated *1X codes. These codes determine the SELECTIVE TRANSFER TN (from the ESN form) to which the 911 call may be transferred when the PSAP trunk is not assigned an IDP feature.

PFAFSG form (5609-3 Record) - This form is used to define Simulated Facility Groups to control access to physical groups such as lines, trunks, or special circuits. For the E911 feature, two values have been added to the SFG TYPE field, "E911LNE" and "E911TRK".

The line SFG limits the total number of simultaneously active 911 calls that originated from lines or from PBX trunks (trunk groups assigned an E911 TYPE of "PBXNONDED" on the TKGRP form). When the number of active calls exceeds SFG SIZE, additional 911 call attempts from lines and PBX trunks receive reorder treatment.

The trunk SFG limits the total number of simultaneously active 911 calls originated from trunk groups assigned an E911 TYPE of "NONDED" on the TKGRP form. When the number of active calls exceeds SFG SIZE, additional 911 call attempts from non-dedicated trunks receive reorder treatment.

The PFAFSG records with SFG TYPE "E911LNE" and "E911TRK" must exist if the switch provides E911 service, i.e., if the E911 OPT field on the OFCOPT form is "ESA" or "NONESA".

SFSYS form (5713 Record) - This form is used to enable Secured Features.

To enable the E911 feature and the entry of ESN forms, SFID 61 must be set to "Y" on the SFSYS form. This can be done only with the assistance of a Lucent Technologies SEE.

TKGRP form (5202 Record) - The Trunk Group form is used to define a trunk group. The trunk information that is entered on these records is information that is common to the entire group.

For the E911 feature, two types of trunk groups require special consideration for E911 service. The first is the set of trunk groups that carry E911 calls into the office. The second consists of those trunk groups that connect the switch to E911 PSAPs. Each of the following fields pertains to one of these groups.

- E911 CPN: For E911 calls originating on trunk groups with TRKCLS "EDSL" or "EDSLHM", the trunk billing number is normally used for ESA queries. If the Calling Party Number, rather than the trunk billing number, should be used, this field must be set to "Y".
- E911 TYPE: This field specifies the type of incoming E911 traffic the trunk group supports:
 - NONDED - Non-dedicated trunk group. E911 calls arriving on this trunk group are counted against the E911 trunk SFG limit as defined in the PFAFSG form.
 - PBXNONDED - Non-dedicated PBX trunk group. E911 calls arriving over this trunk group are counted against the E911 line SFG limit as defined in the PFAFSG form.
 - DED - E911 dedicated trunk. Only 911 calls and test calls are carried on this trunk group.
 - DIRANI - Direct Connect with ANI. This trunk group carries 911 calls and test calls; it transmits the caller's ANI.

- DIRNOANI - Direct Connect without ANI. This trunk group carries 911 calls and test calls; it does not transmit the caller's ANI.

E911 trunk groups from Step-by-Step offices are "DIRANI" or "DIRNOANI".

- 1ANPD - For 5E12 and later, dedicated trunk that handles E911 calls incoming to a 5ESS-2000 Switch from a 1A ESS Switch.
 - TNDM_TNDM - For 5E12 and later, dedicated tandem-to-tandem trunk assigned to an incoming ISUP7 trunk group at the terminating E911 Tandem switch; allows the Called DN (in the ISUP7 IAM) to be used for routing to the Primary PSAP.
- ESCO: For trunks that carry incoming E911 traffic, this field identifies the originating office of the caller. It is used to determine the ESN and routing of the call.
- On E911 dedicated trunk groups (see E911 TYPE), ESCO must be entered. ESCO is optional on non-dedicated trunk groups. If it is not present, it will be determined from the DAS form associated with the caller.
- CAMA PSAP: This field is used to identify trunk groups connecting the switch to CAMA PSAPs. These special trunk groups must be uniquely identified by setting CAMA PSAP to "Y".
 - PSAP RERTE TN: When a CAMA PSAP trunk group is busy, E911 calls routed to that PSAP may be automatically forwarded to a telephone number specified in this field. Since Call Forwarding features cannot be assigned to trunk groups on the 5ESS Switch, this field provides the Call Forward feature functionality available on the 1A ESS Switch.

This field is used in conjunction with the MAKE BUSY KEY and/or the RERTE ACT field. One or both of the following options may be assigned to a PSAP trunk group.

If a telephone number is entered in the PSAP RERTE TN field, and a scan point is entered in the MAKE BUSY KEY field, then calls directed to the PSAP are rerouted to the PSAP RERTE TN when the scan point is activated by a make busy key or a power failure at the PSAP.

If the PSAP RERTE TN is entered, and RERTE ACT is set to "Y", then calls are rerouted to the telephone number in the PSAP RERTE TN field when the PSAP is traffic-busy.

These call forwarding options take precedence over alternate routing as defined by the alternate PSAP TNs in ESN forms. Under the conditions described above, a 911 call will first be rerouted to the PSAP RERTE TN; only if that routing fails will the call be routed to an alternate PSAP TN.

- RERTE ACT: When a CAMA PSAP trunk group is traffic-busy, this field determines if E911 calls routed to that PSAP should be forwarded to the telephone number specified in the PSAP RERTE TN field.
- WINK STRT: For a CAMA PSAP trunk group, this field specifies the number of seconds the switch waits for the PSAP to send a start outpulsing signal (wink). The recommended value for this field is 16.

- **ABND TIMER:** This field specifies the time (in seconds) the switch will wait before idling a PSAP trunk after a 911 caller hangs-up and before the PSAP answers. The PSAP trunk is placed on-hook immediately after an "abandon" occurs, but the trunk is unavailable for the number of seconds specified. This is a form of guard-timing that prevents the ANI displayed at the PSAP console for an abandoned call, from being overwritten for the specified period of time by a new call.

The timer is also designed to synchronize with a "Nuisance" option on some CAMA PSAP equipment. Some PSAP facilities are equipped with a Nuisance feature that allows 911 displays to be maintained for a period of time after a caller disconnects prior to the PSAP answering. This gives the PSAP attendant time to note the displayed ANI. The ABND TIMER ensures that the trunk is not reused for the same duration. The recommended value for this field is 18.

TNTYPE form (5504 Record) - This form is used to define tones. For the E911 feature, a new tone type has been added.

When a PSAP attendant dials a selective transfer code for which no Directory Number is stored, a special tone is returned to the PSAP. This tone must be defined on the TNTYPE form with TONE TYPE set to "HIGH120".

4. GLOSSARY

Alternate Routing — Available for each PSAP, Alternate Routing is used to route calls to a predesignated location for a traffic busy PSAP, a PSAP on night duty or a PSAP experiencing a power failure.

CAMA PSAP — A PSAP that has CPE (Customer Premises Equipment) which can provide the attendant with the caller's ANI via CAMA-like signaling. The CAMA PSAP allows the attendant to use Enhanced 911 features such as Selective Transfer.

CAMA Signaling — Centralized Automatic Message Accounting Signaling. A signaling scheme normally used to transmit ANI (Automatic Number Identification) information from a local switch not equipped for AMA recording to another switch capable of AMA recording. This type of signaling is commonly used between the end office and the E911 tandem office, although CCS7-ISUP trunks and direct seizure trunks may also be used. CAMA signaling has been adapted for E911 use to forward the caller's directory number to the PSAP.

CAMA-like Signaling — Analog trunks with MF signaling using CAMA ANI format. This is the signaling used between the E911 serving office and a CAMA PSAP. This signaling is one-way, from the 5ESS Switch to the CAMA PSAP.

Default Routing — Automatically routes a 911 call to a predesignated PSAP when the primary ESN (PSAP) cannot be determined (ESN lookup fails to find a match in the ESA, mutilated ANI, etc.). The office is equipped with a ESA, and is using Selective Routing.

Direct Connect Trunk — See Direct Seizure Trunk.

Direct Seizure Trunk — A trunk which does not send dialed digits to the E911 serving office. ANI may or may not be received after the trunk is seized at the incoming end. Also called a Direct Connect Trunk.

ESA — E911 Service Adjunct. A processor, attached to the switch via a DSL link, that provides ANI to ESN translation for E911 Service.

ESN — Emergency Service Number. The emergency service number is a number that defines the set of emergency services, e.g., police, fire, hospital, within a particular district or zone.

ESCO — Emergency Service Central Office. A number to identify the originating office or calling area of the 911 caller. An ESCO may be assigned to trunk groups and to the dialing plans for local lines. It translates to a selective routing indicator, a default ESN, and an NPD.

Fixed Transfer — Allows a PSAP attendant to transfer a 911 call to a particular PSAP location by operating one key.

Manual Dial Transfer — Allows the PSAP attendant to manually dial the directory number of the destination.

NPD — Numbering Plan Digit. First digit of ANI outputted to a CAMA PSAP; it represents the originating NPA of the call.

PSAP — Public Safety Answering Point. Location, or equipment at the location, where emergency attendants receive "911" calls.

Selective Routing — An E911 feature that selectively routes a 911 call to the primary PSAP associated with the originating station.

Selective Transfer — Allows a PSAP attendant to transfer a 911 call to the correct secondary PSAP for the caller's emergency service zone. The call is transferred based on the code sent by the PSAP and the telephone number stored in the ESN form.

5. REFERENCES

235-190-115. Local and Toll System Features.

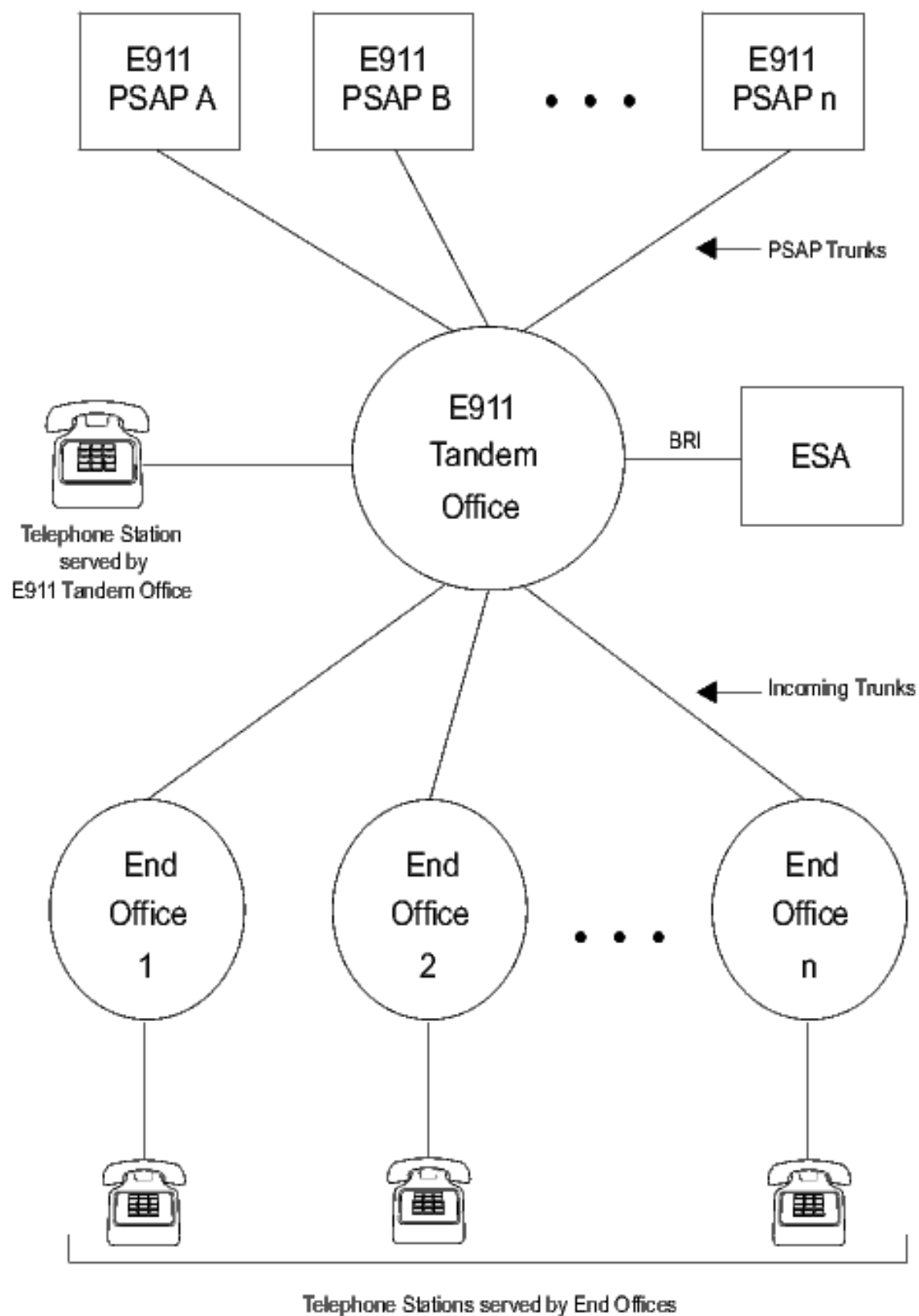
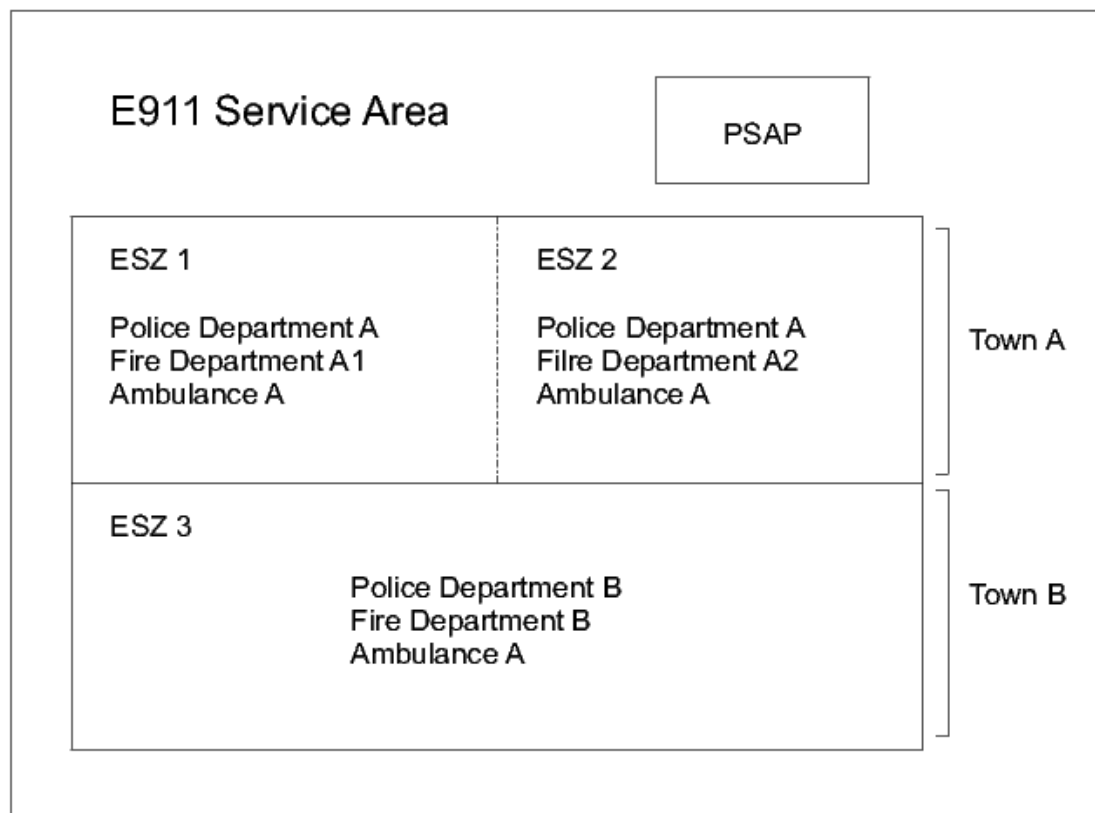


Figure 1 E911 NETWORK ARCHITECTURE

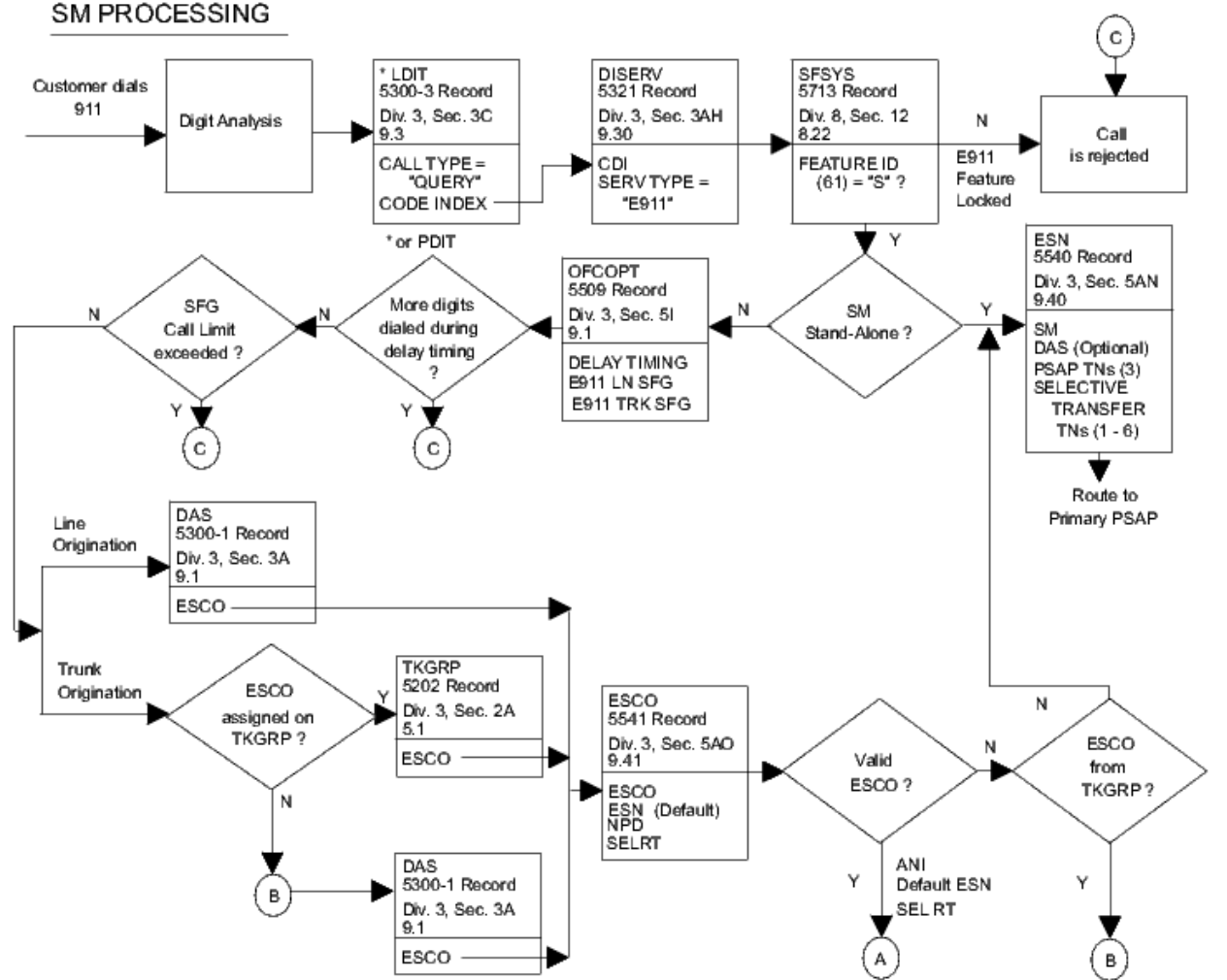


Each ESZ (Emergency Service Zone) is defined by an ESN (Emergency Service Number) that specifies the agencies serving the zone.

ESN	ESN 1	ESN 2	ESN 3
Primary PSAP	PSAP	PSAP	PSAP
Alternate PSAP	Police A	Police A	Police B
Selective TN1	Police A	Police A	Police B
Selective TN2	Fire A1	Fire A2	Fire B
Selective TN3	Ambulance A	Ambulance A	Ambulance A

Figure 2 E911 SERVICE AREA EXAMPLE

SM PROCESSING



CMP PROCESSING

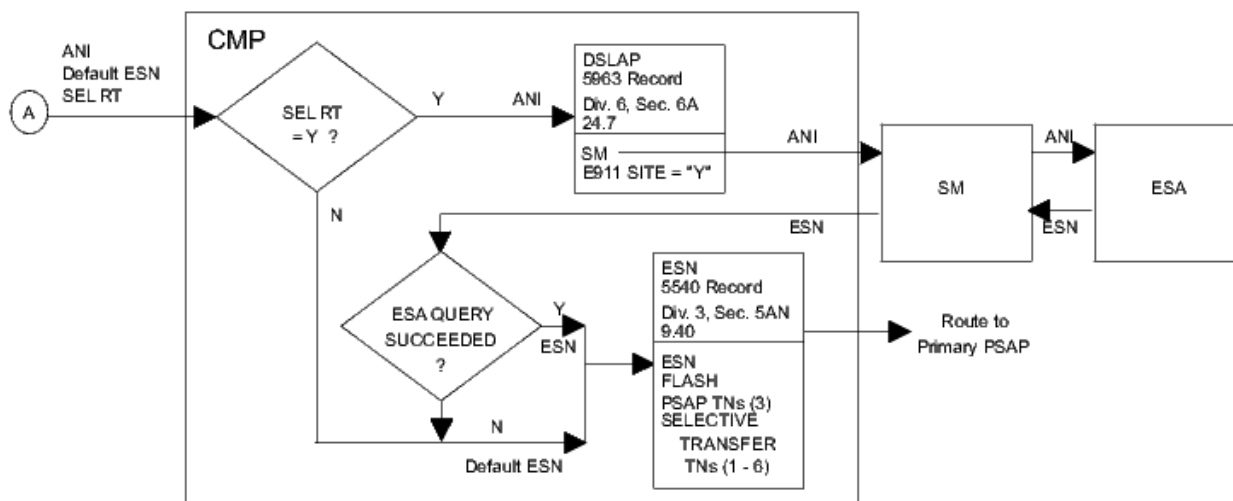
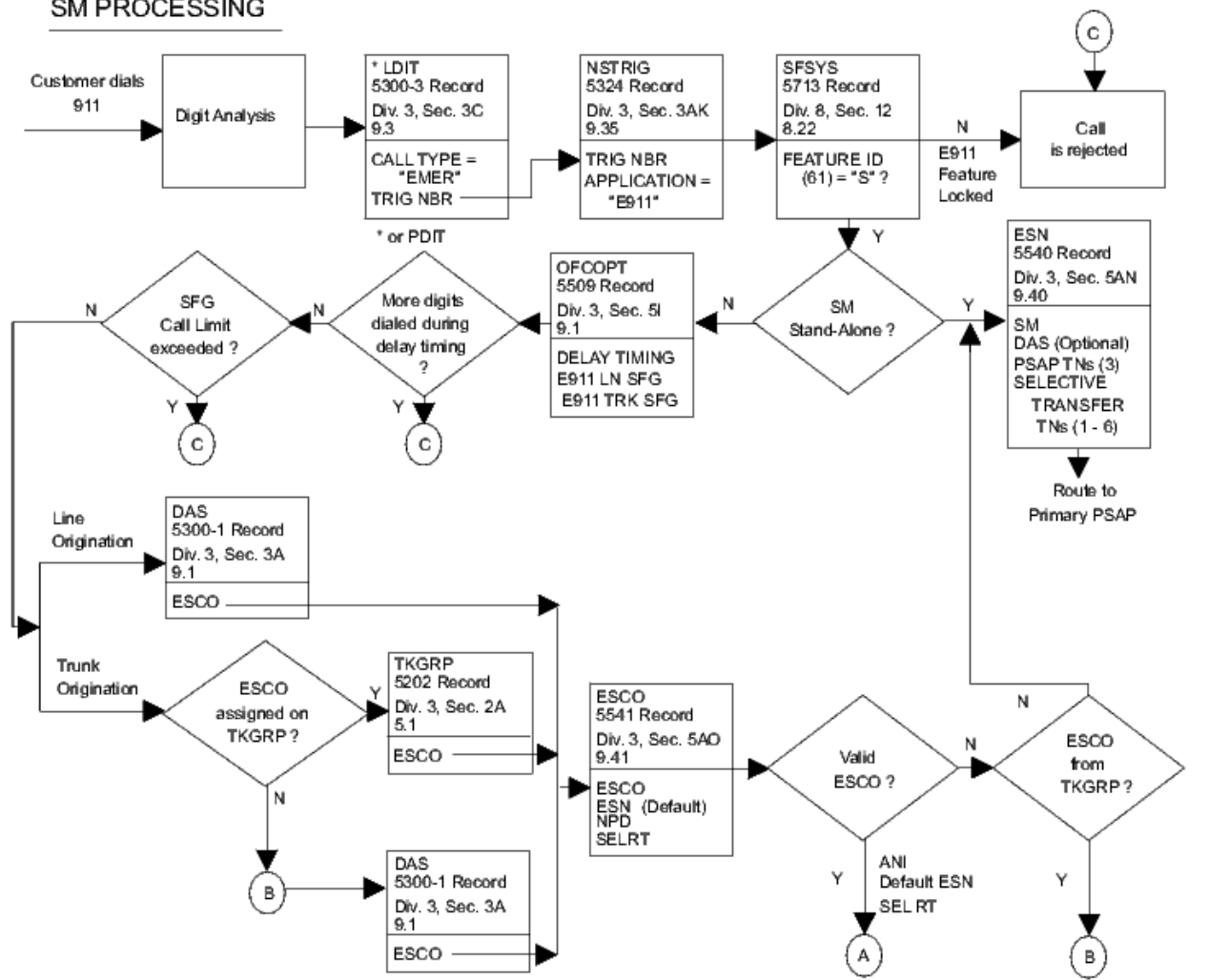


Figure 3 E911 ROUTING TO PRIMARY PSAP 5E7 SOFTWARE RELEASE

SM PROCESSING



CMP PROCESSING

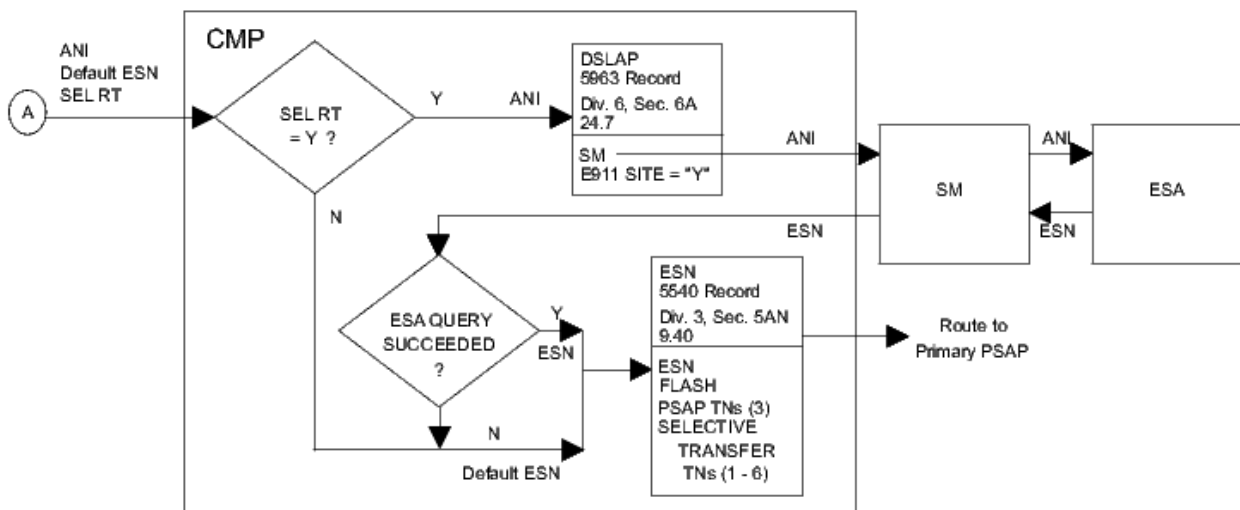
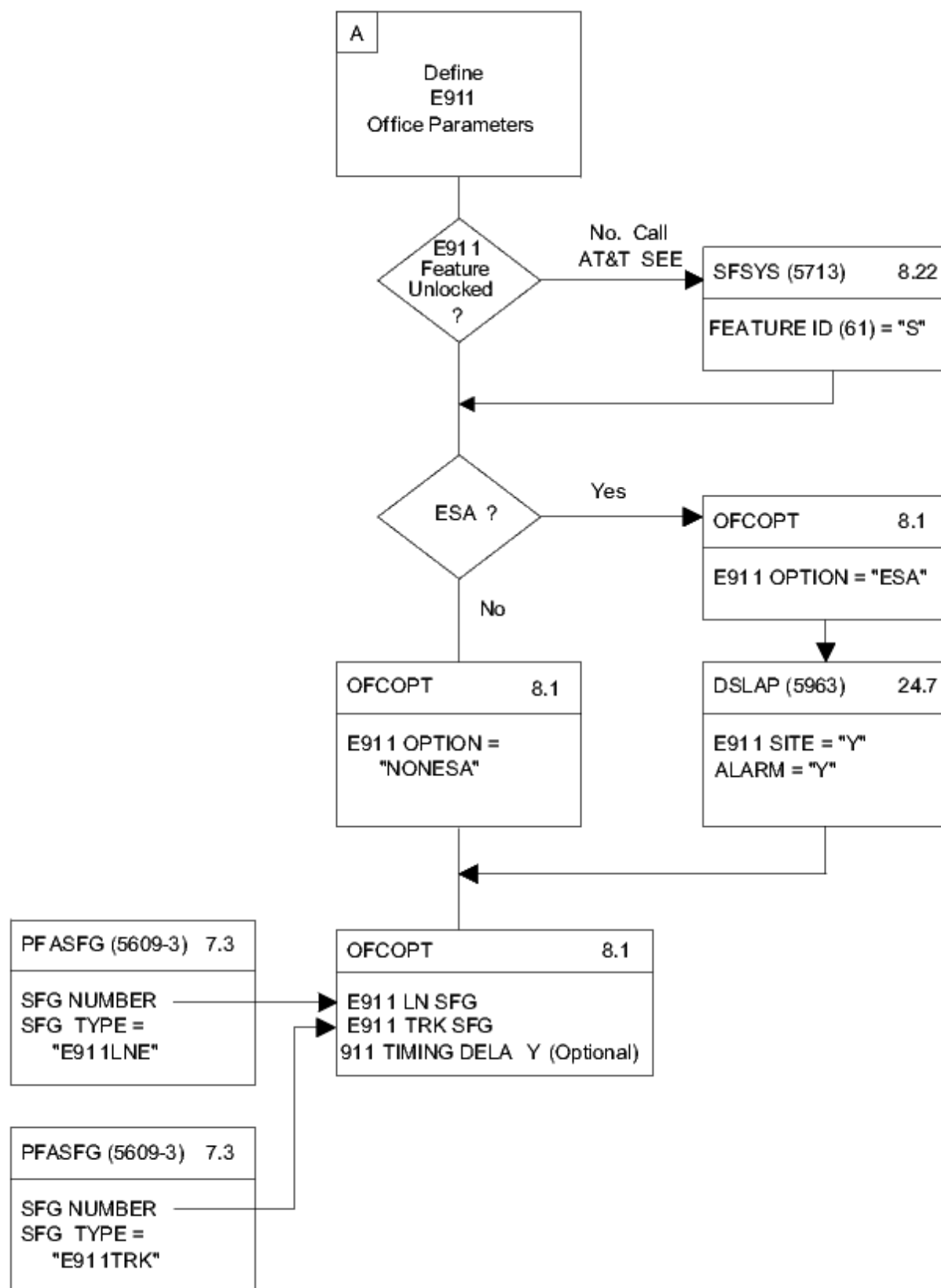
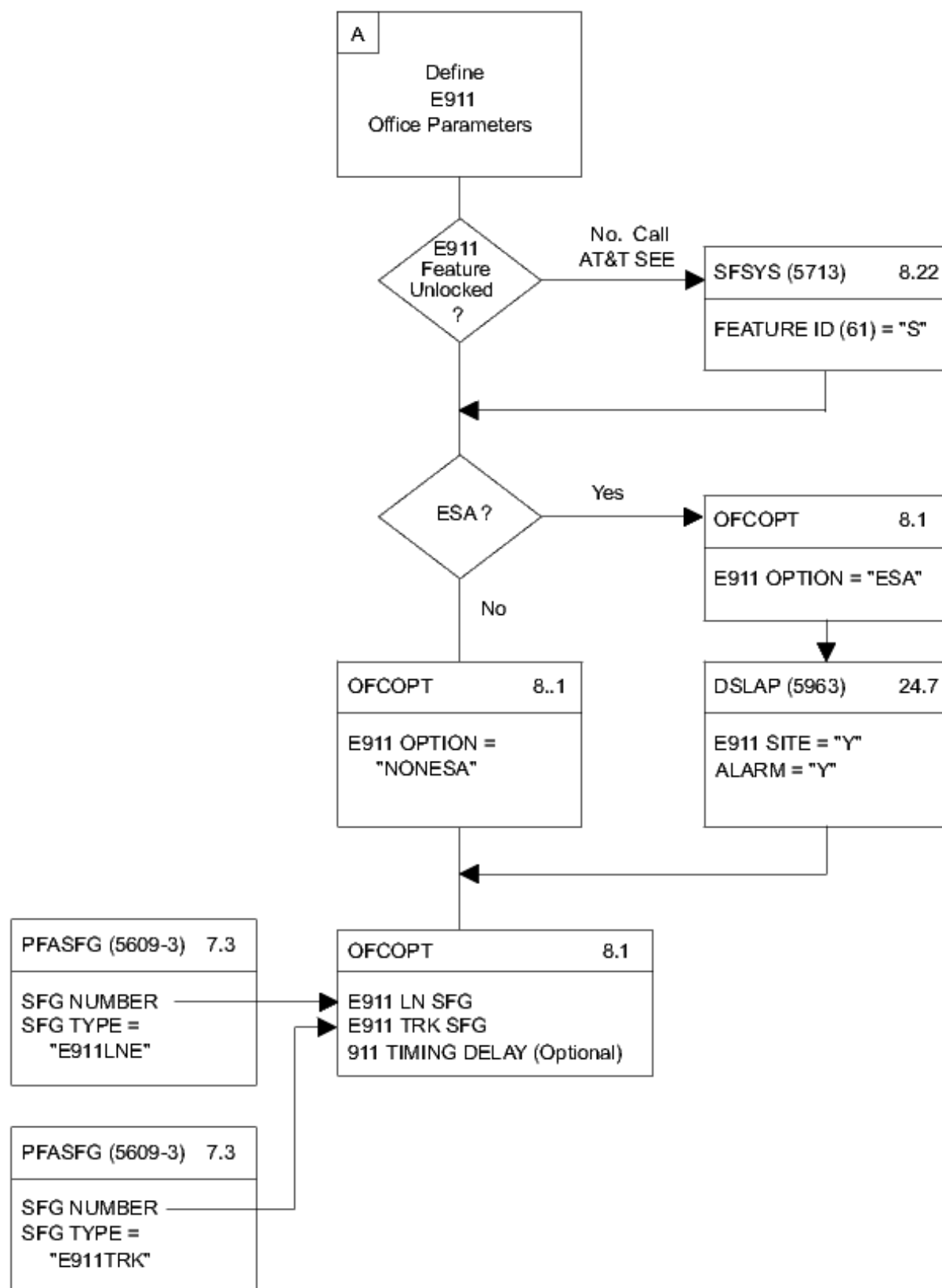
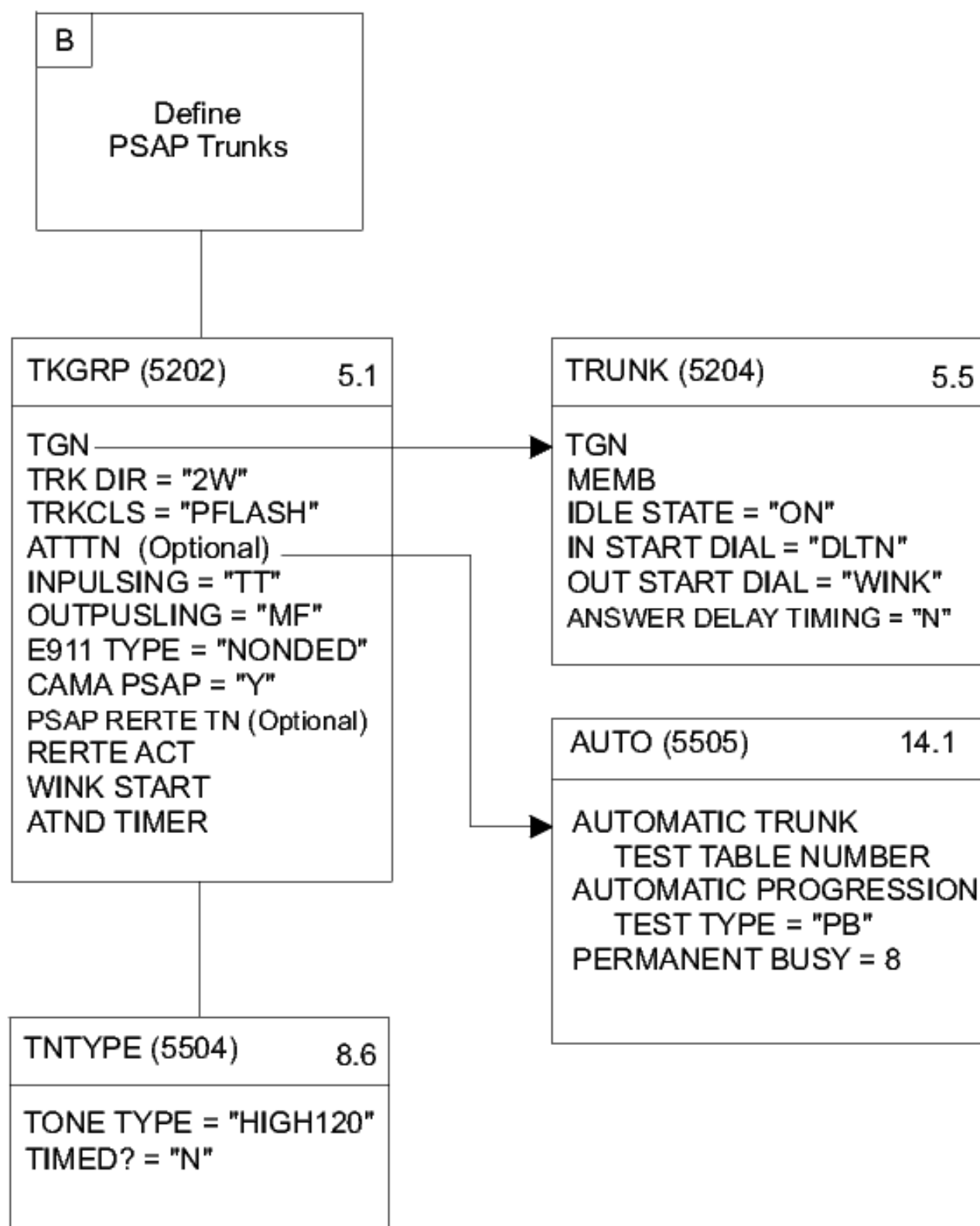
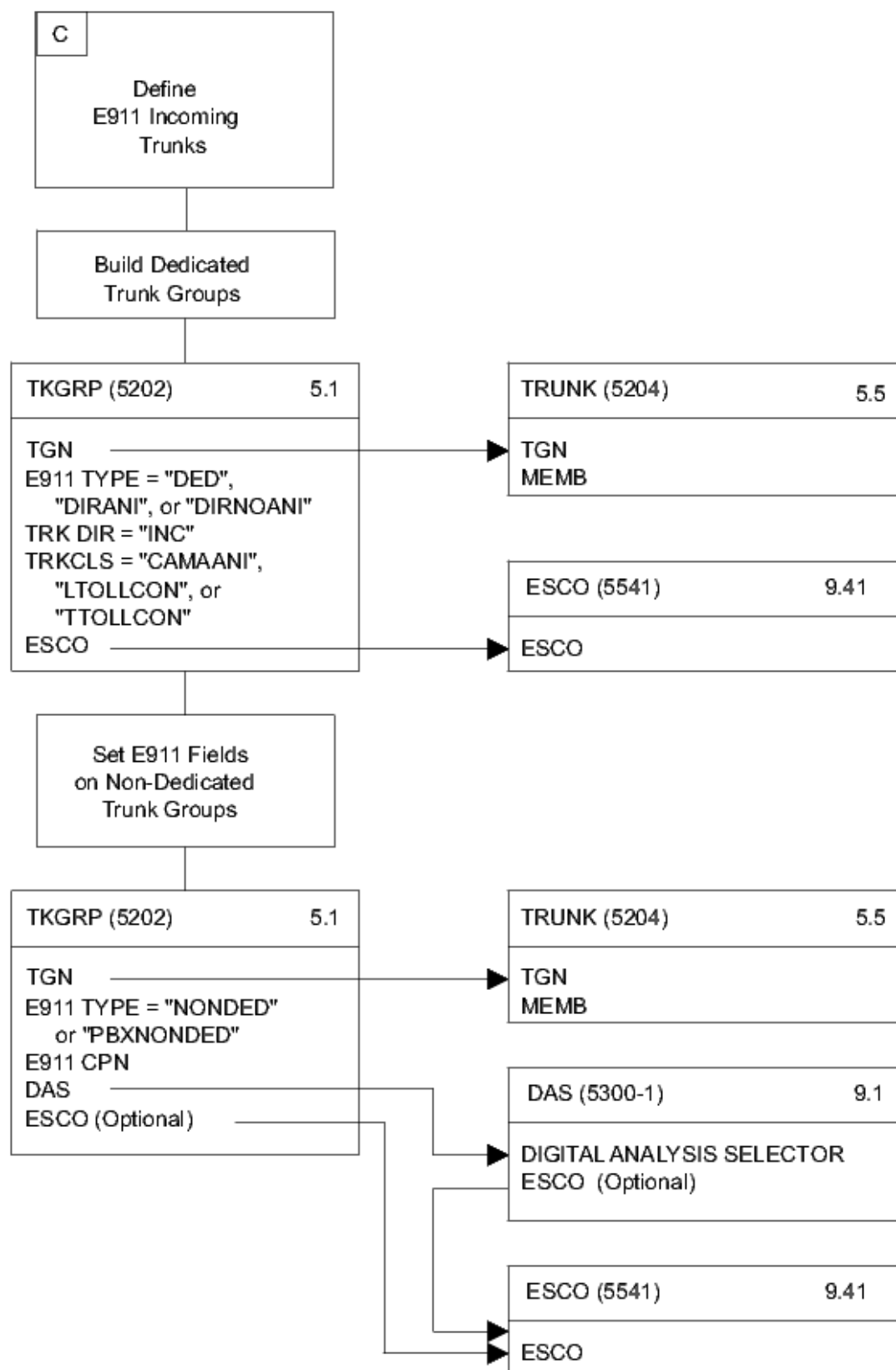


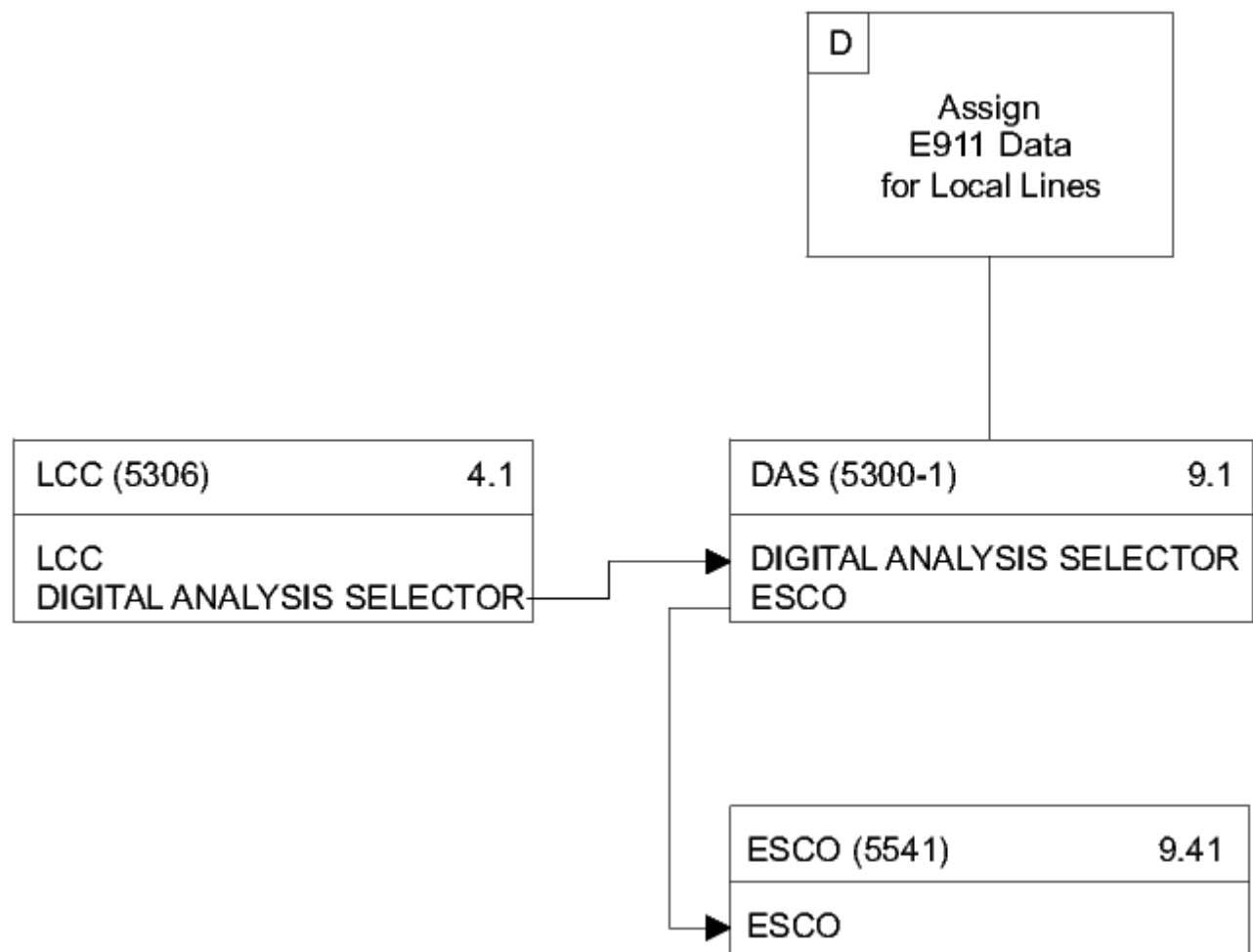
Figure 4 E911 ROUTING TO PRIMARY PSAP 5E8 AND LATER SOFTWARE RELEASES



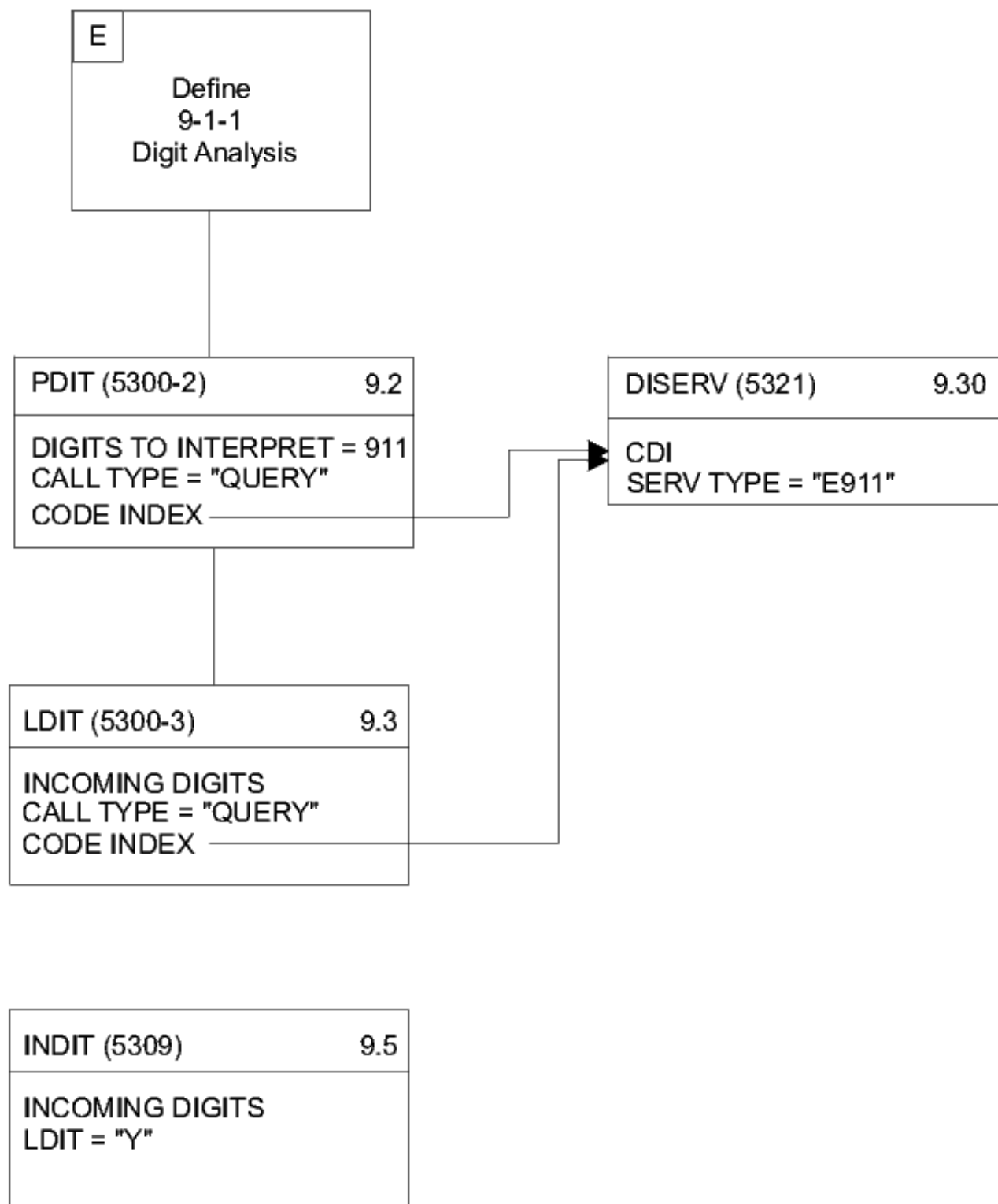




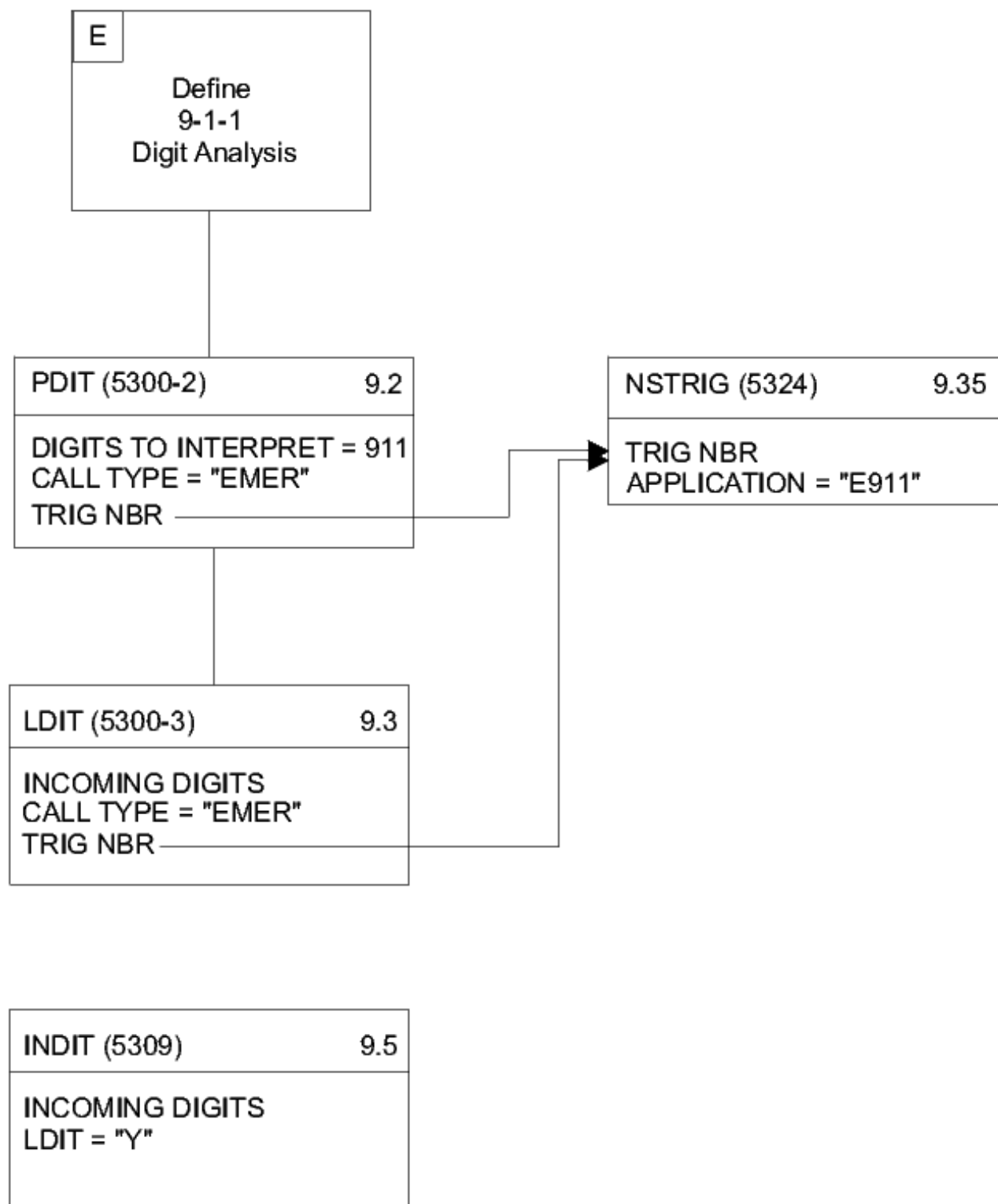


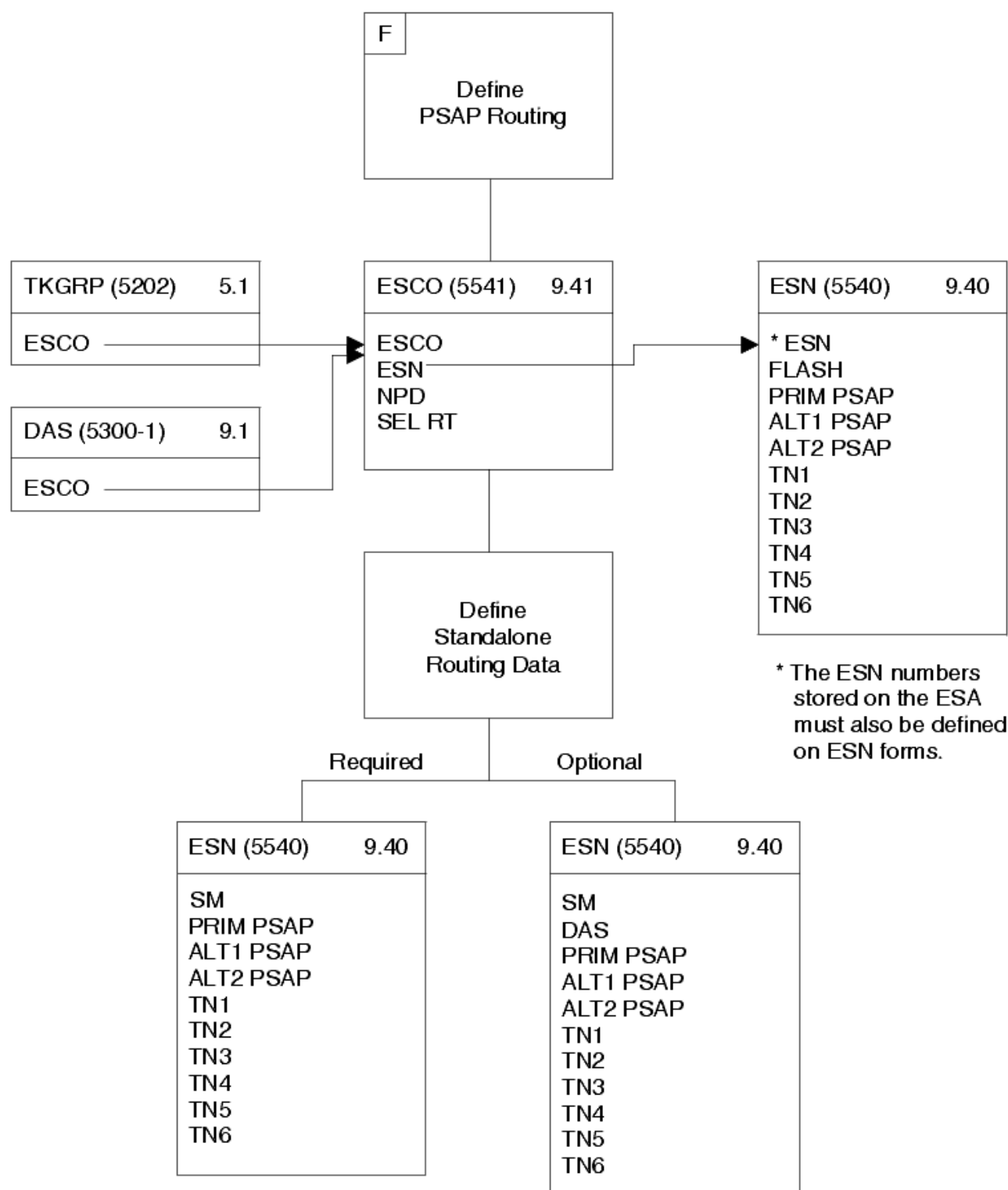


FOR 5E7 SOFTWARE RELEASE ONLY



FOR 5E8 AND LATER SOFTWARE RELEASES





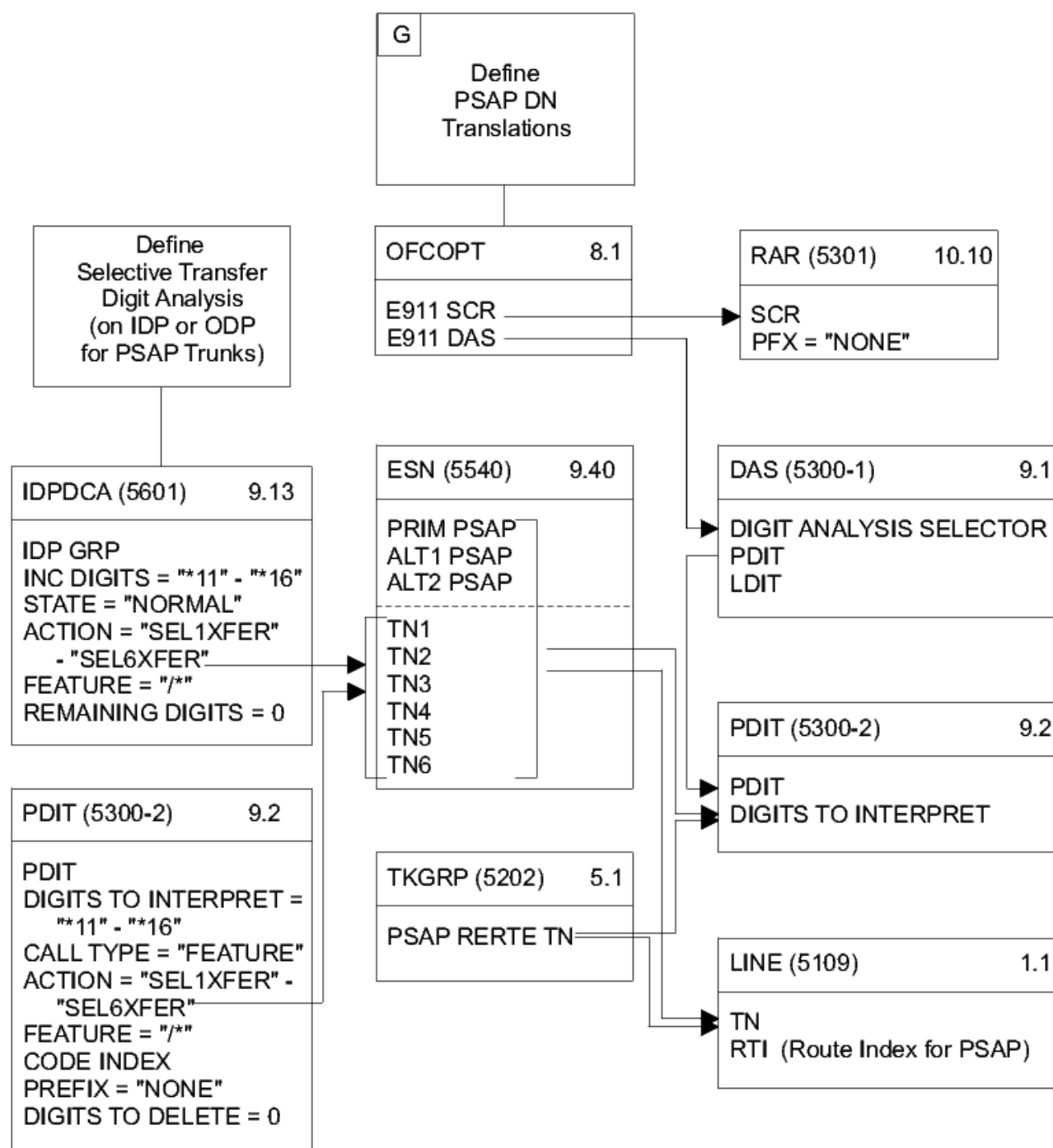


Figure 5 E911 FORM FLOW

SEC. 1BE: DIGIT ANALYSIS SELECTOR ON AN OUTWATS SIMULATED FACILITY GROUP DAS

1. FEATURE DESCRIPTION

The DAS (Digit Analysis Selector) on an OUTWATS SFG (Simulated Facility Group) feature is added with the 5E7 Software Release. By associating a DAS with an SFG defined as "OUTWATS", this feature allows an office to route calls using a different dialing plan than the dialing plan associated with the originating line or trunk. This also expands the dialing capabilities of end users by allowing access to more than one PDIT, INDIT, or LDIT.

There are currently three features and one type of trunk that use OUTWATS SFGs on the 5ESS Switch. These are:

- PFA (Private Facilities Access)
- ARS (Automatic Route Selection)
- ASP (Advanced Services Platform)
- PRI (Primary Rate Interface) trunks

Of the above, the interaction with ASP is not supported since ASP means that the call is already using a different DAS.

The SFG DAS replaces the DAS associated with a line or trunk before digit analysis is done. Digit analysis then uses the new DAS to analyze the digits and the rest of the call completes as normal.

OUTWATS SFGs are accessed either by a user-dialed authorization code or through a route index contained in an ARS route list.

When a user dials a PFA access code using RBOW (Reorder Before OUTWATS), second dial tone is returned to the user. A message is sent to the CMP (Communication Module Processor) to find an idle SFG member. If the SFG hunt is successful, the SFG group number, member number and type are sent back to the SM prior to digit analysis. If PFA is not using RBOW, digit analysis is done before SFG availability is checked.

ARS uses a route index to access OUTWATS SFGs. This can be done automatically or through a user-dialed authorization code. SFG information is returned as described in the PFA scenario. If digit analysis is done before the SFG DAS is returned from the CMP (e.g., if it was previously done in the UNP (Uniform Numbering Plan)), it may be reinvoked using the ODP (Office Dialing Plan).

PRI trunks can also access OUTWATS SFGs. For example, an incoming PRI trunk connected to a PBX may use SFGs when a call from the PBX is routed out of the 5ESS switch.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PFASFG	5609-3A/B	4	10C	7.3

2.1 BRCS Translations

PFA SFG form (5609-3A/B Record) - defines the SFG (Simulated Facility Group) that controls access to physical groups such as lines, trunks and special circuits. SFGs can be used for OUTWATS, INWATS, ESSX, EDSL, CCSA, SDN, Megacom, Megacom 800 and six-port conference circuits. An OUTWATS SFG can be associated with either an ARS (Automatic Route Selection) route list, a PFA (Private Facility Access) dial access, or, for 5E4(2) and later Software Releases, EDSL trunk groups. For access to any of these features, the MCRTIDX form (5304 Record) must contain the SFG Number that points to the PFA SFG form.

When the SFG is used for OUTWATS, the PFA SFG field SCREENING INDEX/SCRN IDX is required for band screening and the determining the appropriate Charge Index (CHGI) on the RAR form (5301 Record).

Added with the 5E7 Software Release for the DAS on OUTWATS SFG feature are the fields LINE DAS and TRK DAS.

The LINE DAS field is the Line Digit Analysis Selector associated with an SFG. Valid Entries are 1 - 99 for 5E14 and earlier and 1 - 254 for 5E15 and later. LINE DAS, if entered, must be defined on a DAS form (5604-3 Record).

TRK DAS is the Trunk DAS associated with this SFG. Valid entries are 1 to 99. A TRK DAS must be also defined on a DAS form.

An entry in LINE DAS or TRK DAS requires an entry in the SFG TYPE field on the PFA SFG of "OUTWATS".

Both fields contain the following warning: the corresponding LOCAL DIT on the matching DAS form should be entered on an SMLDIT form (5106 Record) where the LIST OF SWITCHING MODULES contains all SMs in the office. If all potential users of this SFG reside in a subset of SMs in the office, the entry of the subset of SMs on the SMLDIT form is sufficient.

An entry in either LINE DAS or TRK DAS must not be the same as the global PVN DAS entered on the OFCOPT form (5509 Record).

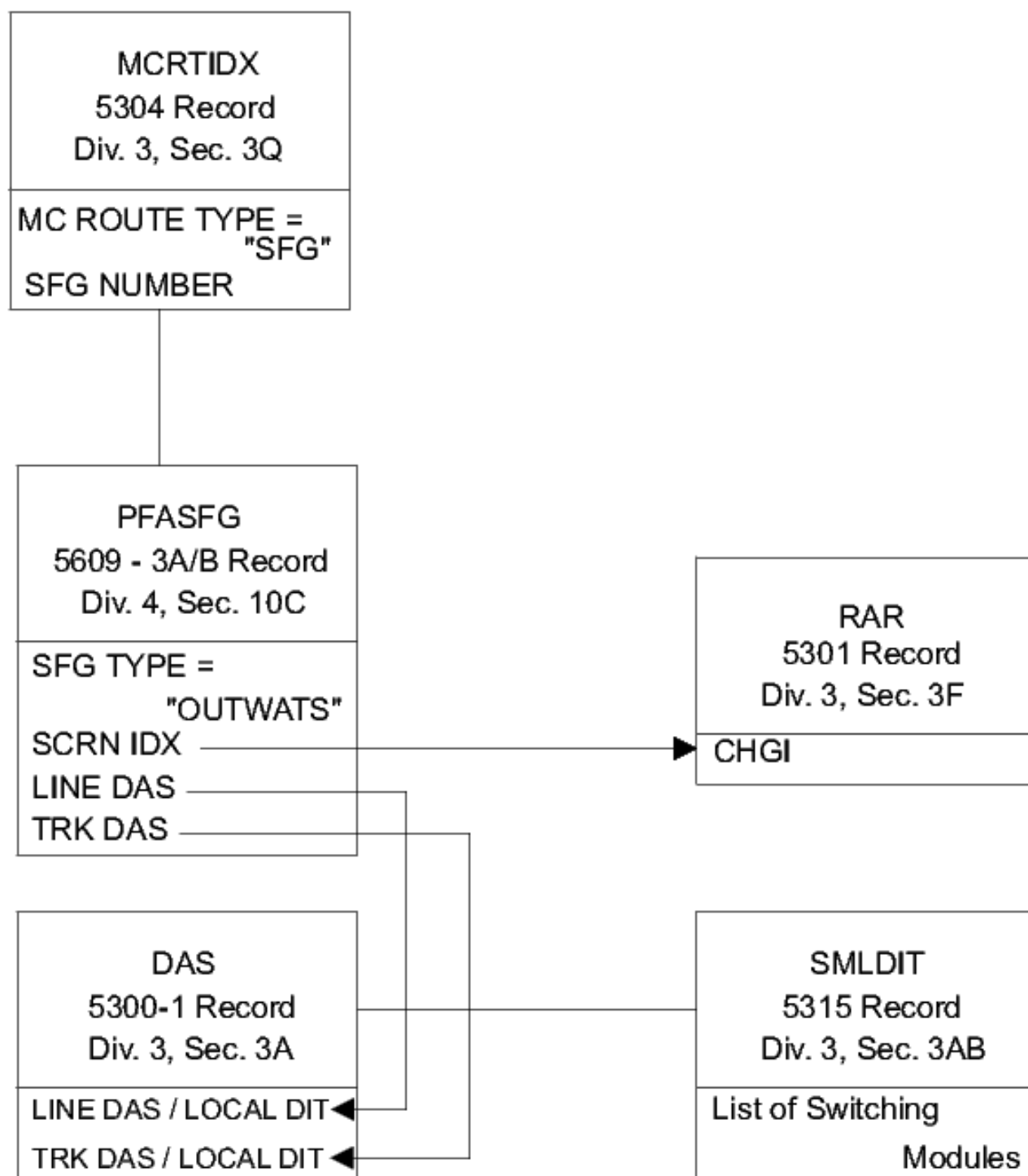


Figure 1 DAS ON OUTWATS FORM DEPENDENCIES

SEC. 1BF: ANI6/ANI7 ON A TRUNK GROUP OR OUTWATS SIMULATED FACILITY GROUP

1. FEATURE DESCRIPTION

ANI6 (Automatic Number Identification 6) or ANI7 on a Trunk Group or OUTWATS SFG (Simulated Facility Group) is available with 5E7 and later Software Releases. The feature can optionally output an ANI6 I-digit of 6, ANI6 II-digits of 06, an ANI7 I-digit of 7, or ANI7 II-digits of 07 for an OUTWATS SFG call or a trunk origination when the class of service is "PF", "PFITT", or "PFLASH".

Outputting is based on the SFG or trunk origination group and is done before the billing DN for call termination to a CAMA, TSPS, LTOLLCON or IC class or service trunk.

ANI I-digit or II-digits indicate to the operator system that the call may require special screening. Presumably, the operator system uses the ANI information for a database lookup to see how the call should be handled.

The ANI6 digits usually indicate a call from a Hotel/Motel customer, and could be similarly handled. Traditionally, ANI7 indicates a call from a coin phone.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MCRTIDX	5304	3	3Q	10.4
TKGRP	5202	3	2A	5.1

2.1 Translations

MCRTIDX form (5304 Record) - Also referred to as the BRCS - MC Route Index form, this record is used to determine routing for various BRCS capabilities. It is similar to the Route Index defined on the RTIDX form (5303 Record). The MCRTIDX, however, allows additional information that is required for ARS (Automatic Route Selection) and sometimes use for PFA (Private Facility Access).

An MC Route Index is usually required if an SFG is used. The only exception is when the SFG is associated with six-port conference circuits. In this case the PFATG form (5609-2 Record) points directly to the SFG Number.

Added with 5E7 under the ANI field group header on this record are the fields ANI6 and ANI7. Also listed under the ANI header are the fields ANI OUTPUTSING and ANI II DIGITS.

Both the ANI 6 and ANI 7 field have valid entries of "Y" (Yes) or "N" (No) which determine whether special ANI digits are optionally outputted to the operator system to indicate that a call may require special screening.

The default value for both the ANI6 and ANI7 field is "N".

If ANI6 is "Y", the following must be true: ANI7 must not be "Y". Conversely, if ANI7 is "Y", ANI6 must not be "Y".

The following restrictions for MCRTIDX fields apply when either ANI6 or ANI7 is "Y":

- ANI OUTPUTSING must be "Y"
- ANI II DIGITS must not be entered

- MC ROUTE TYPE must be "SFG"

Also SFG NUMBER must be defined on the PFASFG form (5609-3A/B Record) must have an SFG TYPE of "OUTWATS".

The ANI OUTPUTSING field is entered to indicate if outputting is allowed for an MC ROUTE INDEX. This field is applicable only when a TRUNK GROUP NUMBER has been entered.

ANI II DIGITS assigns ANI pairs to an MC ROUTE INDEX. Flexible ANI is a secured feature used for Automatic Number Identification in 5E6 and later Software Releases.

TKGRP form (5202-1/2/3/4/5/6/7 Record) - The Trunk Group forms are used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group.

Added for this feature are the fields ANI6 and ANI7.

The default value for each of these fields is "N". The fields are identical to the ANI6 and ANI7 fields entered on the MCRTIDX form, however, the following restrictions apply specifically for the TKGRP form:

- If ANI6 is "Y", ANI7 must not be "Y"
- If ANI7 is "Y", ANI6 must not be "Y"
- TKRKCLS must be "PF", "PFITT", or "PFLASH"
- TRK DIR must be "INC" or "2W"
- DATA RATE must not be entered.

SEC. 1BG: INTER-SWITCH VOICE MESSAGING

1. FEATURE DESCRIPTION

The ISVM (Inter-Switch Voice Messaging) feature is available with 5E7 and later Software Releases. This feature extends the functions of MSC (Message Service Center), CHI (Call History Information) Delivery, and MWI (Message Waiting Indicator) Control used in the MSS (Message Service System) feature to work across switches. (Division 2, Section 1M contains a feature description for MSS.)

With ISVM, VM (Voice Messaging) service providers can offer VM on an inter-switch or intra-LATA basis. ISVM communicates between switches using API (Applications Processor Interface) on the CCS7 network.

1.1 Client TN Types

In 5E6 and earlier Software Releases, for any inter-switch call forwarded within the switch serving the VM to the MSC, the OCDN (Original Called Directory Number) is considered as the first forwarding party. In 5E7 and later, if the call is received through a CCS7 trunk and the CHI indicates that the forwarding switch does not have VM, the OCDN is no longer considered the first forwarding party.

ISVM enhances the existing MSS call history information functionality by providing an RDN (Redirecting DN). The RDN is the DN of the last forwarding party before a call terminates.

For example, if A calls B, who forwards to C, who forwards to the MSC, B is the OCDN and C is the RDN. In 5E7, both OCDN and RDN are collected.

Through the newly added CLIENT TN TYPE field, clients can choose whether the OCDN or RDN is sent to the VM system. This field is applied to the group DN and its associated DNs on the MSC MLHG.

CLIENT TN TYPE has been added to the MLHG and MULTITIN forms (See Translation Requirements). Only the group DN and the dependent DNs associated with the group DN of an MSC MLHG can be assigned a CLIENT TN TYPE. This option is not assigned on per-member basis. If a call is forwarded to an MSC MLHG's individual DN or any hunted dependent DNs without a Client TN Type option assigned, the DN that is sent to VM system (either OCDN or RDN) is based on the option which is set for the MSC MLHG.

1.2 Business Group Identification Screening

ISVM does not support the concept of inter-switch business groups. With intra-switch VM the user is associated with one or more MLHGs and BCID (Business Group Identification) numbers. To receive call history information, these MLHGs are assigned as MSCs. MSCs can be assigned to serve clients from a maximum of 6 BCIDs. Calls can only be forwarded to an MSC if the first forwarding party is a client of the forward-to MSC. In addition, when a VM issues an MWI request, the switch only acts on the request when the destination DN is in the same BCID as the VM system's MSC.

Since ISVM does not send BCIDs across switches, calls that are forwarded inter-switch to a VM would fail the BCID check. Therefore, the BCID SCRNING field has been added to the MLHG and to forward calls without screening for the proper BCID (See Translation Requirements).

1.3 Near and Far Switches

A switch that serves the VM system is referred to a "Near" Switch. If the VM user is served by a different switch, that switch is referred to as a "Far" Switch.

Near and Far Switches should be engineered to ensure that all calls from a user's station served by the Far

Switch to the VM served by the Near Switch are routed over CCS7 trunks. If a call is forwarded to a VM system, but routed over non-CCS7 trunks between the Far and Near Switches, data for call history information may not be present or may be incorrect. In addition, an MWI activation message may not arrive at the called party's switch.

1.4 ISVM Scenarios

Scenario 1: No Screening MSC for Far Switch Subscribers

For this scenario, see Figure 1.

The INTRA SW DN field on the MLHG form (5110 Record) supports service uniformity for Far/Near Switch subscribers for No Screening MSCs. When this field is set to "N", the inter-switch Original Called Directory Number or the inter-switch Redirecting Directory Number is sent to the VMS. No BCIDs are assigned to the subscriber's lines. No screening is performed at the Message Service Center MLHG for forwarding to the VMS and no screening is done on the subscriber's line for MWI Security. MWI Security is set to "N".

Party A calls Party B. Party B is busy. Party B then forwards Party A to Party F. Party F does not pickup and Party A is forwarded to Party C using ISVM via CCS7 trunks. Party C does not answer and Party A is forwarded to Party D. Party D does not answer, and forwards Party A to the VMS. Since inter-switch OCDN or RDN terminating numbers may be assigned to the subscriber's line, the following numbers are passed to the VMS:

If client TN Type (5110-3 Record) is set to "OCDN",

- Calling Party Number (CPN) is AAA-AAA-AAAA
- Called Party Number (OCDN) is BBB-BBB-BBBB

If Terminating Number is set to TYPE "RDN",

Calling Party Number (CPN) is AAA-AAA-AAAA

Called Party Number (RDN) is DDD-DDD-DDDD

TFOS 554 overrides this setting on a per-switch basis.

Scenario 2: No Screening MSC for Near Switch Subscribers

For this scenario, see Figure 2.

The INTRA SW DN field on the MLHG form (5110 Record) supports service uniformity for Near Switch subscribers for No screening MSCs. When this field is set to <169>Y<170>, the intra-switch Original Called Directory Number or the intra-switch Redirecting Directory Number is sent to the VMS. No BCIDs are assigned to the subscriber's lines. No screening is performed at the Message Service Center MLHG for forwarding to the VMS and no screening is done on the subscribe line for MWI security. MWI Security is set to "N".

Party A calls Party B. Party B is busy. Party B then forwards Party A to Party C using ISVM via CCS7 trunks. Party C does not answer and Party A is forwarded to Party D. Party D does not answer, and forwards Party A to the VMS. Since intra-switch OCDN or RDN terminating numbers may be assigned to the subscriber's line, the following numbers are passed to the VMS:

If client TN Type (5110-3 Record) is set to "OCDN",

Calling Party Number (CPN) is AAA-AAA-AAAA

Called Party Number (OCDN) is CCC-CCC-CCCC

If Terminating Number is set to TYPE "RDN",

Calling Party Number is AAA-AAA-AAAA

Called Party Number (RDN) is DDD-DDD-DDDD

TFOS 554 was provided before the work for MLHG was completed. It provides the same functionality as the INTRA SW DN field on the MLHG form. If TFOS 554 = "Y" then INTRA SW DN=N will not work. TFOS 554 will take precedence. TFOS 554 is a per-switch application and INTRA SW DN set to "Y" allows the choice on a per MSC basis.

Scenario 3: Extended MSS (Message Service System) Functionality

For this scenario, see Figure 3.

ISVM extends some of the MSS functionality by delivering inter-switch call information such as CPN (Calling Party Number), OCDN (Original Called DN), or Redirecting DN (RDN). RDN is the last station that forwards the call to the VMS. The entire route to the switch must be via CCS7 trunks. The switches without the VMS are known as the Far Switches. The switch with the VMS is known as the Near Switch.

The MSS Software and the ISVM (Interswitch Voice Messaging) Software must be on all switches serving the subscriber base for the particular ISVM system. The ISVM software is used to interface to and from the CCS7 network. ISUP is used to provide the Call History to the Near Switch which uses ISVM to receive and unbundle the ISUP information which is passed to the MSS Software for sending the Call History to the API link and the translation device to produce SMDI (Simplified Message Desk Interface) messages, which are sent to the VMS. The actual physical link must be on the Near Switch only. The API link is a BRI permanent virtual circuit. SMDI messages are produced via a translation process from 5ESS X.25 to SMDI RS232 messages. Conversely, MWI (Message Waiting Indicator) messages are received by the Near Switch from the VMS with a reverse SMDI to X.25 process. If the MWI message is destined for an NPANXX on another switch, the MSS sends the information to ISVM which packages the MWI message in a TCAP message, and sends the message to the SCP for routing to the correct switch. When the destination switch is reached, the ISVM software unpackages the TCAP message, and sends it to the MSS Software for MWI application to the subscriber's line.

Scenario 4: Calling Party Number privacy Off

For this scenario, see Figure 4.

Party B calls the access number for the VMS. Since the Calling Party Number is not Private, the VMS reads the CPN and provides direct access to the caller's mailbox. The ISVM ISUP message carries the status of the Privacy indicators for Calling Party Number. The MSS code on the Near Switch reads the indicator status and since Privacy is not activated for the CPN, the CPN is provided to the VMS.

Scenario 5: Calling Party Number Privacy On

For this scenario, see Figure 5.

Party B calls the access number for the VMS. Since the Calling Party Number is Private, the VMS does not receive Party B's CPN and direct access to Party B's mailbox is denied. The VMS plays an announcement prompting the caller to enter the ten-digit number if the caller has voice mail on this system.

Direct access is denied to Party B's mailbox.

The ISVM ISUP message carries the status of the Privacy indicators for Calling Party Number. The MSS code on the Near Switch reads the indicator status and since Privacy is activated for the CPN, the CPN is not provided to the VMS.

Message Waiting Indicator is not affected by the CPN Privacy status.

This Privacy interaction is usually based on all calls, per-switch Privacy activation. It is not feasible that a subscriber would activate per-call Privacy for access to the party's own mailbox. Local regulatory rulings can mandate this scenario.

Forwarded calls are not affected by the status of the CPN Privacy or Called Party Number Privacy.

Scenario 6: Calling Party Number Privacy On and Line Blocking Enhancement for ISVM On

For this scenario, see Figure 6.

Party B calls the access number for the VMS. The Calling Party Number is Private, but SFID 240 or OFID 669 is activated either on a per-switch basis via 5E10 SU (Software Update) or on a per Message Service Center Multi-line Hunt Group basis via 5E11 SU or 5E12 BMI. The VMS receives Party B's CPN and direct access to Party B's mailbox is allowed.

The ISVM ISUP message carries the status of the Privacy indicators for Calling Party Number. The MSS code on the Near Switch reads the indicator status and since Privacy is activated for the CPN, the CPN is not provided to the VMS. However, when this feature is activated the Privacy status is ignored and the CPN is presented to the VMS. THIS FEATURE DOES NOT OVERRIDE PRIVACY TO AN ICLID OR CALLER-ID DISPLAY ON A STATION SET OR CALL-ID BOX. This feature only allows presentation of the Private CPN for ISVM VMS on the 5ESS-2000 Switch.

Message Waiting Indicator is not affected by the CPN Privacy status. This Privacy interaction is usually based on all calls, per-switch Privacy activation. It is not feasible that a subscriber would activate per-call Privacy for access to the party's own mailbox. This feature has been developed strictly for the provision of direct access to a VMS by a ISVM subscriber. Forwarded calls are not affected by the status of the CPN Privacy or Called Party Number Privacy.

Scenario 7: Mixed Vendor ISVM Network

For this scenario, see Figure 7.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSAPP	5537	3	5AK	8.17
DSLAP	5963	6	6A	24.7
MLHG	5110	3	1J	3.5
MSFD	5962-1	6	5A	12.37
MSGP	5962-2	6	5B	4.37
MULTITN	5114	3	1N	3.3
OFCOPT	5509	3	5I	8.1

2.1 Line Translations

MLHG form (5110-1/2/3/4 Record) - This form is used to define Multi-Line Hunt Group information. Added to this record for the ISVM feature are the BCID SCRNING and CLIENT TN TYPE fields.

An entry of "Y" or "N" in the BCID SCREENING field determines if business customer ID screening is allowed for this MSC (Message Service Center). This field was added since ISVM does not send BCIDs across switches. An entry of "N", therefore, bypasses the normal screening of BCIDs for an MSC.

If BCID SCRNING is entered, CLIENT TN TYPE must be entered. When BCID SCRNING is "Y", at least one of the six possible BCIDs (Business Customer ID) must also be entered on the MLHG form. When BCID SCRNING is "N", AP SITE ID (also on the MLHG form) must be entered.

Both BCID SCRNING and CLIENT TN TYPE must be entered to allow entries for the MLHG fields AP SITE ID and BCID[1-6].

The CLIENT TN TYPE field represents a client telephone number type of either OCDN or RDN (see Feature Description). This field allows VM users to choose which TN type is sent to the VM system. When CLIENT TN TYPE is entered, the SUBTN field on the MLHG form cannot contain entries. A CLIENT TN TYPE entry requires a BCID SCRNING entry.

CLIENT TN TYPE cannot be entered when the fields HIGHEST LISTED TN, SUBTN1 or MPTYPE are entered. When CLIENT TN TYPE is "RDN", the AP SITE ID field must also be entered.

MULTITN (5114 Record) - The Multiple TNs for Multiline Hunt Groups form assigns additional telephone numbers to an MLHG Main TN, to MLHG Subgroup TNs or to an individual MLHG member.

The CLIENT TN TYPE field has also been added to this form for additional TNs on an MLHG.

The following restrictions apply to this form: When SUBTN is entered, CLIENT TN TYPE cannot be entered; when CLIENT TN TYPE is entered, TERM must not be entered or must be 1, and NONHUNT must be "N".

2.2 Miscellaneous Translations

OFCOPT (5509 Record) - This form is required to supply various office options and parameters for each 5ESS Switch.

The ISVM TCAP TIMER field has been added with the ISVM feature to determine the timeout value for the ISVM Transaction Capabilities Application Part timer. The valid entry in this field can be from 1 to 10 seconds. The default value is 3 seconds.

DSAPP (5537 Record) - This form is used to specify the Direct Signaling Application Type, Transaction Type and the Subsystem Number used by the direct signaling trunks for CCS7 (Common Channel Signaling System 7) signaling protocols. It is available with 5E4(2) and later Software Releases.

Added to DSAPP under the APPLIC field is the enumeration ISVM (or I) which indicates that the Direct Signaling Application type for a particular direct signaling trunk is Inter-Switch Voice Messaging.

2.3 ISDN/BRCS Translations

MSFD (5962-1 Record) - The Message Service System Feature Definition form defines the various options and preconstructed features associated with Message Service System. It is available in 5E4(2) and later Software Releases.

Each line which uses the MSS feature must be assigned only 1 MSS feature (defined on the MSFD form, 5962-1 Record) on the appropriate feature assignment form. (LINEFA, CLUSTER, BFG, or MLHLNEA form).

The MSG WAIT IND SCTY field has been added for the ISVM feature to determine if security for the MWI (Message Waiting Indicator) is activated. If this field is "Y", the MWI request is processed only if the BCID of the VM system matches the BCID of the destination DN of the user requiring the MWI indication. If "N" is entered, no security check is made.

When the AUD MSG WAIT IND or VIS MSG WAIT IND on this form are "Y", MSG WAIT IND SCTY must be entered. When AUD MSG WAIT IND or VIS MSG WAIT IND are "N", MSG WAIT IND SCTY must not be entered.

MSGP (5962-2 Record) - The Message Service System Group Parameters form is used to define the group information associated with the MSS feature.

Each line which uses the MSS feature must have a feature name defined on the MSFD form. Additionally, each line should be assigned to an MSS Group which may be defined as a default parameter of the MSFD form, or on an individual terminal basis with the MSLPA or MSMPA forms.

The GRP TYPE field added with the ISVM feature defines the Message Service Group Type as either an intra-switch MSC serving users on the same switch or an ISVM group serving users on other switches.

If GRP TYPE is "MSS", then the BCID, DELUXE, MSG SRV CNTR, PASSWORD, and SRV ID fields on this form must all be entered.

If GRP TYPE is "ISVM", then BCID, MSG SRV CNTR, and SRV ID must be 0 and DELUXE and PASSWORD must be "N".

DSLAP (5963 Record) - The DSL Application Processor form is used to define the data links connecting an AP and the 5ESS Switch. Each AP is connected to one ISDN SM with DSL data links.

If a DSLAP form is submitted, then the APPLICATION PROCESSOR field on the OFCOPT form (5509 Record) must be "SM" or "AMSM".

The newly added ISVM field determines if the AP is associated with Inter-Switch Voice Messaging. Valid entries are Yes or No. The default value is No. If the E911 field on this form is "Y", ISVM must be "N".

Inter-Switch Voice Messaging
 Intra-Switch DN = "N"
 Provides No Screening MSC for Far Switch Subscribers

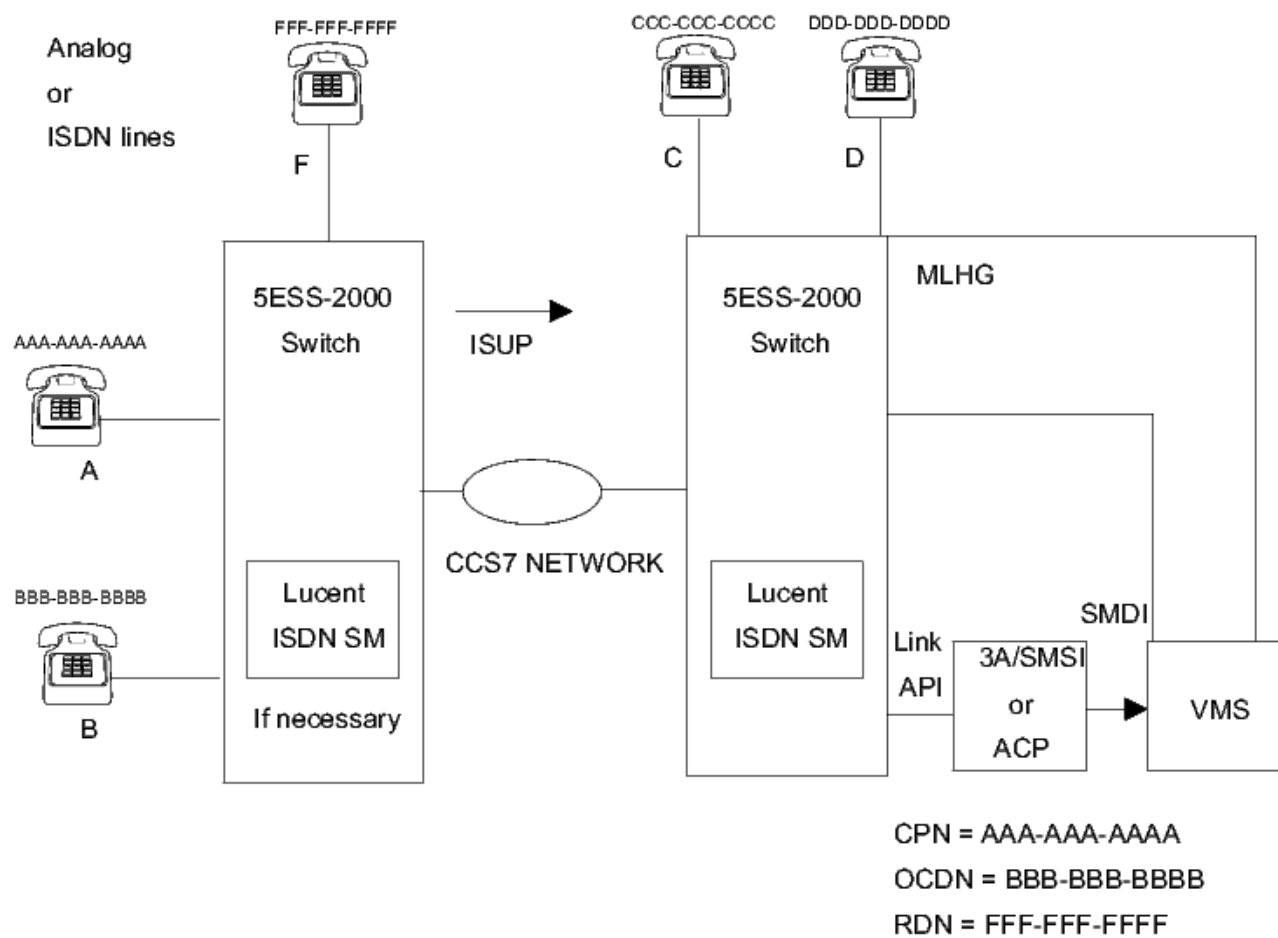


Figure 1 INTRA-SWITCH DN=N

Inter-Switch Voice Messaging
 Intra-Switch DN = "Y"/TFOS 554
 Provides No Screening MSC for Near Switch Subscribers

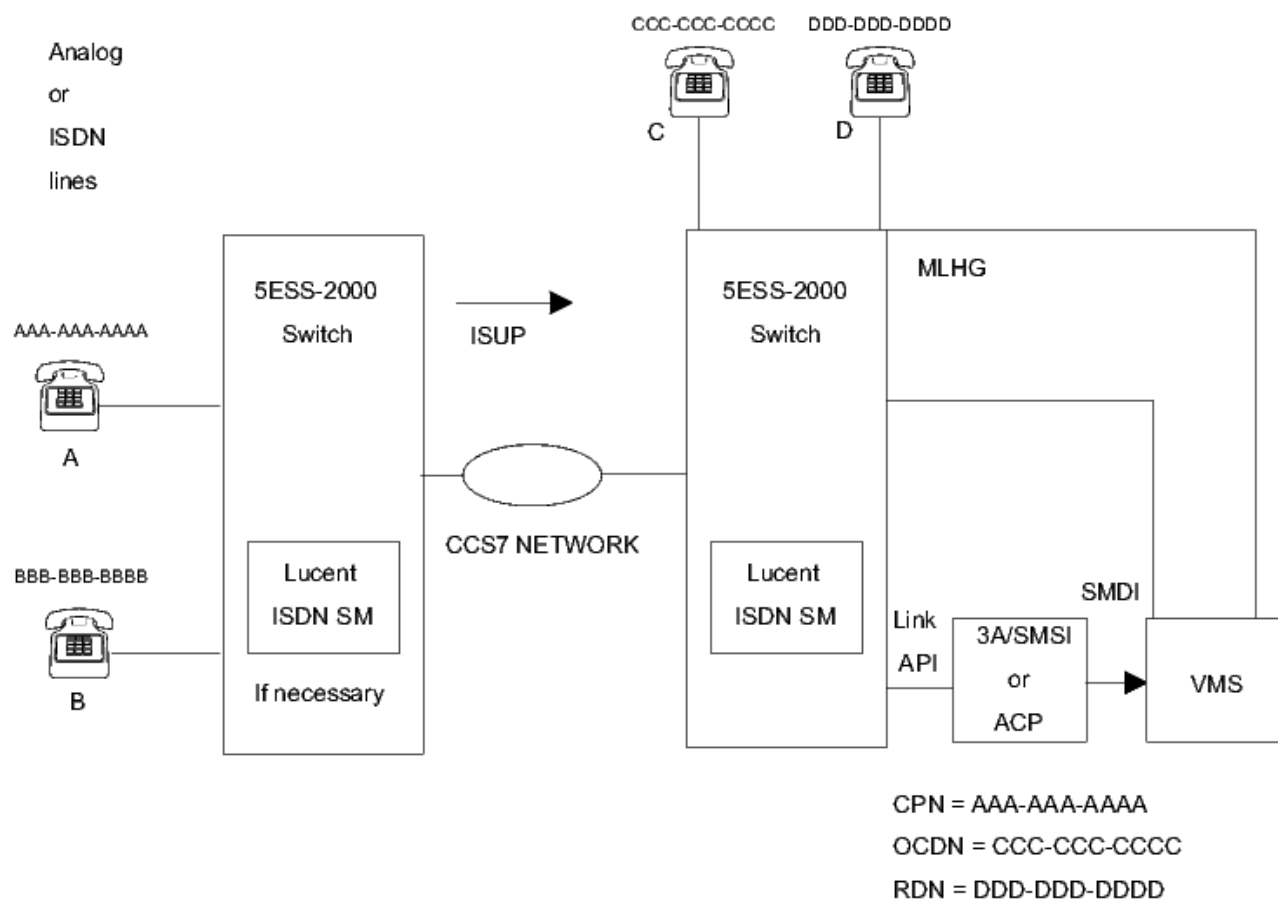


Figure 2 INTRA-SWITCH DN=Y/TFOS 554

Inter-Switch Voice Messaging
Inter-Switch Operation with CCS7 Trunks

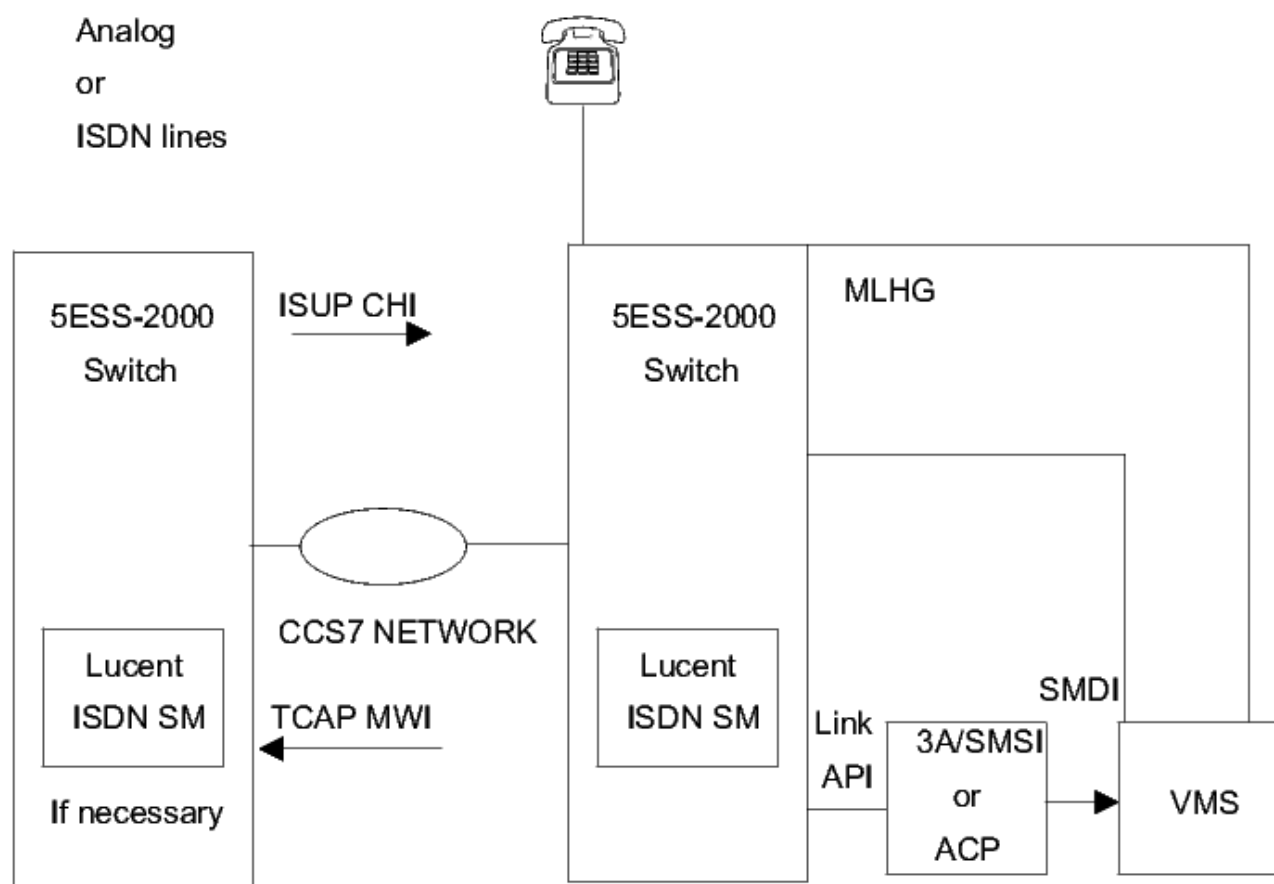


Figure 3 EXTENDED MSS FUNCTIONALITY

Inter-Switch Voice Messaging
Calling Party Number Privacy-Off
Inter-Switch Operation with CCS7 Trunks

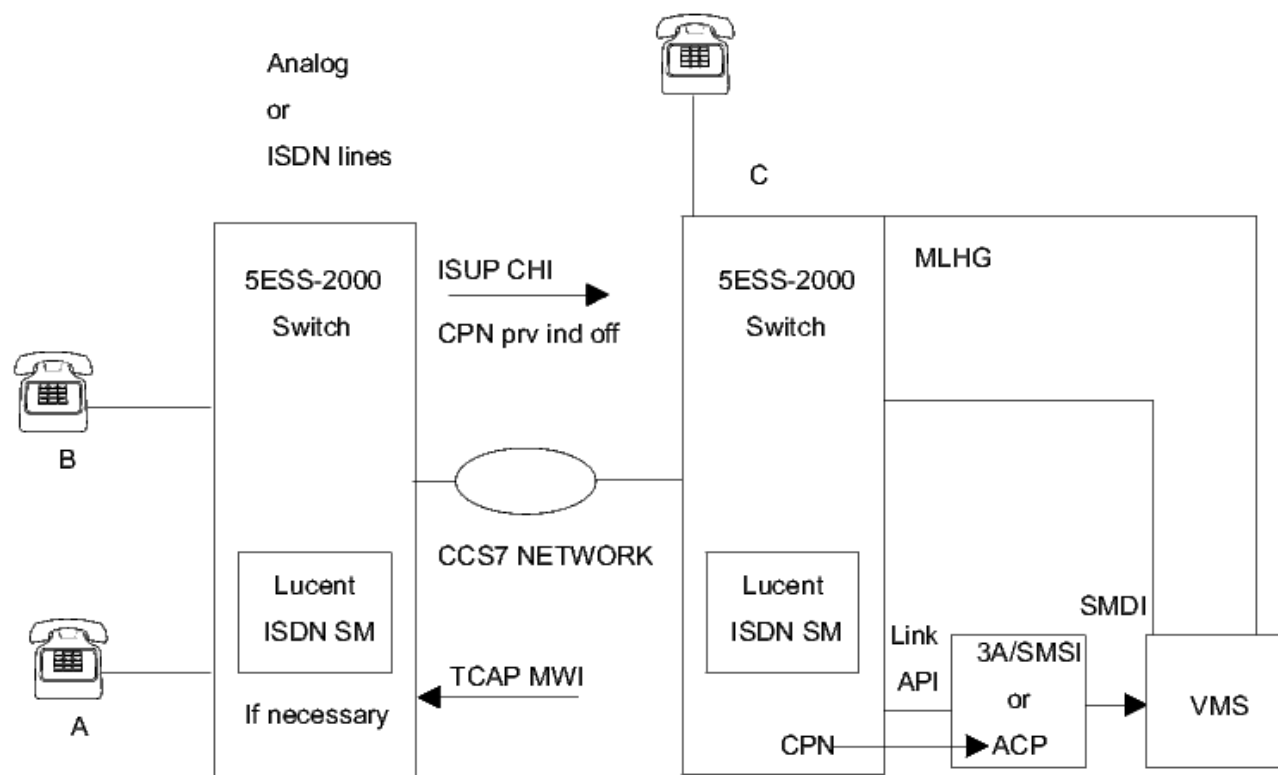


Figure 4 CALLING PARTY NUMBER PRIVACY OFF

Inter-Switch Voice Messaging
Calling Party Number Privacy-On
Inter-Switch Operation with CCS7 Trunks

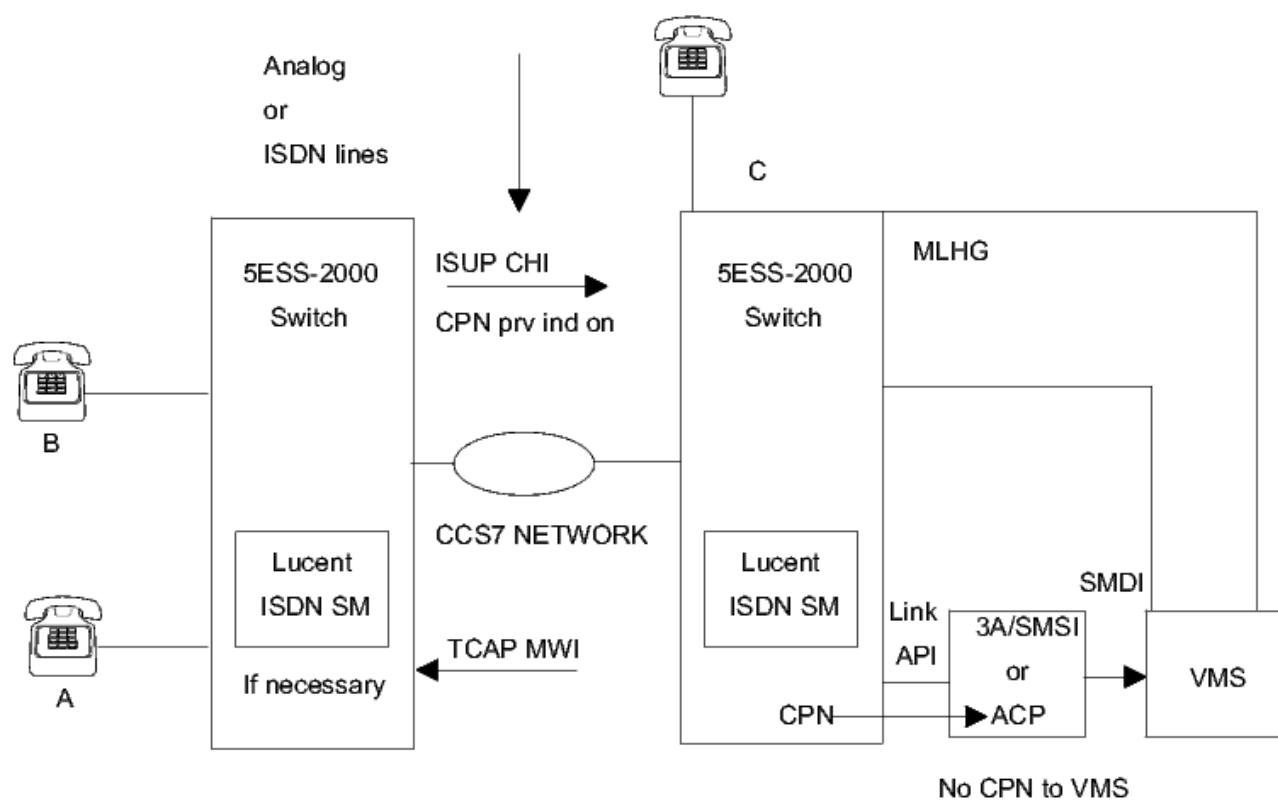


Figure 5 CALLING PARTY NUMBER PRIVACY ON

Inter-Switch Voice Messaging
 Calling Party Number Privacy-On
 Line Blocking Enhancement for ISVM SFID 240 OFID 669 On
 Inter-Switch Operation with CCS7 Trunks

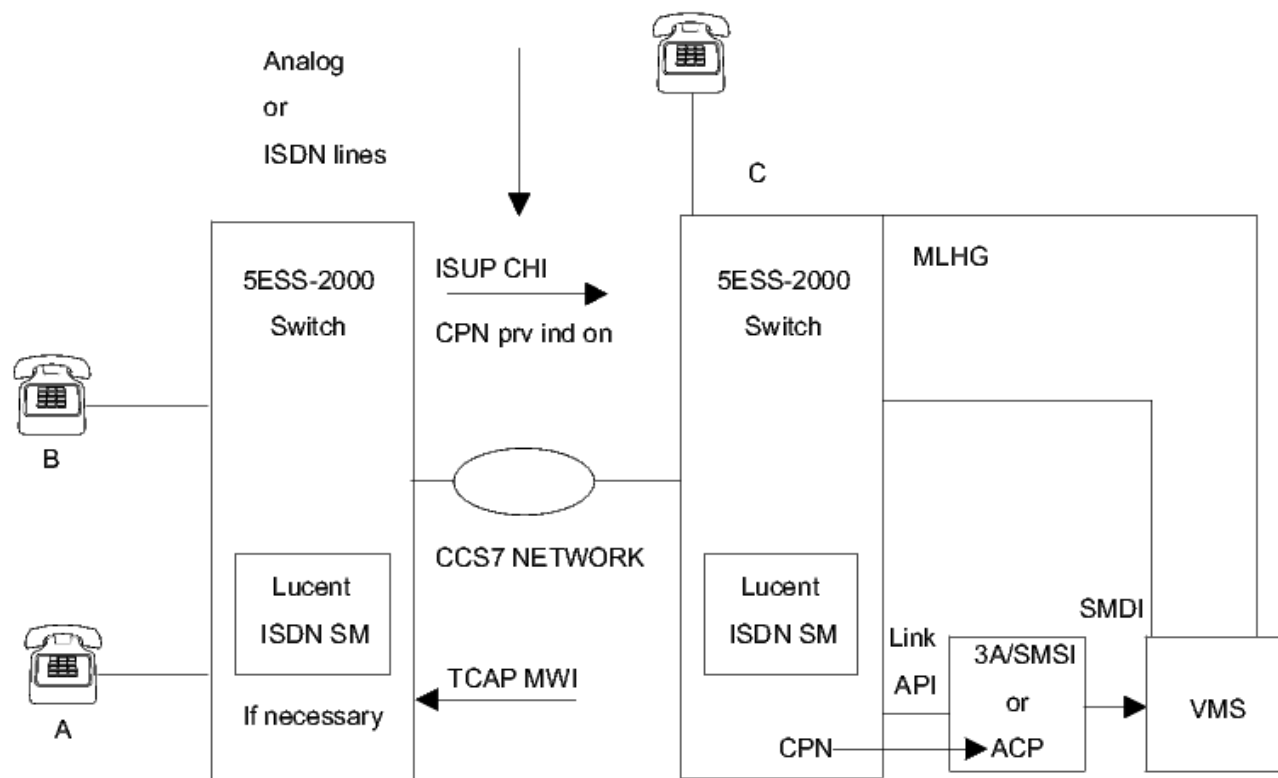


Figure 6 CALLING PARTY NUMBER PRIVACY ON

Inter-Switch Voice Messaging
Mixed Vendor ISVM Network
Inter-Switch Operation with CCS7 Trunks

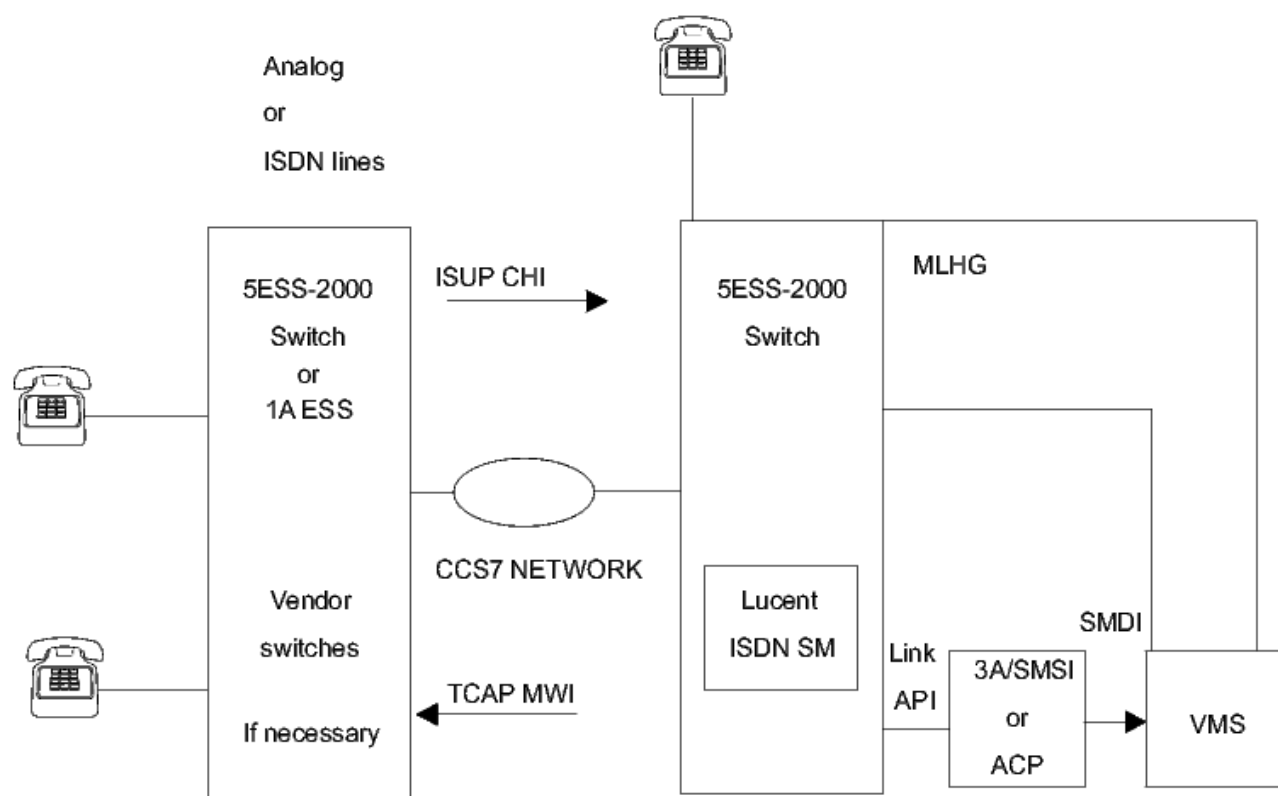


Figure 7 MIXED VENDOR ISVM NETWORK

SEC. 1BH: ISDN INSPECT

1. FEATURE DESCRIPTION

Available with 5E11 and later, the ISDN Inspect, feature number 99-5E-2320, is a network-provided service, that allows NI-3 (National ISDN Phase 3) users to be presented (via displays) with information about feature activators, idle call appearances and non-idle call appearances.

There are three types of inspect operations:

- FBI (Feature Button Inspect) - Feature button inspect allows the end-user to obtain the service description associated with a feature activator.
- ICAI (Idle Call Appearance Inspect) - Idle call appearance inspect allows the end-user to view the directory number or intercom group information associated with a call appearance on his or her terminal.
- NCAI (Non-Idle Call Appearance Inspect) - Non-idle call appearance inspect allow the ISDN user to view the DN of the other party (if available and not private or CNIGI (Calling Number Intragroup Incoming Call Line Identification) restricted) on an active, held, or offered call. (For terminating calls, the ISDN user must be subscribed to CND (Calling Number Delivery) in order to receive the calling number of the originating party). In addition, calling party name information (if known and not private) is provided for calls terminated to the ISDN user if CNAM (Calling Name Delivery) is active.

2. FEATURE ASSIGNMENT

The form flow in Figure 1 provides information for assigning ISDN inspect.

- On the DISPFD form, set the INSPECT AMA field to "Y" .
- On the ISDNOPT form, set the ISDN INSPECT timer field to the desired value.
- Assign the Display feature to an ISDN line on the DSLUSR form.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DISPFD	5965	6	8A	12.43
ISDNOPT	5941	5	5B	8.1

DISPFD form (5965) - The 5965 Record allows the calling or called number and the time and date to be displayed at an ISDN station set. The INSPECT AMA field was added to support this feature.

ISDNOPT form (5941) - The 5902 Record defines a set of office parameters that must be entered when the office is an ISDN (Integrated Services Digital Network) switch. The ISDN INSPECT field was added to support this feature.

4. GLOSSARY

CND	Calling Number Delivery
CNIGI	Calling Number Intragroup Incoming Call Line Identification

FBI	Feature Button Inspect
ICAI	Idle Call Appearance Inspect
ISDN	Integrated Services Digital Network
NCAI	Non-Idle Call Appearance Inspect
NI-3	National ISDN Phase 3

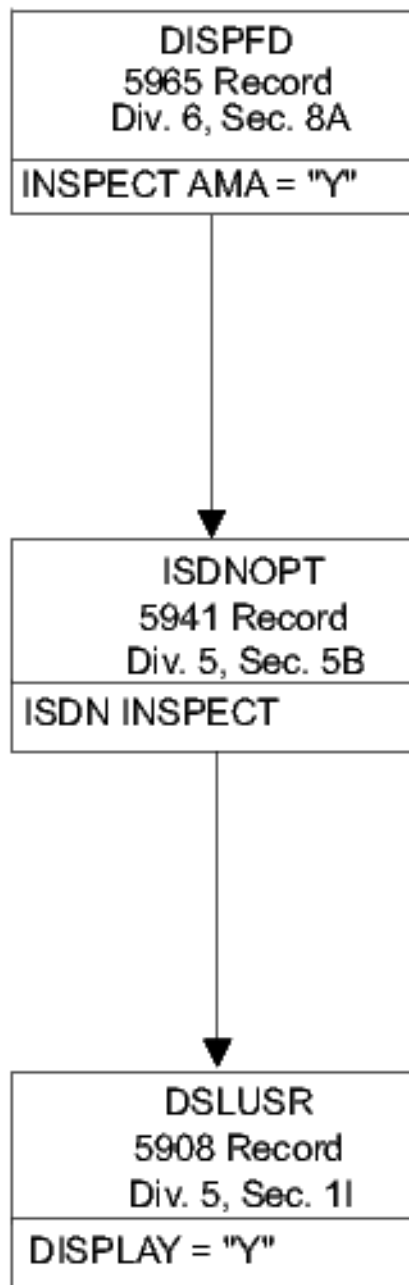


Figure 1 FORM FLOW FOR ISDN INSPECT

SEC. 1BI: FEATURE GROUP D CARRIER IDENTIFICATION CODE EXPANSION

1. FEATURE DESCRIPTION

FGD (Feature Group D) CIC (Carrier Identification Code) Expansion is available in 5E9(1) and later Software Releases.

1.1 Carrier Identification Codes

CICs (Carrier Identification Codes) are used in dialing plans, administrative reports, MF (Multi-Frequency), CCS7 (Common Channel Signaling System 7), and Q.931 ISDN signaling sequences to indicate the desired IC (InterLATA Carrier) for a call. Previous to 5E8,

- FGB (Feature Group B) dialing was 950-0/1XXX, and
- FGD dialing was 10XXX,

where XXX is the CIC unique to the carrier.

CICs were limited to 3 digits, allowing a maximum of 1,000 codes, and were shared between FGB and FGD.

CICs must be allocated in a non-discriminatory manner; thus, ESPs (Extended Service Providers), as well as ICs, must be granted a CIC on request. In order to avoid exhausting CICs, a two-phase plan was formulated for the expansion of these resources.

Phase 1 (FGB CIC Expansion) in 5E8 and later eliminated the linkage between FGB CICs and FGD CICs to create two separate pools of CICs, and expanded the FGB CICs from 3 to 4 digits (XXXX).

For FGB CIC Expansion information see Division 2, Section 1AY.

1.2 Feature Group D

The FGD CIC Expansion feature is Phase 2 of the plan.

Feature Group D allows the telephone subscriber to specify the IC by a PIC (Pre-subscribed InterLATA Carrier) or by dialing the CAC (Carrier Access Code). This code was formerly 10XXX, where XXX is the CIC (Carrier Identification Code).

FGD CIC expansion consists of the following aspects:

1. Expand the CIC from the current 3 digits to 4 digits in the dialing, administration, and signaling formats for FGD and in all other external interfaces and feature interactions. Currently assigned 3-digit CICs are extended to 4 digits by prepending the current 3-digit code with a 0.
2. Expand the CAC in the FGD dialing plan from 5 digits to 7 digits. The expansion of the CIC from 3 to 4 digits modifies the current FGD dialing plan when dialing to override a presubscribed carrier from 10XXX to 101XXXX.
3. Provide a transitional access capability to reach an FGD carrier via 950 dialing for FGB carriers 0/1XXX to FGD carriers XXX. See Section 2.2 for more information.

For information on OSPS Translations for Feature Group D, see Division 2, Section 3E.

2. FEATURE ASSIGNMENT

2.1 Network Upgrade

This feature is part of the larger network capability to support 4-digit FGD carrier codes. Other network elements, including the OSs (Operations Systems), APs (Application Processors), SCPs (Service Control Points), and CPEs (Customer Premises Equipments) need to be equipped with the software to support this 5ESS Switch feature. A number of steps required to completely establish the FGD CIC Expansion feature before assignment of 4-digit CICs follow:

1. The first step requires that the link between FGB and FGD access types be broken. This was accomplished by the FGB CIC Expansion feature. This feature should be deployed in each switch upgraded with FGD CIC Expansion, along with the accompanying FGB operations systems enhancements.
2. The second step requires that all systems which receive FGD carrier data from the switch be upgraded. This includes FGD-specific modifications on OSs, APs and SCP databases.
3. The third step requires that the feature as specified in this document be deployed in all equal access switches in the network. When an area is chosen to be upgraded to support FGD CIC Expansion, each switch in that area can be upgraded so long as Steps 1 and 2 above have been accomplished for that switch. While the switches in an area do not need to be upgraded in a specific order, access tandems should be retrofitted first and then subtending end-offices. If the access tandems are upgraded, then trunk signaling conversion can begin as in Step 5 between an end office and the access tandem even if all other end offices have not upgraded. IC/INC offices could upgrade at this time if they so desire, but will not be required to do so.
4. The fourth step requires that every affected interface that will send new data to the switch be upgraded with this capability. These interfaces include PBXs.
5. When all these items are in place, the capability can be phased in separately for the trunk signaling, product interfaces, and dialing.

2.2 Transitional Access Capability

The Transitional Access capability for CICs in the current 3-digit XXX range (prior to the FGB CIC Expansion) is retained. In order for the Transitional Access capability to work, the carrier must get the same code assignment for both FGB and FGD. The expansion of FGB CICs, implemented in the 5E8 FGB CIC Expansion feature, is a pre-requisite for this feature. A Transitional Access carrier with an FGB CIC in the 0XXX or 1XXX range should be assigned an FGD CIC of 0XXX. Subscribers should be allowed to dial either 950-0XXX or 950-1XXX to reach a Transitional Access carrier. Regardless of whether 0 or 1 was dialed for this carrier, the call is considered an FGD call with a CIC of 0XXX, and this is reflected in the signaling, billing, and measurements for the call.

2.3 CAC Code Expansion

The ability to dial an expanded (101XXXX) CAC is determined by a new office parameter on the OFCOPT form. This office parameter indicates the current phase of the office as follows:

- During the pre-permissive period, callers must use the existing 10XXX CAC. Test lines will have the capability to dial the expanded CAC and be routed to the proper carrier.

- During the permissive period, the caller is allowed to dial using the expanded CAC (101XXXX) only for carriers starting with 0, 5, or 6. During this period, both the 10XXX and 101XXXX dialing formats will be accepted.
- During the post-permissive period, callers must use the new 101XXXX CAC (a new FIXED ROUTE TYPE of "INVCAC" is needed prior to changing to the post-permissive period). Use of the old format will result in an error announcement and an incorrectly routed call.

In summary, the CAC is

- 10XXX for 5e8 and earlier, and in 5E9(1) and later if in the pre-permissive or permissive periods, or
- 101XXXX for 5E9(1) and later if in the permissive or post-permissive periods.

2.4 Office Dialing and Individual Dialing Plans

Office Dialing Plans do not have to be reprovisioned to support expanded CACs. Expanded CACs are also allowed using Individualized dialing plans. However, unlike ODPs, IDP's will require provisioning to support the new CAC format.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CARSCR	5551	3	6B	1.60
CDIM	5300-6	3	3E	9.7
CTTU	5518	3	5R	14.4
DSLUSR	5908	5	1I	23.2, 23.8
FIXRT	5301-1	3	3G	10.1
ICF	5305	3	3R	10.3
IDPGP	5601-4	4	2D	9.10
IDPGPA	5601-1/2	4	2B	9.13
LDIT	5300-3/5	3	3C	9.3
LINE	5109	3	1I	1.6, 1.8
MCRTIDX	5304	3	3Q	10.4
MLDIT	5300-3	3	3C	9.15
MLHLN	5111	3	1K	3.2
OFCOPT	5509	3	5I	8.1
ROTL	5512	3	5L	14.2
RTIDX	5303	3	3P	10.2
TKEDSLD	5209	3	2K	5.34
TKGRP	5202	3	2A	5.1
TLWS	5511	3	5K	14.3
TODCL	5610-2	4	11B	4.5

3.1 Line Translations

LINE form (5109 Record) - This form defines the office Equipment Number and features for each telephone number in a 5ESS Switch.

The definition for the enumeration "ALLOW" for the CIDIAL field is modified from 10XXX to FGD CAC to reflect the change in the CAC. The PIC field is expanded from 3 to 4 digits.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular Multi-Line Hunt Group.

The definition for the enumeration "ALLOW" for the CIDIAL field is modified from 10XXX to FGD CAC to reflect the change in the CAC. The PIC field is expanded from 3 to 4 digits.

3.2 Trunk Translations

TKEDSLD form (5209 Record) - This form defines EDSL (Extended Digital Subscriber Line) Call by Call features assigned to a B-channel trunk group.

The CARRIER ID field is expanded from 3 to 4 digits.

TKGRP form (5202 Record) - This form defines parameters for each Trunk Group in a 5ESS Switch.

The expansion of the CARRIER ID field from 3 to 4 digits for FGB in 5E8, now also applies to FGD. The PIC field is expanded from 3 to 4 digits. The definition for the enumeration "ALLOW" for the CIDIAL field is modified from 10XXX to FGD CAC to reflect the change in the CAC.

The new field FGD CIC SZ is the expected size for the incoming CIC for 2-way or incoming TTOLLCON, LTOLLCON, or LATA trunk classes. If this field is not entered, a 3-digit CIC is allowed.

Valid entries are:

- "BOTH", 3- or 4-digit CIC expected; and
- "FOUR", 4-digit CIC expected.

3.3 Routing and Charging Translations

CDIM form (5300-6 Record) - This form defines carrier specific code indexes and route indexes for the CI (Carrier Interconnect) capability.

The expansion of the CARRIER ID field from 3 to 4 digits for FGB in 5E8, now also applies to FGD.

FIXRT form (5301-1 Record) - This form defines routing and charging treatment of fixed route types.

The FIXED ROUTE TYPE field added the enumeration "INVCAC" which provides routing for a 7-digit CAC to an error announcement if 101 is not dialed in the post-permissive period.

ICF form (5305 Record) - This form defines the characteristics of InterLATA (Local Access Transport Area) carriers.

The expansion of the CARRIER ID field from 3 to 4 digits for FGB in 5E8, now also applies to FGD.

For the MEASUREMENT field, the number of ICF forms that can have "Y" is increased from 200 to 500.

Note: the transition carriers have not changed.

LDIT form (5300-3/5 Record) - This form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

The SAC OWNER field is expanded from 3 to 4 digits.

MCRTIDX form (5304 Record) - This form defines the routing for various BRCS capabilities.

The CARRIER ID field is expanded from 3 to 4 digits.

A new field, FGD CIC 4, indicates whether the SSP (Service Switching Point) is capable of handling a 4-digit CIC. A value of "Y" means a 4-digit CIC is used; "N" means the 3-digit CIC is still being used. This capability is indicated to the SCP (Service Control Point) on an outgoing Equal Access Trunk.

MLDIT form (5300-3 Record) - This form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

The SAC OWNER field is expanded from 3 to 4 digits.

RTIDX form (5303 Record) - This form defines each Route Index in a 5ESS switch.

A new field, FGD CIC 4, indicates whether the SSP (Service Switching Point) is capable of handling a 4-digit CIC. A value of "Y" means a 4-digit CIC is used; "N" means the 3-digit CIC is still being used. This capability is indicated to the SCP (Service Control Point) on an outgoing Equal Access Trunk.

3.4 Miscellaneous Translations

CTTU form (5518 Record) - This form defines the CTTUs (Central Trunk Test Units) used to test trunks and lines from a remote location.

The CARRIER ID field is expanded from 3 to 4 digits.

OFCOPT form (5509 Record) - This form defines various miscellaneous office options and parameters.

Fields CARRIER ID, FAIL ID, and PSEUDO CARR are expanded from 3 to 4 digits. The OFFICE CARRIER field is expanded from 3 to 4 digits ("LEC" may also be entered now).

A new field, FGD PHASE, indicates the FGD phase for the office. Valid entries are:

- "PREPHASE", ordinary subscribers are allowed to dial the 5-digit CAC. Test lines will have the capability to dial the expanded CAC and be routed to the proper carrier.
- "PERMPHASE", ordinary subscribers are allowed to dial either the 5- or 7-digit CAC on a call by call basis.
- "POSTPHASE", ordinary subscribers are allowed to dial only the 7-digit CAC.

All values of FGD PHASE do not impact dialing of 950 calls or any other features.

A new field, TCAP CIC, indicates whether the office accepts an expanded TCAP CIC. The value of this field indicates to the SCP whether or not the SSP is capable of handling a 4-digit CIC. A value of "Y" means that a 4-digit CIC is used; "N" means that the 3-digit CIC is still being used.

If FGD PHASE is equal to "POSTPHASE", exactly one FIXRT form must exist with FIXED ROUTE TYPE equal to "INVCAC".

ROTL form (5512 Record) - The ROTL (Remote Office Test Line) form interfaces with existing CAROT (Centralized Automatic Reporting On Trunks) systems through the DDD Network. This form stores the security call-back telephone numbers of all CAROTS that can access the 5ESS Switch trunks (outgoing and 2-way) in this office, and also defines the maintenance mode of the CAROT.

The CARRIER ID field is expanded from 3 to 4 digits.

TLWS form (5511 Record) - This form defines each TLWS (Trunk and Line Work Station) associated with a

5ESS Switch.

The CARRIER ID field is expanded from 3 to 4 digits.

3.5 Secured Features Translations

CARSCR form (5551 Record) - This form is used by the operating company to assign carrier line screening information to an individual TN or to an MLHG and MLHG member for a particular carrier.

The CARRIER ID field is expanded from 3 to 4 digits.

3.6 BRCS Translations

IDPDCA form (5601-1/2 Record) - The IDPDCA form defines the dialed codes associated with IDPs (Individualized Dialing Plans).

The ACTION field contains a new enumeration "SP4CAR" to indicate that a 4-digit carrier code is used.

IDPGP form (5601-4 Record) - This form defines the options associated with IDPs (Individualized Dialing Plans).

The GPIC field is expanded from 3 to 4 digits.

TODCL form (5610-2 Record) - This form defines the TOD activities that will occur on a particular line, terminal, or trunk group at a specified time.

The ONE PARAMETER ACTION field must be four digits (0000 - 9999) when ACTION is "GRPCARCH".

3.7 ISDN/Packet Switching Translations

DSLUSR form (5908 Record) - The DSLUSR form defines the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes.

The definition for the enumeration "ALLOW" for the CIDIAL field is modified from 10XXX to FGD CAC to reflect the change in the CAC. The PIC field is expanded from 3 to 4 digits.

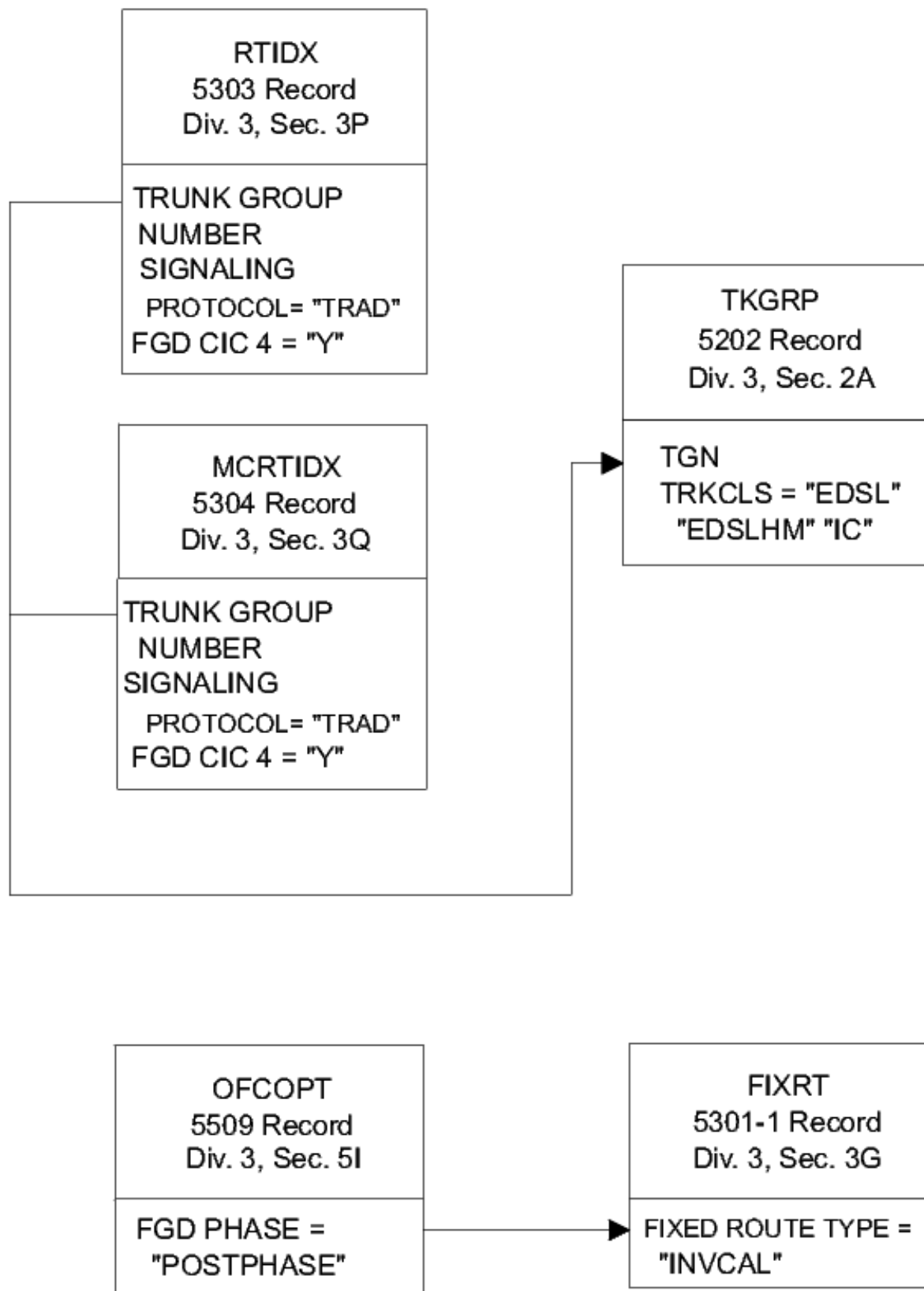


Figure 1 FORM FLOW - FEATURE GROUP D CARRIER IDENTIFICATION CODE EXPANSION

SEC. 1BK: PSU TIME SLOT ASSIGNMENTS

1. FEATURE DESCRIPTION

The PSU (Packet Switch Unit) section describes the procedures required to engineer and assign TSIU (Time Slot Interface Unit) peripheral side time slots needed for packet switched services and other special services requiring protocol handler assignments on the PSU. Peripheral time slots are provided through PIDBs (Peripheral Interface Data Bus). Each PIDB carries 32 time slots, 0 to 31, and connects a peripheral unit such as a line unit to a data port on a DI (Data Interface). These assignments only apply to SMs—not SM-2000. For each SM, there are two DIs, 0 and 1, and each DI terminates 256 time slots via 16 data ports (see Figure 1).

Most peripheral units such as line units and trunk units use all 32 time slots in the PIDB, i.e., all time slots are occupied with active channels and there are no idle time slots. Other units such as the DFI (Digital Facility Interface) unit or the DSU2-RAF (Digital Service Unit 2-Recorded Announcement Function) unit, only use a subset of the 32 time slots. For these units, stuffing patterns are used to balance the active channels across the 32 time slots on the assigned PIDB. Figure 2 specifies the number of PIDB time slots required by each peripheral unit.

Except for the PSU, peripheral unit time slots are internally allocated on a DI and do not require manual engineering or assignment. These time slots provide a path between a peripheral unit and the TSIU.

With the introduction of ISDN (Integrated Services Digital Network), special signaling protocols such as X.25 and X.75 require assignment to a protocol handler on a PSU. The PSU consists of up to 5 shelves with each shelf equipped with a maximum of 16 protocol handlers. As with the other peripheral units, this signaling information also requires a path to the TSI and is provided through a PSU PIDB from each equipped shelf to one of the DIs. For 5E10 and later, each shelf can have up to 4 PSU PIDBs.

However, unlike the other peripheral units, PSU PIDBs do not have a fixed number of active channels. The usage of these PSU PIDB time slots will be variable depending on services and features provisioned on the PSU. Therefore, the time slots needed for these services must be engineered and assigned on the PSU. Figure 3 lists the various services requiring PSU time slots.

The remainder of this section discusses the procedures necessary to engineer and assign these PSU time slots using both Recent Change for in-service offices, and ODA for initial and Large Terminal Growth offices.

1.1 PSU Time Slot Assignments Using Recent Change

PSU data is entered using RC View 22.2 for shelf 0 (shown in Figure 4) and 22.3 for shelves 1 - 4 (shown in Figure 5). Note that PSU time slots are assigned on RC View 22.2 for the entire PSU, that is, for shelves 0 - 4. Screen 2 reserves time slots for DI 0; screen 3 reserves time slots for DI 1.

A maximum of 128 PSU time slots can be assigned to each DI. However, the total reserved time slots across both DIs cannot exceed 160, based on a maximum of 5 shelves on the PSU with each shelf having access to 32 time slots via a PSU PIDB assignment on each shelf. The 128 time slots for each DI are arranged in 4 rows with each row having 32 time slots. The logic of this arrangement will become apparent later. Note that the headings for these fields are titled "DI(0/1) PSU TSIU TIMESLOTS". This implies that time slots are being reserved in the Data Interfaces (0 or 1) and not specific PIDBs. Hence, there is no correlation between a specific row of time slots and a specific PIDB.

DIs deliver time slots to the TSI which is part of the MCTU (Module Controller and TSIU) on the SM. For a given time slot (00-31), the TSI is designed to simultaneously switch up to 8 active peripheral unit channels. To avoid blocking conditions, attempts to reserve more than 8 active channels to a time slot result in an RC

error message.

To provide a quick and easy method to determine unassigned time slots, the AVAILABLE TS field has been added to each DI on the 22.2 view beginning in 5e9(1). The AVAILABLE TS field indicates the quantity of unused time slots for each time slot position on each DI. The values (ranging from 0 - 8) indicated in the AVAILABLE TS row reflect current peripheral unit assignments including any PSU time slots already reserved on a DI.

For example, if a 1 is entered in the AVAILABLE TS row under the TS 00 position for DI 0, this means one additional channel may be assigned to TS 00. This implies 7 channels are currently assigned to TS 00 from other peripheral units located on this SM including any PSU time slots already reserved for TS 00 as would be indicated in the 4 RPTSS (Reserved Peripheral Time Slots Set) rows on DI 0. If the value is 2, 2 additional channels may be assigned, if the value is 3, 3 additional channels, and so on.

Services being provisioned are assigned a PH (Protocol Handler) through an ISCN (Integrated Services Channel Number) assignment found on various views. The ISCN is a 6-digit number as follows:
X-XX-XXX, where

X - PSU Shelf, 0-4
XX - Channel Group, 0-15
XXX - Channel, 000-127

Reserving PSU time slots to a DI is not an arbitrary assignment. The engineering process basically involves determining which DI, RPTSS, and specific time slots provide an optimum configuration that makes efficient use of the DI time slots while at the same time supporting future growth on the selected DI.

1.2 Data Interface Selection

If time slots are being reserved for a specific service, the shelf must be known. Assignments should then be made to the DI terminating the PIDB assigned to this shelf. The PIDB is determined from the DI field on either the 22.2 view for shelf 0 or the 22.3 view for shelves 1-4 (see Figures 4 and 5). Operational PIDBs can be verified by using the 18.7 verify view.

If time slots are being reserved for future use, these views should still be referenced to determine which DI(s) to use. For this case, if all equipped shelves terminate to DI 0, time slots should be reserved in DI 0. If all equipped shelves terminate to DI 1, time slots should be reserved in DI 1. If equipped shelves terminate to both DIs, time slots may be reserved in either or both DIs.

1.3 Reserved Peripheral Time Slot Set Selection

Once the DI has been selected, the next step is to select the RPTSS. As stated earlier, the 128 time slots for each DI are arranged in 4 time slot sets 0-3, with each set having 32 time slots. Time slots are delivered to the DI in groups of 32. Each row therefore, visually represents a PIDB's worth of time slots numbered 00 to 31.

Note that there is no correlation between a specific RPTSS row and a specific PSU PIDB. In other words RPTSS0 does NOT represent the PIDB assigned to shelf 0. A PIDB is required for each RPTSS used for PSU time slots. For example, if time slots are reserved on any 2 RPTSSs on the selected DI, at least 2 PIDBs must terminate to the selected DI. This implies that a minimum of 2 shelves must be equipped on the PSU. If time slots are assigned to any 3 RPTSS on the same DI, at least 3 PIDBs (minimum of 3 shelves) are required, and so on. RPTSS selection normally starts in RPTSS0 then 1, 2 and finally 3.

1.4 Time Slot Selection

Once the DI(s) and RPTSS(s) have been selected, time slots can be reserved based on the values in the AVAILABLE TS field.

In order to maximize the usage of all available time slots and support future growth on the selected DI, the following recommendations are offered:

1. Assignments should start in the "least used" TS positions as indicated by the AVAILABLE TS field. The values in the AVAILABLE TS field indicate the quantity of unassigned time slots for each TS position, 00 to 31. Therefore, the "least used" positions will have the highest quantity in the AVAILABLE TS field.
2. Figure 9 shows stuffing patterns for DFIs and DSU2-RAF units, DTA w/o AOC, (Dial Through Announcement without Announcement Only Channel). If possible, PSU assignments should be made using the idle time slots indicated for each of the stuffing patterns. This would allow for future growth of these units to the selected DI.

1.5 Assignment Examples

1.5.1 Example 1:

Reserve 10 time slots for future use. PSU equipped with shelf 0. Refer to figures 6a, 6b, 6c, and 6d.

- RC 22.2 indicates shelf 0 terminates to DI 0 (Figure 6a). No other shelves are equipped. DI 0 is selected.
- PSU only has 1 shelf. Therefore all time slots must be assigned to one RPTSS. RPTSS0 is selected.
- AVAILABLE TS field for DI 0 shows a value of 2 in TS 02, 04, 08, and 10 (Figure 6b). Four reservations are made in these time slots as shown in figure 6c. The other 6 are assigned using idle time slots shown for DFI stuffing pattern A in Figure 9. TS 00, 12, 16, 20, 24 and 28 are selected. This would still allow for growth of a DFI pack with stuffing pattern A. It can be seen that if sequential assignments were made in TS 00 through 09, further peripheral unit growth would not be possible on this DI. Figure 6d shows DI 0 after all assignments are made.

1.5.2 Example 2:

Reserve 5 time slots for future use. PSU equipped with shelves 0 and 1. Refer to Figure 7a, 7b, and 7c-1 and 7c-2.

- Both shelves terminate to DI 0 as indicated on views 22.2 and 22.3 (figure 7a and 7b). DI 0 is selected.
- Since 2 shelves are equipped, time slots can be spread over 2 RPTSSs. RPTSS 0 and 1 are selected.
- Figure 7c-1 shows the AVAILABLE TS field with a value of 3 in TS 02, and a value of 2 in TS 04, 08, and 10. If 5 assignments are required, 4 assignments would be made to TS 02, 04, 08, and 10 on RPTSS0 as in the previous example. Since 2 PIDBs terminate to DI 0, the fifth time slot can be assigned to TS 02 on RPTSS1. Figure 7c-2 shows these assignments with the AVAILABLE TS field showing all 1s. This configuration allows for future growth of any peripheral unit type on this DI.

1.5.3 Example 3:

Reserve 5 time slots for EDSL (Extended Digital Subscriber Line) D channel trunks. PSU equipped with shelves 0 and 1. EDSL trunks to be assigned to shelf 1. Refer to figure 8a, 8b, and 8c.

1.6 PSU Time Slot Assignments Using ODA

PSU data is provided in ODA using the EQPSU form shown in Figure 10. Time slots are reserved using the DI0/DI1 PSU TSIU fields.

The switch owner must tell AT&T hardware/software engineering how many time slots to reserve for the PSU. An ISA report shown in Figure 11 is used by the Telco to request PSU TSs. After the time slots are reserved by the AT&T engineer, the switch owner may then assign PSU services using the applicable forms for the type of service. The PSU competes with other peripheral units for DI time slots. If too many assignments are made, system error message "IM 85", will be generated. IM 85 will display current TS assignments and can be used to determine corrective action to eliminate the source of blockage.

There are two essential considerations in time slot assignment to meet the TELCO's requirements: How Many? and Which Ones? The following PSU assignment strategy suggests how to select time slots for the best fit with other peripheral units.

1.6.1 First Pass:

Starting at the upper right hand corner of the RPTSS grid on the EQPSU form, mark a {1} under TS 0. Moving from right to left, mark a {1} every 4 position under TS 4 and 8 and 12 and so forth. Stop when you have marked enough to meet your needs. This provides the first 8 PSU TSs. If more are needed, continue.

1.6.2 Second Pass:

Starting at upper right hand corner of the RPTSS grid on the EQPSU form, mark a {1} under TS 1. Moving from right to left, mark a {1} every 4 position under TS 5 and 9 and 13 and so forth. Stop when you have marked enough to meet the TELCO's needs. This provides the second 8 PSU TSs. If more are needed, continue.

1.6.3 Third Pass:

Starting at upper right hand corner of the RPTSS grid on the EQPSU form, mark a {1} under TS 2. Moving from right to left, mark a {1} every 4 position under TS 6 and 10 and 14 and so forth. Stop when you have marked enough to meet the TELCO's needs. This provides the third 8 PSU TSs. If more are needed, continue.

1.6.4 Fourth Pass:

Starting at upper right hand corner of the RPTSS grid on the EQPSU form, mark a {1} under TS 3. Moving from right to left, mark a {1} every 4 position under TS 7 and 11 and 15 and so forth. Stop when you have marked enough to meet the TELCO's needs. This provides the fourth 8 PSU TSs. If more are needed, continue.

1.6.5 Fifth Pass:

Starting at right hand corner on the second line (RPTSS1) of the EQPSU form, mark a {1} under TS 0.

■ **NOTE:** This is the second TS 0 assigned; you must have at least 2 PSU PIDBs to this DI. When

you start a new line, you must verify (via the PIDB list) the availability of sufficient PSU shelves associated with the DI for which you are reserving timeslots. You cannot continue without enough PSU PIDBs.

Moving from right to left, mark a {1} every 4 position under TS 4 and 8 and 12 and so forth. Stop when you have marked enough to meet the TELCO's requirements. This provides 8 additional PSU TSs. If more are needed, continue.

1.6.6 More Passes:

Continue the same pattern until the TELCO's needs are met. Remember to count your PIDBs when you start a new line.

1.6.7 Last Pass:

Starting at the right hand corner of the last line, mark a {1} under TS 3. Moving from right to left, mark a {1} every 4 position under TS 7 and 11 and 15 and so forth. This provides the last 8 PSU TSs. You cannot assign more TS to this DI.

Note that this PSU-TS assignment strategy cannot be used in the following two SM configurations:

- A PSU is mixed with a RAF-DTA w/o AOC
- A PSU is mixed with a DLTU-R serving OSPS.

See Division 8, Section 22 for more information on PSU time slot assignments.

1.7 Glossary

DFI - Digital Facility Interface

DI - Data Interface

DSU2-RAF - Digital Service Unit 2-Recorded Announcement Function

DTA w/o AOC - Dial Through Announcement without Announcement Only Channel

EDSL - Extended Digital Subscriber Line

ISCN - Integrated Services Channel Number

ISDN - Integrated Services Digital Network

MCTU - Module Controller and TSIU

PIDB - Peripheral Interface Data Bus

PH - Protocol Handler

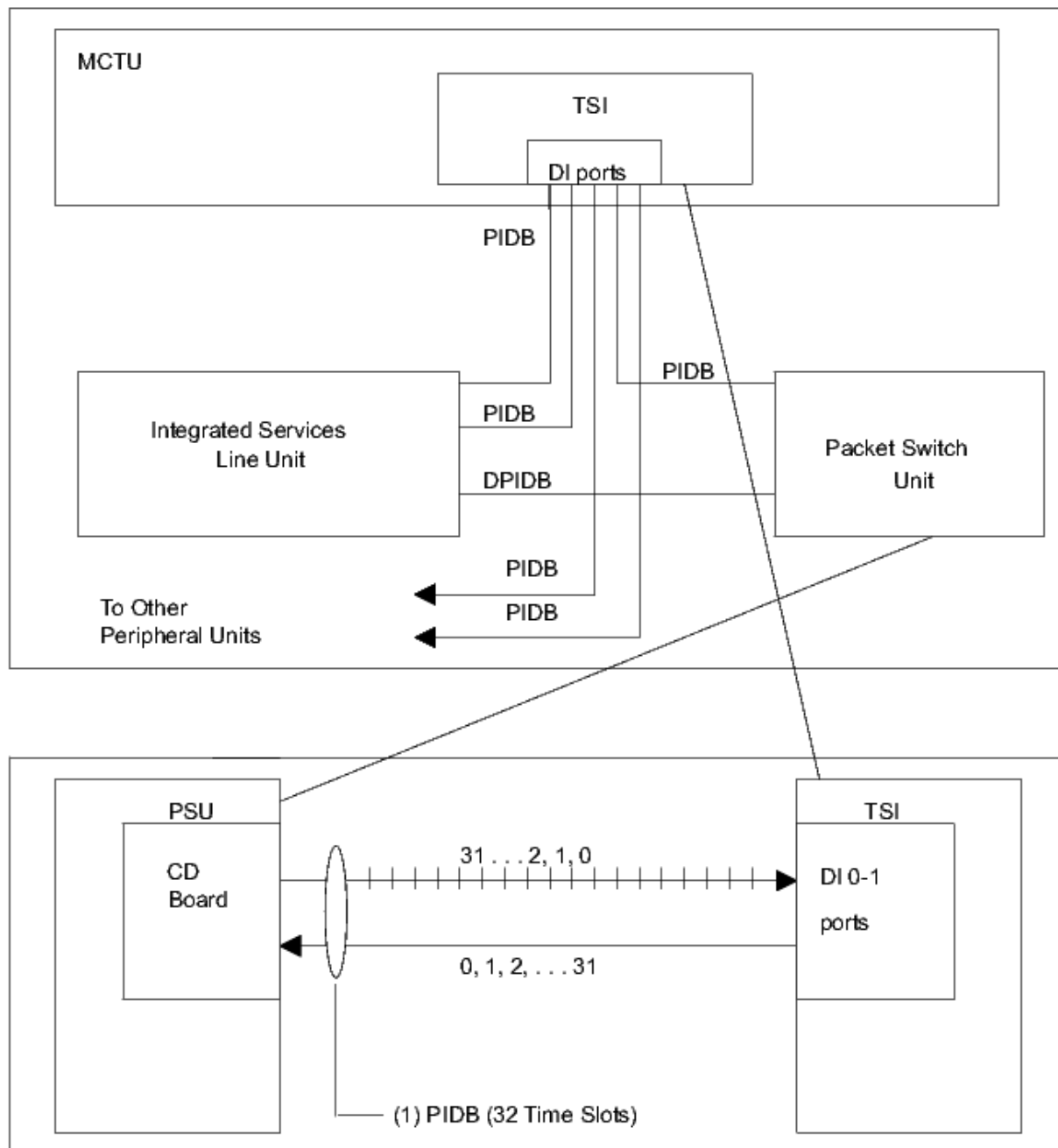
PSU - Packet Switch Unit

RPTSS - Reserved Peripheral Time Slot Set

TS - Time Slot

TSIU - Time Slot Interface Unit

ISDN SWITCHING MODULE



LEGEND:

CD = Common Data Board
 CI = Control Interface
 DI = Data Interface
 DPIDB = Directly Connected Peripheral
 interface Data Bus

MCTU = Module Controller and TSI Unit
 IP = Packet Interface
 PIDB = Peripheral Interface Data Bus
 PSU = Packet Switch Unit
 TSI = Time Slot Interchange Unit

Figure 1 PERIPHERAL UNIT DATA INTERFACES

The following table specifies the number of PIDB TSs required by each peripheral unit.

Required PIDB TSs by Unit			
Form	Peripheral Unit	Time Slots/Data Interface	TG-5 Div/Sec
EQAIU (19.16)	AIU	5E11 and later. 64 TSs per PIDB pair (must be grown as pairs).	8/64
	Remote AIU	5E12 and later. 32 TSs per PIDB (can be grown individually).	
EQDCLU (19.6)	DCLU	32 TSs for LCRs 8:1 - 9:1, per Service Group.	8/30
EQDCLU (19.6)	DCLU	64 TSs for LCRs 4.5:1 and lower, per Service Group.	8/30
EQLU (19.1)	LU	64 TSs, per unit.	8/9
EQTU (19.2)	TU	32 TSs, per Service Group.	8/13
EQIDCU (19.12)	IDCU	32 TSs, per Data Port pair.	8/48
EQISLU (22.5)	ISLU	32 TSs, per Data Port pair.	8/18
EQDS (19.5)	DSU	32 TSs, per Service Group.	8/21
EQISTF (19.11)	DSU2-ISTF	32 TSs.	8/37
EQRA (19.10)	DSU2-RAF	32 TSs per ANN.	8/35
EQRA (19.10)	DSU2-RAF	20 TSs per DTA or CTR, without Announcement Only Channel.	8/35
EQRA (19.10)	DSU2-RAF	32 TSs per DTA or CTR, with Announcement Only Channel.	8/35
EQPSU (22.2)	PSU	Between 0 and 128 TSs (user-specified).	8/22
EQDUP (20.4)	DLTU	24 TSs per DFI-1 pack.	8/17
EQDUP (20.4)	DLTU	24 or 48 TSs per DFI-2 pack.	8/17

Figure 2 REQUIRED PIDB TIME SLOTS BY UNIT

FORM/VIEW	DIV/SEC	FIELD	SM	RECORD	APPLICATION
DSL (22.9, 23.2)	5, IH	PPB1 ISCN	DSL OE (RISLU)	5907-2	Permanent Packet B1-Channel X.25 Packet Switching. Reserved time slots are required only on RISLU. Access the EQRISLU form (22.9) to determine if the OE is a RISLU.
DSL (22.9, 23.2)	5, IH	PPB2 ISCN	DSL OE (RISLU)	5907-4	Permanent Packet B2-Channel X.25 Packet Switching. Reserved time slots are required only on RISLU. Access the EQRISLU form (22.9) to determine if the OE is a RISLU.
DSL (22.9, 23.2)	5, IH	D ISCN	DSL OE (RISLU)	5907-1	D-Channel Services. Reserved time slots are required only on RISLU. Access the EQRISLU form (22.9) to determine if the OE is a RISLU.
AMLBDL (21.34)	3, 4AV	B1ISCN	LCEN (RISLU)	5447-1	Operator Services Position System (OSPS) Automated Multi-Leaf Bulletin.
OSPSDSL (21.30)	3, 4L	ISCN	LCEN (RISLU)	5411	Assorted OSPS Applications.
PSISM (22.13)	5, 3A	SM	SM	5920	Packet Switching between SMs.
PSISM (22.13)	5, 3A	MATE SM	MATE SM	5920	Packet Switching between SMs.
TRUNK (5.5)	3, 2C	MEMB	DEN	5204-1	Associated TRKCLS on TKGRP form (5202-1 Record) is "PACKET"; used for Internal Protocol Two-Way Packet Switching.

TRUNK (5.5)	3, 2C	MEMB	DEN	5204-1	Associated TRKCLS on TKGRP form (5202-1 Record) is "X75P"; used for Two-Way X.75' connections between a 5ESS Switch and a Public Packet Switch Network.
TRUNK (5.5)	3, 2C	MEMB	DEN	5204-1	Associated TRKCLS on TKGRP form (5202-1 Record) is "X75"; used for Two-Way X.75 connections between a 5ESS Switch and an Inter-Exchange Carrier or Independent Packet Switch Network.
TRUNK (5.5)	3, 2C	MEMB	DEN	5204-1	Associated TRKCLS on TKGRP form (5202-1 Record) is "EDSL"; used for Extended Digital Subscriber Line (also referred to as Primary Rate Interface).
TRUNK (5.5)	3, 2C	MEMB	DEN	5204-1	Associated TRKCLS on TKGRP form (5202-1 Record) is "IFOPER"; used by OSPS to Inter-Flow on an Outgoing Basis.
TRUNK (5.5)	3, 2C	MEMB	DEN	5204-1	Associated TRKCLS on TKGRP form (5202-1) Record is "IFTERM"; used by OSPS to Inter-Flow on an Incoming Basis.
XAT (23.40)	5, 1J	ISCN	DEN	5909-1	X.25 on T1.

Figure 3 APPLICATIONS THAT REQUIRE RESERVED TIME SLOTS

```

                                5ESS SWITCH
SCREEN 1 OF 3                  RECENT CHANGE  22.2
(5741)                        EQUIPMENT UNIT — PACKET SWITCH UNIT

*1. SM  _____          3. EQSTAT  _          #5. EQLUNVER  _____
*2. PSU  _          #4. EQLBAY  _          #6. EQLAISLE  _____
                                SG0                      SG1

                                7. CLI  _____          10. CLI  _____
                                #8. CI  _          #11. CI  _
                                #9. PICB  _____          #12. PICB  _____
SHELF0                        #13. DI  _          #17. DI  _
                                #14. PIDB  _____          #18. PIDB  _____
21. PH2 MIN SPARE  _____          15. EQSTAT  _          19. EQSTAT  _
22. PH3 MIN SPARE  _____          16. CLI  _____          20. CLI  _____
23. BRI RDTA PIDB TS  _

```

```

                                5ESS SWITCH
SCREEN 2 OF 3                  RECENT CHANGE  22.2
(5741)                        EQUIPMENT UNIT — PACKET SWITCH UNIT

```

```

                24. DI0 PSU TSIU TIMESLOTS
                3322 2222 2222 1111 1111 1100 0000 0000
ROW            1098 7654 3210 9876 5432 1098 7654 3210
1  RPTSS0 1001 1001 1001 1001 1001 1001 1001 1001
2  RPTSS1 0000 0000 0000 0000 0000 0000 0000 0000
3  RPTSS2 0000 0000 0000 0000 0000 0000 0000 0000
4  RPTSS3 0000 0000 0000 0000 0000 0000 0000 0000
AVAILABLE
TIMESLOTS 0000 0000 0000 0000 0000 0000 0000 0000

```

```

                                5ESS SWITCH
SCREEN 3 OF 3                RECENT CHANGE 22.2
(5741)                      EQUIPMENT UNIT — PACKET SWITCH UNIT

```

```

                33. DI1 PSU TSIU TIMESLOTS
                3322 2222 2222 1111 1111 1100 0000 0000
ROW            1098 7654 3210 9876 5432 1098 7654 3210
1  RPTSS0  _____
2  RPTSS1  _____
3  RPTSS2  _____
4  RPTSS3  _____
AVAILABLE
TIMESLOTS 0000 0000 0000 0000 0000 0000 0000 0000

```

Figure 4 RECENT CHANGE TIME SLOT ASSIGNMENT VIEW 22.2

```

                                5ESS SWITCH
                                RECENT CHANGE 22.3
                                EQUIPMENT UNIT — PACKET SWITCH UNIT

*1. SM      _____
*2. PSU     _
*3. SHELF   _

                                SG0                                SG1
                                #4. DI      _____            #8. DI
                                #5. PIDB    _                     #9. PIDB _

12. PH2 MIN SPARE    _      6. EQSTAT _                     10. EQSTAT _
13. PH3 MIN SPARE    _      7. CLI      _____            11. CLI      _____
14. BRI RDTA PIDB TS _

```

Figure 5 RECENT CHANGE TIME SLOT ASSIGNMENT VIEW 22.3

```

                                5ESS SWITCH
SCREEN 1 OF 3                RECENT CHANGE 22.2

```

```

(5741)
EQUIPMENT UNIT — PACKET SWITCH UNIT
*1. SM      1      3. EQSTAT  0      #5. EQLUNVER  15
*2. PSU     0      #4. EQLBAY  0      #6. EQLAISLE  0101

          SG0                      SG1
          7. CLI      1      10. CLI      1
          #8. CI       0      #11. CI       0
          #9. PICB     6      #12. PICB     7
SHELF0    #13. DI      0      #17. DI      0
          #14. PIDB    6      #18. PIDB     7
21. PH2 MIN SPARE    1      15. EQSTAT  0      19. EQSTAT  0
22. PH3 MIN SPARE    0      16. CLI      0      20. CLI      0
23. BRI RDTA PIDB TS 0

```

Fig. 6a

```

          5ESS SWITCH
SCREEN 2 OF 3      RECENT CHANGE  22.2
(5741)            EQUIPMENT UNIT — PACKET SWITCH UNIT

          24. DIO PSU TSIU TIMESLOTS
3322 2222 2222 1111 1111 1100 0000 0000
ROW      1098 7654 3210 9876 5432 1098 7654 3210
1 RPTSS0 0000 0000 0000 0000 0000 0000 0000 0000
2 RPTSS1 0000 0000 0000 0000 0000 0000 0000 0000
3 RPTSS2 0000 0000 0000 0000 0000 0000 0000 0000
4 RPTSS3 0000 0000 0000 0000 0000 0000 0000 0000
AVAILABLE
TIMESLOTS 1111 1111 1111 1111 1111 1212 1112 1211

```

Fig. 6b

```

          5ESS SWITCH
SCREEN 2 OF 3      RECENT CHANGE  22.2
(5741)            EQUIPMENT UNIT — PACKET SWITCH UNIT

          24. DIO PSU TSIU TIMESLOTS
          3322 2222 2222 1111 1111 1100 0000 0000
ROW      1098 7654 3210 9876 5432 1098 7654 3210
1 RPTSS0 0000 0000 0000 0000 0000 0101 0001 0100
2 RPTSS1 0000 0000 0000 0000 0000 0000 0000 0000
3 RPTSS2 0000 0000 0000 0000 0000 0000 0000 0000
4 RPTSS3 0000 0000 0000 0000 0000 0000 0000 0000
AVAILABLE
TIMESLOTS 1111 1111 1111 1111 1111 1111 1111 1111

```

Fig. 6c

```

                                5ESS SWITCH
                                RECENT CHANGE  22.2
SCREEN 2 OF 3
(5741)                        EQUIPMENT UNIT — PACKET SWITCH UNIT
                                24. DIO PSU TSIU TIMESLOTS
                                3322 2222 2222 1111 1111 1100 0000 0000
ROW      1098 7654 3210 9876 5432 1098 7654 3210
1  RPTSS0 0001 0001 0001 0001 0001 0101 0001 0101
2  RPTSS1 0000 0000 0000 0000 0000 0000 0000 0000
3  RPTSS2 0000 0000 0000 0000 0000 0000 0000 0000
4  RPTSS3 0000 0000 0000 0000 0000 0000 0000 0000
AVAILABLE
TIMESLOTS 1110 1110 1110 1110 1110 1111 1111 1110

```

Fig. 6d

Figure 6 RECENT CHANGE ASSIGNMENT EXAMPLE - 1

```

                                5ESS SWITCH
                                RECENT CHANGE  22.2
SCREEN 1 OF 3
(5741)                        EQUIPMENT UNIT — PACKET SWITCH UNIT
*1. SM  1                      3. EQSTAT  0          #5. EQLUNVER  15
*2. PSU 0                      #4. EQLBAY  0          #6. EQLAISLE  0101
                                SG0                      SG1
                                7. CLI    1          10. CLI    1
                                #8. CI    0          #11. CI    0
                                #9. PICB  6          #12. PICB  7

SHELF0                      #13. DI    0          #17. DI    0
                                #14. PIDB  6          #18. PIDB  7

21. PH2 MIN SPARE  1  15. EQSTAT  0          19. EQSTAT  0
22. PH3 MIN SPARE  0  16. CLI    0          20. CLI    0

23. BRI RDTA PIDB TS 0

```

Fig. 7a

```

                                5ESS SWITCH
                                RECENT CHANGE  22.3

```


EQUIPMENT UNIT — PACKET SWITCH UNIT

*1. SM 1
 *2. PSU 0
 *3. SHELF 1

		SG0		SG1
		#4. DI 0		#8. DI 0
		#5. PIDB 14		#9. PIDB 15
12. PH2 MIN SPARE	1	6. EQSTAT G		10. EQSTAT O
13. PH3 MIN SPARE	1	7. CLI 0		11. CLI 0
14. BRI RDTA PIDB TS	0			

Fig. 7b

SCREEN 2 OF 3
 (5741)

5ESS SWITCH
 RECENT CHANGE 22.2
 EQUIPMENT UNIT — PACKET SWITCH UNIT

24. DIO PSU TSIU TIMESLOTS (DIO)

	3322	2222	2222	1111	1111	1100	0000	0000
ROW	1098	7654	3210	9876	5432	1098	7654	3210
1 RPTSS0	0000	0000	0000	0000	0000	0000	0000	0000
2 RPTSS1	0000	0000	0000	0000	0000	0000	0000	0000
3 RPTSS2	0000	0000	0000	0000	0000	0000	0000	0000
4 RPTSS3	0000	0000	0000	0000	0000	0000	0000	0000
AVAILABLE								
TIMESLOTS	1111	1111	1111	1111	1111	1212	1112	1311

Fig. 7c-1

SCREEN 2 OF 3
 (5741)

5ESS SWITCH
 RECENT CHANGE 22.2
 EQUIPMENT UNIT — PACKET SWITCH UNIT

24. DIO PSU TSIU TIMESLOTS (DIO)

	3322	2222	2222	1111	1111	1100	0000	0000
ROW	1098	7654	3210	9876	5432	1098	7654	3210
1 RPTSS0	0000	0000	0000	0000	0000	0101	0001	0100
2 RPTSS1	0000	0000	0000	0000	0000	0000	0000	0100
3 RPTSS2	0000	0000	0000	0000	0000	0000	0000	0000

```

4  RPTSS3  0000 0000 0000 0000 0000 0000 0000 0000
AVAILABLE
TIMESLOTS 1111 1111 1111 1111 1111 1111 1111 1111

```

Fig. 7c-2

Figure 7 RECENT CHANGE ASSIGNMENT EXAMPLE - 2

```

                                5ESS SWITCH
                                RECENT CHANGE  22.3
                                EQUIPMENT UNIT — PACKET SWITCH UNIT

*1. SM      1
*2. PSU     0
*3. SHELF   1

                                SG0
                                #4. DI      1
                                #5. PIDB    12
12. PH2 MIN SPARE      1    6. EQSTAT G
13. PH3 MIN SPARE      1    7. CLI      0

                                SG1
                                #8. DI      1
                                #9. PIDB    13
                                10. EQSTAT G
                                11. CLI      0

14. BRI RDTA PIDB TS 0

```

Fig. 8a

```

                                5ESS SWITCH
                                RECENT CHANGE  22.2
                                EQUIPMENT UNIT — PACKET SWITCH UNIT

                                33. DI0 PSU TSIU TIMESLOTS (DI1)
                                3322 2222 2222 1111 1111 1100 0000 0000
ROW      1098 7654 3210 9876 5432 1098 7654 3210
1  RPTSS0 0000 0000 0000 0000 0000 0001 0001 0001
2  RPTSS1 0000 0000 0000 0000 0000 0000 0000 0000
3  RPTSS2 0000 0000 0000 0000 0000 0000 0000 0000
4  RPTSS3 0000 0000 0000 0000 0000 0000 0000 0000
AVAILABLE
TIMESLOTS 1111 1111 1111 1111 1111 1110 1110 1110

```

Fig. 8b

```

                                5ESS SWITCH
SCREEN 3 OF 3                  RECENT CHANGE  22.2
(5741)                        EQUIPMENT UNIT — PACKET SWITCH UNIT

```

```

                                33. DI1 PSU TSIU TIMESLOTS (DI1)
                                3322 2222 2222 1111 1111 1100 0000 0000
ROW      1098 7654 3210 9876 5432 1098 7654 3210
 1 RPTSS0 0000 0000 0000 0000 0000 0000 0000 0000
 2 RPTSS1 0001 0001 0001 0001 0001 0001 0001 0001
 3 RPTSS2 0000 0000 0000 0000 0000 0000 0000 0000
 4 RPTSS3 0000 0000 0000 0000 0000 0000 0000 0000
AVAILABLE
TIMESLOTS 1110 1110 1110 1110 1110 1110 1110 1110

```

Fig. 8c

Figure 8 RECENT CHANGE ASSIGNMENT EXAMPLE - 3

DFI Stuffing Pattern										
Unit	Stuffing Pattern	31-2 8	27-2 4	23-2 0	16-1 9	12-1 5	11-8	7-4	3-0	Idle Time Slots
DFI	A	1110	1110	1110	1110	1110	1110	1110	1110	0,4,8,12,16,20,24,28
	B	1101	1101	1101	1101	1101	1101	1101	1101	1,5,9,13,17,21,25,29
	C	1011	1011	1011	1011	1011	1011	1011	1011	2,6,10,14,18,22,26,30
	D	0111	0111	0111	0111	0111	0111	0111	0111	3,7,11,15,19,23,27,31
DSU2-RAF DTA w/o AOC*	A	0110	1101	1011	0110	1101	1011	0110	1100	0,1,4,7,10,13,16,19,22,25,28
	B	0101	1011	0110	1101	1011	0110	1101	1010	0,2,5,8,11,14,17,20,23,26,29
	C	0011	0110	1101	1011	0110	1101	1011	0110	0,3,6,9,12,15,18,21,24,27,30, 31

*DTA w/o AOC -- Dial Through Announcement without Announcement Only Channel

Figure 9 APPLICATIONS THAT REQUIRE RESERVED TIME SLOTS

```

Screen 1 of 4                  5ESS Switch
eqpsu                         OFFICE DATA ADMINISTRATION
(5741-1/2)                     PACKET SWITCHING UNIT EQUIPAGE

```

*1. SWITCHING MODULE _____

#2. CONTROL GROUP _____

```

#3. CONTROL PORT          ____
#4. EQUIPMENT BAY         _
#5. EQUIPMENT VERTICAL    ____
#6. EQUIPMENT AISLE       ____
#7. SG 0 COMMON CONTROL EQST 0
#8. SG 0 COMMON CONTROL CLI ____
#9. SG 1 COMMON CONTROL EQST 0
#10. SG 1 COMMON CONTROL CLI ____

```

Screen 2 of 4

5ESS Switch

eqpsu

OFFICE DATA ADMINISTRATION

(5741-1/2)

PACKET SWITCHING UNIT EQUIPAGE

11. PIDBs

row	PSU SHELF	SHLF SIDE 0 EQST	SHLF SIDE 0 CLI	SHLF SIDE 1 EQST	SHLF SIDE 1 CLI	DATA GROUP	DATA PORT
1	0	—	_____	—	_____	—	—
2	1	—	_____	—	_____	—	—
3	2	—	_____	—	_____	—	—
4	3	—	_____	—	_____	—	—
5	4	—	_____	—	_____	—	—

Screen 3 of 4

5ESS Switch

eqpsu

OFFICE DATA ADMINISTRATION

(5741-1/2)

PACKET SWITCHING UNIT EQUIPAGE

20. DI0 PSU TSIU TIMESLOTS

3322 2222 2222 1111 1111 1100 0000 0000

1098 7654 3210 9876 5432 1098 7654 3210

```

1. RPTSS0 _____
2. RPTSS1 _____
3. RPTSS2 _____
4. RPTSS3 _____

```

Screen 4 of 4

5ESS Switch

eqpsu

OFFICE DATA ADMINISTRATION

(5741-1/2)

PACKET SWITCHING UNIT EQUIPAGE

29. DI1 PSU TSIU TIMESLOTS

3322 2222 2222 1111 1111 1100 0000 0000

1098 7654 3210 9876 5432 1098 7654 3210

```

1. RPTSS0 _____
2. RPTSS1 _____
3. RPTSS2 _____

```

4. RPTSS3 _____

Figure 10 ODA TIME SLOT ASSIGNMENT - EQPSU FORM

PSU #1 PROTOCOL HANDLER ASSIGNMENTS																
DPIDB Port							-ism - trk/cnl spare							Total		
Shelf	A	B	C	D	E	F	p2	p3	ts	p2	p3	p2	p3,	p2	p3	sum
4	0.0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0
3	0.0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0
2	0.0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0
1	1.0	1.00	0.25	0.00	0.00	0.00	1	0	3	0	1	1	1	2	5	7
0	1.0	1.00	0.25	0.25	4.00	1.00	1	0	3	1	4	1	1	3	13	16

TRUNK/CHANNEL PROTOCOL HANDLER ASSIGNMENTS																	
PRI				XAT			IP			X.75			X.75P			NU TS	DI
Shelf	CH	p2	p3	CH	p2	p3	TK	p2	p3	TK	p2	p3	TK	p2	p3	(30 avl)	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	7	1
0	2	1	0	5	0	1	6	0	1	4	0	1	4	0	1	24	0

Total PIDBS + DPIDBs for ISLU# 1 = 12

- Total PIDBS + DPIDBs for ISLU# 2 = 16
- Remaining TSIU Ports = 11 ISLU PIDB TS = 160 Spare TS for any unit = 127
- IDCU PIDB TS = 0
- ISTF TS = 0 PSU TS demand = 31
- DLTU TS = 192 Avail. TS for PSU only = 0
- Inter-SM TS = 6 IDCU Nail-up TS for TSIU = 0
- Packet Trunk TS for PSU = 25 Used Nail-up TS for TSIU = 56
- Recovered DLTU TS (0) Avail. Nail-up TS for TSIU = 134

TABLE M SWITCHING MODULE LOADING

DATA GRP	UNIT	TIME SLOT	LINES	NOTE OR TBL
1st	ISLU0	32	250	
1st	ISLU1	64	50	
1st	DLTU0	72		
1st	PSU0	24		
1st	TOTAL	192	300	
2nd	ISLU0	64	SEE ABOVE	
2nd	DLTU0	120		
2nd	PSU1	7		
2nd	TOTAL	191		
ALL	TOTAL	383	300	

Figure 11 TYPICAL ISA REPORT & SM LOADING TABLE

SEC. 1BL: PRIVACY FEATURES

1. BACKGROUND

With the introduction of the caller ID feature in 5E4(2), the issue of privacy has been the focus of much attention. Numerous features have been developed that impact the public/private status of calling party information such as CPN (Calling Party Number) and CNAM (Calling Party Name). As a result, the complex interactions between these features has made it increasingly difficult to evaluate and accurately provision the issue of privacy to meet specific customer needs.

The information in this section will attempt to clarify these interactions and allow the desired public/private results to be implemented using the appropriate features.

This section on privacy features includes the following:

- descriptions of the various features which impact the presentation status of the calling party number.
- a series of tables that show how the CPN information is manipulated for each segment of a call
- examples on how to interpret and apply the various tables for different call scenarios.

2. FEATURE DESCRIPTIONS

The following are brief descriptions of the features impacting display and/or delivery of the calling party number. (For more information, please refer to other Lucent Technologies feature documentation as well as other sections in the TG-5.)

ACP (All-Call Privacy) -

defines CPN presentation status (public/private) for all calls originated from a specific line or entire office.

CNIGI (Calling Number Intragroup ICLID) -

restricts delivery of CPN to stations within the same terminal group.

CPN/BN (Calling Party Number/Billing Number) -

for lines: delivers either CPN or BN to a terminating user

for PRI trunks: delivers either CPN or BN over PRI

CPNP (Calling Party Number Presentation) -

provides modification of precedence between all-call/per-call privacy on a screen index basis.

ELIGI (Enhanced Limited Intragroup ICLID): PRI Trunks (METROHUB 2) -

extends LIGI functionality to PRI trunks.

Forced CPN Privacy over CCS (Common Channel Signaling) Trunks -

Forces CPN IAM Calling Party Presentation Indicator "PRIVATE" for all CCS7 calls leaving the office.

ICLID (Incoming Calling Line Identification) -

allows display of the CPN to a terminating line.

LIGI (Limited Intragroup ICLID): Lines -

restricts public CPN delivery to stations within the same terminal group.

PCP (Per-Call Privacy) -

toggles ACP (All-call Privacy) setting using dial codes or feature buttons.

Private Number Delivery Option over PRIs -

provides option to block delivery of private CPNs over PRI trunks on office basis or PRI trunk group basis.

Station Identification over PRI trunks -

Delivers the STATION ID (CPN) over an outgoing PRI trunk if available.

3. FEATURE INTERACTIONS

The table in Figure 1 lists the translation forms and associated data fields that impact the provisioning requirements for each of the above features.

The complexity of interactions results when several of the features listed in the table are assigned and interact on a per-call basis.

As can be seen from the features listed in the table, privacy affecting features can be assigned on either the originating or terminating side of a call. Therefore, the final status of the CPN is determined by combining the presentation status delivered from the originating side of the call with the terminating features applicable on the terminating side of the call.

For example, the final CPN presentation status for a typical line-to-line intraswitch call could be determined by the interaction between the all-call and per-call privacy features assigned to the originating line, and the TGSR and LIGI features assigned to the terminating line. For an interswitch line-to-line call, the final presentation status is determined by interactions in the originating switch along with those interactions in the terminating switch.

3.1 Call Segments Interactions

The best way to illustrate the interactions of these features on a per-call basis is through the use of a set of tables representing each segment of a call for the following call types:

- Line to Line
- Line to trunk
- Trunk to Line
- Trunk to Trunk

Tables are defined for each of the following call segments:

Call Segment	Figure	Table
Line origination, CPNP off	2	A
Line origination, CPNP on (all call Privacy)	3	B
Line origination, CPNP on (per call Privacy)	4	C
Trunk termination (PRI)	5	D
Trunk termination (CCS)	6	E
Trunk termination (EAMF)	7	F
Trunk origination (EAMF/CCS)	8	G
Trunk origination (PRI - CPNP inactive)	9	H
Trunk origination (PRI - CPNP active)	10	I
Line termination	11	J

These tables can be combined to determine final presentation delivery and display status for both intraswitch

and interswitch calls.

Each table reflects a precedence order for the applicable features.

3.2 Assumptions

In using the tables, the following assumptions are made.

1. PCP (Per-call-privacy) is active via subscription or a generally available feature. For PCP to be available for lines in an office, PCP must be assigned by one of these methods.
2. PCP is set to "SUBSCR" or "GENAVAIL" on LASSFA form (RC view 8.18). For PCP to be available in an office, it must be assigned to one of these values on the 8.18 view.
3. A generally available TN PRIVACY feature is assigned on the LASSOP form (RC view 8.21). This assumption ensures that PCP is available either through a subscribed or a generally available feature.
4. Differences in display formats between custom and standard ISDN are not reflected in the tables.
5. All assigned TGSF features are unrestricted originating and terminating.

4. EXAMPLES

The following examples refer to Figures 2 - 12. Figure 12 shows which figures are to be referenced per Call Type.

4.1 Example 1: Intraswitch Call

Line A calls Line B.

- Call conditions and office data:
 - Line A does not invoke PCP.
 - CPNP is inactive.
 - Office privacy set to NO.
 - Line A privacy is set to NO.
 - A TGSF feature is not assigned.
 - LIGI is inactive.
- From the table usage chart in Figure 12:
 - For Line origination use Table A in Figure 2.
 - For Line Termination use Table J in Figure 11.
- Applying the call conditions and office data to the above tables results in the following:

- From the table in Figure 1: Line A's CPN/BN status is delivered as PUBLIC.
- From Table A in Figure 2: Line A's CPN/BN appears on Line B's display.

4.2 Example 2: Intraswitch Call

Line A Calls Line B

- Call conditions and office data:
 - CPNP is active.
 - Line A invokes PCP (Per-Call Privacy).
 - Line A does not have privacy defined.
 - Line A screening index privacy is set to yes.
 - LIGI is active.
 - CNIGI restrictions do not apply.
 - Both lines A and B are assigned to a TGSR, but they are in different terminal groups.
- From the table usage chart in Figure 12:
 - For line origination use Table C in Figure 4 (CPNP active and PCP invoked).
 - For line termination use Table J in Figure 11.
- Applying the call conditions and office data to the above tables results in the following:
 - Table C in Figure 4: Line A's CPN/BN status is delivered as PUBLIC CPNP and is active, with SI privacy set to yes, but PCP is invoked which toggles CPN/BN to PUBLIC.
 - Table J in Figure 11: Line B's display shows PRIVATE NUMBER.

From Table C in Figure 4, CPN/BN is received as PUBLIC.

Line A and Line B are in different TGs.

LIGI is active, which results in PRIVATE NUMBER being displayed.

4.3 Example 1: Interswitch call

Line A in switch A calls line B in switch B over a PRI trunk group (both switch A and switch B are 5ESS-2000 Switches).

- Call conditions and office data:

— Switch A:

Line A does not invoke PCP.

Office privacy is set to no.

Line A privacy is set to no.

CPNP is inactive.

PRI is assigned to a valid CPN BN OPTION

or STA ID is set to "TRAN".

TGSR is unassigned.

— Switch B:

CPNP is inactive.

Office Privacy is set to yes.

Trunk group privacy is set to no.

- This scenario is first analyzed as a line-to-trunk call in switch A and then as a trunk-to-line call in switch B.
- From the table usage chart in Figure 12:
 - For line origination in switch A, use Table A in Figure 2 (CPNP inactive, PCP not invoked).
 - For trunk termination to a PRI trunk in switch A, use Table D in Figure 5.
 - For trunk origination from a PRI trunk in switch B, use Table H in Figure 9 (CPNP inactive).
 - For line termination in switch B, use Table J in Figure 11.
- Applying the call conditions and office data to the above tables results in the following:
 - Table A in Figure 2: Line A CPN/BN status is delivered as PUBLIC.
 - Table D in Figure 5: PRI in switch A delivers CPN/BN to switch B.
 - Table H in Figure 9: PRI in switch B delivers CPN/BN with presentation indicator set to PRIVATE (Office PRIVACY has precedence over Trunk group Privacy).

— Table J in Figure 11: Line B display indicates PRIVATE NUMBER.

4.4 Example 2: Interswitch Call

Line A in switch A calls line B in switch B over a PRI trunk group (both switch A and switch B are 5ESS-2000 Switches).

- Call conditions and office data:

— Switch A:

Line A does not invoke PCP.

Office privacy is set to no.

Line A privacy is set to no.

ELIGI is inactive.

CPNP is inactive.

TGSR is not assigned.

PRI is assigned to a valid CPN BN OPTION

or STA ID is set to "TRAN".

— Switch B:

CPNP is active.

TGSR is assigned to PRI and Line B, but they are in different TGs.

LIGI is active.

CNIGI restrictions apply.

- This scenario is first analyzed as a line-to-trunk call in switch A and then as a trunk-to-line call in switch B.
- From the table usage chart in Figure 12:
 - For line origination in switch A, use Table A in Figure 2 (CPNP inactive, PCP not invoked).

- For trunk termination to a PRI in switch A, use Table D in Figure 5.
 - For trunk origination from a PRI in switch B, use Table I in Figure 10 (CPNP active).
 - For line termination in switch B, use Table J in Figure 11.
- Applying the call conditions and office data to the above tables results in the following:
 - Table A in Figure 2: Line A CPN/BN status is delivered as PUBLIC.
 - Table D in Figure 5: Line A CPN/BN is delivered over PRI to switch B with presentation status of PUBLIC.

From Table A in Figure 2, PRI receives Line A CPN/BN as PUBLIC.

CPN/BN delivery to switch B is allowed through CPN BN OPT or STA ID.

No TGSR feature is assigned, and

ELIGI is inactive.

 - Table I in Figure 10: PRI in switch B delivers Line A CPN/BN with a presentation status of PUBLIC (valid presentation status received overrides CPNP).
 - Table J in Figure 11: Line B display indicates INCOMING CALL.
- PRI and Line B are in different trunk groups.
- LIGI active would result in a display of PRIVATE NUMBER.
- However, CNIGI is also active, which has precedence over the LIGI display, resulting in the display of INCOMING CALL.

4.5 Example 3: Interswitch Call

Line A in switch A calls Line B in switch B over a PRI trunk group (both switch A and switch B are 5ESS-2000 Switches).

- Call conditions and office data:
 - Switch A:
 - Line A does not invoke PCP.
 - Office privacy set to no.
 - Line A privacy set to no.
 - CPNP is inactive.

ELIGI is active.

CNIGI is active.

PRI is assigned to a valid CPN BN OPTION

or STA ID set to "TRAN".

Line A and PRI are assigned to a TGSR feature, but they are in different trunk groups.

— Switch B:

Don't Care

- This scenario is first analyzed as a line-to-trunk call in switch A and then as a trunk-to-line call in switch B.
- From the table usage chart in Figure 12:
 - For line origination in switch A, use Table A in Figure 2 (CPNP inactive, PCP not invoked).
 - For trunk termination to a PRI in switch A, use Table D in Figure 5.
 - For trunk origination from a PRI in switch B, use Table H in Figure 9 or Table I in Figure 10.
 - For line termination in switch B, use Table J in Figure 11.
- Applying the call conditions and office data to the above tables results in the following:
 - Table A in Figure 2: Line A CPN/BN status is delivered as PUBLIC .
 - Table D in Figure 5: Line A CPN/BN is blocked from being delivered over PRI.

Line A and PRI are in different trunk groups.

ELIGI active assigns a presentation status of PRIVATE.

However, since CNIGI is also active, Line A CPN/BN is blocked from delivery to switch B.

- Table H in Figure 9 or 10: CPN/BN is not delivered by the PRI in switch B. Since CPN/BN is not received, privacy features are not applicable.
- Table J Figure 11: Line B display indicates INCOMING CALL. CPN/BN is not available .

4.6 Interswitch call - Over CCS7 Trunk Group

Line A in switch A calls Line B in switch B over a CCS7 trunk group (both switch A and switch B are 5ESS-2000 Switches).

- Call conditions and office data:

— Switch A:

CPNP is inactive.

Line A does not invoke PCP.

Office privacy is set to no.

Line A privacy is set to no.

Forced Privacy on CCS Trunks Feature is active.

— Switch B:

Don't care

- This scenario is first analyzed as a line-to-trunk call in switch A and then as a trunk-to-line call in switch B.
- From the table usage chart in Figure 12:
 - For line origination in switch A, use Table A in Figure 2 (CPNP inactive, PCP not invoked).
 - For trunk termination to a CCS trunk in switch A, use Table E in Figure 6.
 - For trunk origination over a CCS trunk in switch B, use Table H in Figure 8.
 - For line termination in switch B, use Table J in Figure 11.
- Applying the call conditions and office data to the above tables results in the following:
 - Table A in Figure 2: Line A CPN/BN status is delivered as PUBLIC .
 - Table E in Figure 6: CPN/BN is marked PRIVATE, because Forced Privacy on CCS Trunks feature is active.
 - Table G in Figure 8: CCS trunk in switch B delivers private CPN/BN to Line B.
 - Table J in Figure 11: Line B display shows PRIVATE NUMBER.

4.7 Interswitch call - Via Access Tandem Over MF Trunks

Line A in switch A calls Line B in switch B via an access tandem using equal access signaling over MF (Multi-Frequency) trunks.

The access tandem uses MF to CCS interworking and the call leaves the access tandem via CCS trunks. CCS is used through the carrier network to terminating switch B. (The originating switch, access tandem, and terminating switch are all 5ESS-2000 Switches.)

- Call conditions and office data:

— Switch A:

CPNP is inactive.

Line A does not invoke PCP.

Office privacy is set to no.

Line A privacy is set to no.

ANI Outpulsing is set to yes.

— Access Tandem:

Office privacy is set to no.

Forced privacy on CCS trunks is inactive.

Incoming EAMF (Equal Access Multi-Frequency) trunk group privacy is set to yes.

— Switch B:

Don't care

- This scenario is first analyzed as a line-to-trunk call in switch A, a trunk-to-trunk call in the access tandem, and then as a trunk-to-line call in switch B.
- From the table usage chart in Figure 12:
 - For line origination in switch A, use Table A in Figure 2 (CPNP inactive, PCP not invoked).
 - For trunk termination to an EAMF trunk in switch A, use Table F in Figure 7.
 - For trunk origination from EAMF trunk in the access tandem, use Table G in Figure 8.

- For trunk termination to a CCS trunk in the access tandem, use Table E in Figure 6.
- For trunk origination from a CCS trunk in switch B, use Table G in Figure 8.
- For line termination in switch B, use Table J in Figure 11.
- Applying the call conditions and office data to the above tables results in the following:
 - Table A in Figure 2: Line A CPN/BN status is delivered as PUBLIC .
 - Table F in Figure 7: EAMF trunk in switch A sends CPN/BN as ANI digits to the access tandem.
 - Table G in Figure 8: EAMF trunk in the access tandem delivers ANI digits as PRIVATE. EAMF trunk privacy in the access tandem is set to yes.
 - Table E in Figure 6: CCS trunk in the access tandem uses MF-to-CCS interworking and marks the CPN/BN presentation status as PRIVATE in the outgoing IAM message.
 - Table 8 in Figure 8: CCS trunk in switch B delivers the CPN/BN with a presentation status of PRIVATE.
 - Table J in Figure 11: Line B display shows PRIVATE NUMBER.

5. GLOSSARY

ACP	All-Call Privacy
CCS	Common Channel Signaling
CNAM	Calling Party Name
CNIGI	Calling Number Intragroup ICLID
CPN/BN	Calling Party Number/Billing Number
CPNP	Calling Party Number Presentation
EAMF	Equal Access Multi-Frequency
ELIGI	Enhanced Limited Intragroup ICLID
IAM	Initial Address Message
ICLID	Incoming Calling Line Identification
LIGI	Limited Intragroup ICLID
MF	Multi-Frequency
PCP	Per-Call Privacy
PRI	Primary Rate Interface

SI Screening Index

TGSR Terminal Group & Station Restriction

FEATURE	FORM	FIELD	VALUE	DESCRIPTION
ICLID	LIDFD			
All-Call Privacy	OFCOPT	DN PRIVACY	Y/N	sets status of office privacy
	LINE,DSLUSR,MLHLN	PRIVACY	Y/N	sets status of line privacy
Per-Call Privacy	DISPFD	TN PRIVACY	Y/N	Assigns per-call privacy to lines
	LINE,DSLUSR,MLHLN	PCP ALW	Y/N	Enables per-call privacy for lines
	LASSFA	PCP ALW	SUBSCR/ GENAVAIL	Enables per-call privacy for office
	CFGGRP,IDPDCA,PDIT	ACTION	DNPUSE	activates per-call privacy
CPNP	SFSYS	SFID 50		Allows all-call/per-call privacy based on SCR IDX
	SCRIDXPA			
LIGI	FOSYS	TFOS 504		Restricts ICLID to members within same terminal group
ELIGI (METROHUB 2)	FOSYS	TFOS 544		Extends LIGI to PRI trunks
CNIGI	TGSRFD	CNIGI	INTRAONLY, NORSTRCT,bla nk	
	TGATTD	CNIGI	INTRAONLY, NORSTRCT,bla nk	Restricts ICLID to members within same terminal group (LIGI has precedence)
	OFCOPT	CNIGI	INTRAONLY, NORSTRCT	
CPN/BN	CPNBNFD			Defines CPN/BN delivery status for lines
	TKGRP	CPN BN OPT		Defines CPN/BN delivery status for PRI trunks
		STA ID		Defines CPN/BN delivery status for PRI trunks (CPN BN OPT has precedence)
Forced CPN Privacy over CCS trunks	SFSYS	SFID 27		If active, sets CPN to private on all calls leaving the office
Private Number Delivery Option	LASSOP	PRI PRVT		Office Option to block delivery of private CPNs to PRI trunks
	TKGRP	PRIV OVER		PRI trunk group option to block delivery of private CPNs

Figure 1 DATA REQUIREMENTS FOR PRIVACY FEATURES

Table A				
Line Origination - CPNP OFF				

PCP Invoked	Office Privacy	Line Privacy	CPN Status Delivered
N	N	N/Blank	PUBLIC
N	N	Y	PRIVATE
N	Y	D/C	PRIVATE
Y	N	N/Blank	PRIVATE
Y	N	Y	PUBLIC
Y	Y	D/C	*

* Not allowed - Call is routed to REORDER

- Precedence:**
- Office Privacy
 - Line Privacy

Translations:

Feature	Form	Field
Office Privacy	OFCOPT (8.1)	
Line Privacy	LINE/MLHLN (1.6) DSLUSR (23.2)	

Figure 2 LINE ORIGINATION - CPNP OFF

Table B Line Origination - CPNP ON (All Calls Privacy)				
SCRIDXPA Defined	Line PRIVACY	SCRIDX PRIVACY	Office PRIVACY	CPN/BN Status Delivered
N	N	Blank*	D/C	PUBLIC
N	Y	Blank*	D/C	PRIVATE
N	Blank	Blank*	N	PUBLIC
N	Blank	Blank*	Y	PRIVATE
Y	N	D/C	D/C	PUBLIC
Y	Y	D/C	D/C	PRIVATE
Y	Blank	N	D/C	PUBLIC
Y	Blank	Y	D/C	PRIVATE
Y	Blank	Blank	N	PUBLIC
Y	Blank	Blank	Y	PRIVATE

* Default when no SCRIDXPA (8.24) is defined

Precedence:

- Line Privacy
- Screen Index Privacy
- Office Privacy

Translations:

Feature	Form	Field
Line Privacy	LINE/MLHLN (1.6) DSLUSR (23.2)	
Office Privacy	OFCOPT (8.1)	
Screen Index Privacy	SCRIDXPA (8.24)	

Figure 3 LINE ORIGINATION - CPNP ON - ALL CALLS PRIVACY

Table C Line Origination - CPNP on (Per-Call Privacy)				

SCRIDXPA (8.24) Defined	SCRIDX PCP	Line PCP	PCP Allowed	Line Privacy	SCRIDX Privacy	Office Privacy	CPN/BN Status Delivered
N	NO*	N	N	D/C	Blank*	D/C	N/A
N	NO*	Y	Y	N	Blank*	D/C	PRIVATE
N	NO*	Y	Y	Y	Blank*	D/C	PUBLIC
N	NO*	Y	Y	Blank	Blank*	N	PRIVATE
N	NO*	Y	Y	Blank	Blank*	Y	PUBLIC
Y	N	D/C	N	D/C	D/C	D/C	N/A
Y	Y	N	N	D/C	D/C	D/C	N/A
Y	Y	Y	Y	N	D/C	D/C	PRIVATE
Y	Y	Y	Y	Y	D/C	D/C	PUBLIC
Y	Y	Y	Y	Blank	N	D/C	PRIVATE
Y	Y	Y	Y	Blank	Y	D/C	PUBLIC
Y	Y	Y	Y	Blank	Blank	N	PRIVATE
Y	Y	Y	Y	Blank	Blank	Y	PUBLIC

* Default value when no SCRIDXPA (8.24) is defined **Precedence:**

1. Line Privacy
2. Screen Index Privacy
3. Office Privacy

Translations:

Feature	Form	Field
Line PCP	LINE/MLHLN (1.6) DSLUSR (23.2)*	PCP ALW
Line Privacy	LINE/MLHLN(1.6) DSLUSR(23.2)	PRIVACY
Office Privacy	OFCOPT (8.1)	DN PRIVACY
SCRIDX PCP	SCRIDXPA (8.24)	PCP ALW
SCRIDX Privacy	SCRIDXPA (8.24)	PRIVACY

* Generally Available PCP feature via LASSOP (8.21)

Figure 4 LINE ORIGATION - CPNP ON - PER CALL PRIVACY

Table D Trunk Termination - PRI Trunks									Note
CPN/BN Status Received	CPN/BN Delivery *	PRI Private	ORIG/TER M TGSR Assigned	Termina I Groups Match and Non-zero	ELIGI Active	CNIGI Restrictions Apply	PRIV OVER	CPN/BN Status Delivered	
PUBLIC	CPN BN OPT or STA ID	D/C	N	N	N	D/C	D/C	PUBLIC	1
	CPN BN OPT or STA ID	D/C	N	N	Y	D/C	Y	PRIVATE	2
	CPN BN OPT or STA ID	D/C	N	N	Y	D/C	N	NO CPN/BN	3
	CPN BN OPT or STA ID	D/C	Y	N	N	N	D/C	PUBLIC	4

PRIVAT E	CPN BN OPT or STA ID	D/C	Y	N	N	Y	D/C	NO CPN/BN	5
	CPN BN OPT or STA ID	D/C	Y	N	Y	N	Y	PRIVATE	2
	CPN BN OPT or STA ID	D/C	Y	N	Y	N	N	NO CPN/BN	3
	CPN BN OPT or STA ID	D/C	Y	N	Y	Y	D/C	NO CPN/BN	6
	CPN BN OPT or STA ID	D/C	Y	Y	D/C	D/C	D/C	PUBLIC	7
	NO	D/C	D/C	D/C	D/C	D/C	D/C	NO CPN/BN	8
	CPN BN OPT	D/C	D/C	D/C	D/C	D/C	Y	PRIVATE	9
	CPN BN OPT	D/C	D/C	D/C	D/C	D/C	N	NO CPN/BN	10
	STA ID	Y	D/C	D/C	D/C	D/C	D/C	PRIVATE	11
	STA ID	N	D/C	D/C	D/C	D/C	D/C	NO CPN	12
	NO	D/C	D/C	D/C	D/C	D/C	D/C	NO CPN/BN	8
	NO CPN/BN	D/C	D/C	D/C	D/C	D/C	D/C	NO CPN/BN	13

* Indicates if PRI trunk group subscribes to CPN/BN delivery using either the CPN BN OPT field or the STA ID field on the TKGRP (5.1) form. The CPN BN OPT has precedence over the STA ID field. If STA ID is used, only the CPN is delivered.

Table Notes:

1. Public CPN/BN received, PRI PRVT only applies to PRIVATE CPNs, ELIGI inactive, CNIGI only applies when TGSR is assigned.
2. ELIGI is active
3. ELIGI active, however PRIV OVER set to "N" - blocks CPN/BN
4. ELIGI inactive, CNIGI restrictions do not apply.
5. Same as #4 except CNIGI RESTRICTIONS apply.
6. CNIGI RESTRICTIONS apply
7. ORIG/TERM TGSR match
8. No CPN/BN delivery subscription
9. PRIV OVER set to "Y" allows CPN/BN delivery with presentation status set to PRIVATE.
10. PRIV OVER set to "N".
11. PRI PRVT set to "Y".
12. PRI PRVT set to "N".
13. No CPN/BN received.

Translations:

Feature	Form	Field
Office Privacy	OFCOPT (8.1)	
Line Privacy	LINE/MLHLN (1.6)	
	DSLUSR (23.2)	
CPN/BN Delivery	TKGRP (5.1)	STA ID set to TRANS
PRI PRVT	LASSOP (8.21)	
ELIGI	FOSYS (8.31)	
CNIGI Restrictions apply	TGSRTPA (5.29)	
	TGATTD (4.4)	
	OFCOPT (8.1)	
PRIV OVER	TKGRP (5.1)	

Figure 5 TRUNK TERMINATIONS - PRI TRUNKS

Table E		
Trunk Termination - CCS Trunks		
CPN/BN Status Received	Forced Privacy on CCS Trunks	CPN/BN Status Delivered
PUBLIC	N	PUBLIC
PUBLIC	Y	PRIVATE
PRIVATE	D/C	PRIVATE
NO CPN	D/C	NO CPN

Translations:

Feature	Form	Field
Forced Privacy on CCS Trunks	SFSYS (8.22)	SFID 27

Figure 6 TRUNK TERMINATIONS - CCS TRUNKS

Table F		
Trunk Termination - EAMF Trunks		
CPN/BN Received	ANI Outpulsing	ANI Delivered
Y	Y	Y
Y	N	N
N	D/C	N

Translations:

Feature	Form	Field
ANI OUTPULSING	RTIDX (10.2)	ANI OUTPULSING

Figure 7 TRUNK TERMINATIONS - EAMF TRUNKS

Table G					
Trunk Origination - EAMF and CCS Trunks					
Trunk Type	CPN/BN Status Received	Billing DN Received (ANI)	Office Privacy	Trunk Privacy	CPN/BN Status Delivered
EAMF *	N/A	Y	N	N	PUBLIC
	N/A	Y	N	Y	PRIVATE
	N/A	Y	Y	D/C	PRIVATE
	N/A	N	D/C	D/C	NO CPN/BN
CCS7	PUBLIC	N/A	N/A	N/A	PUBLIC
	PRIVATE	N/A	N/A	N/A	PRIVATE
	NO CPN/BN	N/A	N/A	N/A	NO CPN/BN

* Only applicable for MF to CCS interworking

Precedence: MF Trunks

- Office Privacy

2. Trunk Privacy

Translations:

Feature	Form	Field
Office Privacy	OFCOPT (8.1)	
Trunk Privacy	TKGRP (5.1)	

Figure 8 TRUNK ORIENTATION - EAMF AND CCF TRUNKS

Table H					
Trunk Origination - PRI trunks (CPNP OFF)					
CPN/BN Received	Presentation Indicator Received	Presentation Indicator Value	Office Privacy	Trunk Privacy	CPN/BN Status Delivered
Y	Y	PUBLIC	D/C	D/C	PUBLIC
Y	Y	PRIVATE	D/C	D/C	PRIVATE
Y	Y	N/A	N	N	PUBLIC
Y	Y	N/A	N	Y	PRIVATE
Y	Y	N/A	Y	D/C	PRIVATE
Y	N	N/A	N	N	PUBLIC
Y	N	N/A	N	Y	PRIVATE
Y	N	N/A	Y	D/C	PRIVATE
N	D/C	D/C	D/C	D/C	NO CPN/BN

Precedence, CPNP OFF:

1. Office Privacy
2. Trunk Privacy

Translations:

Feature	Form	Field
Office Privacy	OFCOPT (8.1)	
SCRIDX Privacy	SCRIDXP (8.24)	
Trunk Privacy	TKGRP (5.1)	

Figure 9 TRUNK ORIENTATION - PRI TRUNKS (CPNP OFF)

Table I					
Trunk Origination - PRI trunks (CPNP ON)					
CPN/BN Received	Presentation Indicator Received	Presentation Indicator Value	SCRIDX Privacy	Office Privacy	CPN/BN Status Delivered
Y	Y	PUBLIC	D/C	D/C	PUBLIC
Y	Y	PRIVATE	D/C	D/C	PRIVATE
Y	Y	N/A	N	N	PUBLIC
Y	Y	N/A	N	Y	PRIVATE
Y	Y	N/A	Y	D/C	PRIVATE
Y	N	N/A	N	N	PUBLIC
Y	N	N/A	N	Y	PRIVATE
Y	N	N/A	Y	D/C	PRIVATE
N	D/C	D/C	D/C	D/C	NO CPN/BN

Precedence, CPNP ON:

1. SCRIDX Privacy
2. Office Privacy

Translations:

Feature	Form	Field
Office Privacy	OFCOPT (8.1)	
SCRIDX Privacy	SCRIDXPA (8.24)	
Trunk Privacy	TKGRP (5.1)	

Figure 10 TRUNK ORIGINATIONS - PRI TRUNKS (CPNP ON)

Table J Line Termination					
CPN/BN Status Received	TGSR Assigned	Terminal Groups Match and are Non-zero	LIGI Assigned	CNIGI Restrictions Apply	Display
PUBLIC	N	D/C	N	D/C	CPN/BN
PUBLIC	N	D/C	Y	D/C	PRIVATE NUMBER
PUBLIC	Y	N	N	N	CPN/BN
PUBLIC	Y	N	N	Y	INCOMING CALL
PUBLIC	Y	N	Y	N	PRIVATE NUMBER
PUBLIC	Y	N	Y	Y	INCOMING CALL
PUBLIC	Y	Y	D/C	D/C	CPN/BN
PRIVATE	D/C	D/C	D/C	D/C	PRIVATE NUMBER
NO CPN	D/C	D/C	D/C	D/C	INCOMING CALL

Precedence, Display only:

1. CNIGI
2. LIGI

Translations:

Feature	Form	Field
CNIGI	TGSRLPA (1.29)	CNIGI
	TGATTD (4.4)	CNIGI
	OFCOPT (8.1)	CNIGI
LIGI	FOSYS (8.31)	TFOS ID 504

Figure 11 LINE TERMINATION

Table Usage					
Call Type	Trunk Type	Line Origination	Trunk Termination	Trunk Origination	Line Termination
Intraswitch		Tables A - C Figures 2 - 4			Table J Figure 11
Interswitch 5ESS-2000 Switches Originating and Terminating	PRI	Tables A - C Figures 2 - 4	Table D Figure 5	Tables H - I Figures 9 - 10	Table J Figure 11
	CCS		Table E Figure 6	Table G Figure 8	Table J Figure 11
	EAMF		Table F Figure 7	Table G Figure 8	Table J Figure 11
Interswitch 5ESS-2000 Switches Originating Only	PRI	Table A - C Figures 2 - 4	Table D Figure 5		
	CCS		Table E Figure 6		
	EAMF		Table F Figure 7		
Interswitch 5ESS-2000	PRI			Table H - I	Table J

Switches Terminating Only				Figures 9 - 10	Figure 11
	CCS			Table G	Table J
	EAMF			Figure 8	Figure 11
				Table G	Table J
				Figure 8	Figure 11

Figure 12 TABLE USAGE

SEC. 1BM: ISDN - CALL APPEARANCE RESERVATION AND PRIORITY CALLING INCOMING ONLY

1. FEATURE DESCRIPTION

This feature consists of two parts:

- Call Appearance Reservation
- Priority Calling Incoming Only

1.1 Call Appearance Reservation

Available with 5E11 and later, the Call Appearance Reservation Feature has feature number 99-5E-2627. This feature, available with both Basic and CACH EKTS (Call Appearance Call Handling Electronic Key Telephone Service), allows one or more call appearances (i.e., subaddresses) of the DN assigned to an EKTS group to be reserved for one of the following categories of calls:

- originations only
- termination only
- originations and priority incoming terminations

A DN (Directory Number) may have call appearances reserved in more than one of the categories.

1.2 Priority Calling Incoming Only

Available with 5E11 and later, the Priority Calling Incoming Only Feature has feature number 99-5E-2597. Calls terminating to a terminal with this feature will receive priority treatment. If there are no non-reserved call appearances available for termination, the call may be offered on a call appearance reserved for terminations only. If there are no non-reserved call appearances or termination only reserved call appearances available, the call may be offered on a call appearance reserved for originations and priority incoming terminations. This feature is often used with the Distinctive Ringing Incoming Calls feature to provide distinctive alerting as well as reserved call appearance terminations.

2. FEATURE ASSIGNMENT

The form flow in Figure 1 provides information for assigning call appearance reservation on the DSLUSR form. Only one subaddress may be assigned (or none) when EKTS is set to "BASIC". When EKTS is set to "CACH", up to three types of subaddress reservations may be assigned, and may be reserved in any order.

The form flow in Figure 2 provides information for assigning call appearance reservation on the SHTN form. When EKTS on the associated DSLUSR form is set to "CACH", the sum of the values entered in the NI SAR LIST QTY fields must not exceed the entry in the NBR field in row 1 of the SHTN SHARED LIST. When EKTS is "BASIC", only one entry is permitted and that one entry must have an NI SAR LIST QTY equal to 1.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

DSLUSR	5908	5	11	23.2 23.8
SHTN	5902	5	1C	23.20

DSLUSR form (5908) - The 5908 Record is used to collect data for digital subscriber lines. For 5E11 and later, added NI SAR LIST (National ISDN Subaddress Reservation List), which has TYPE AND ORDER, and QTY fields.

SHTN form (5902) - The 5902 Record is used to specify primary or secondary TN that is shared by several other TNs. For 5E11 and later, NI SAR LIST, TYPE AND ORDER, and QTY fields were added to support these features.

4. GLOSSARY

DN	Directory Number
EKTS	Electronic Key Telephone Service
NI	National ISDN
SAR	Subaddress Reservation List

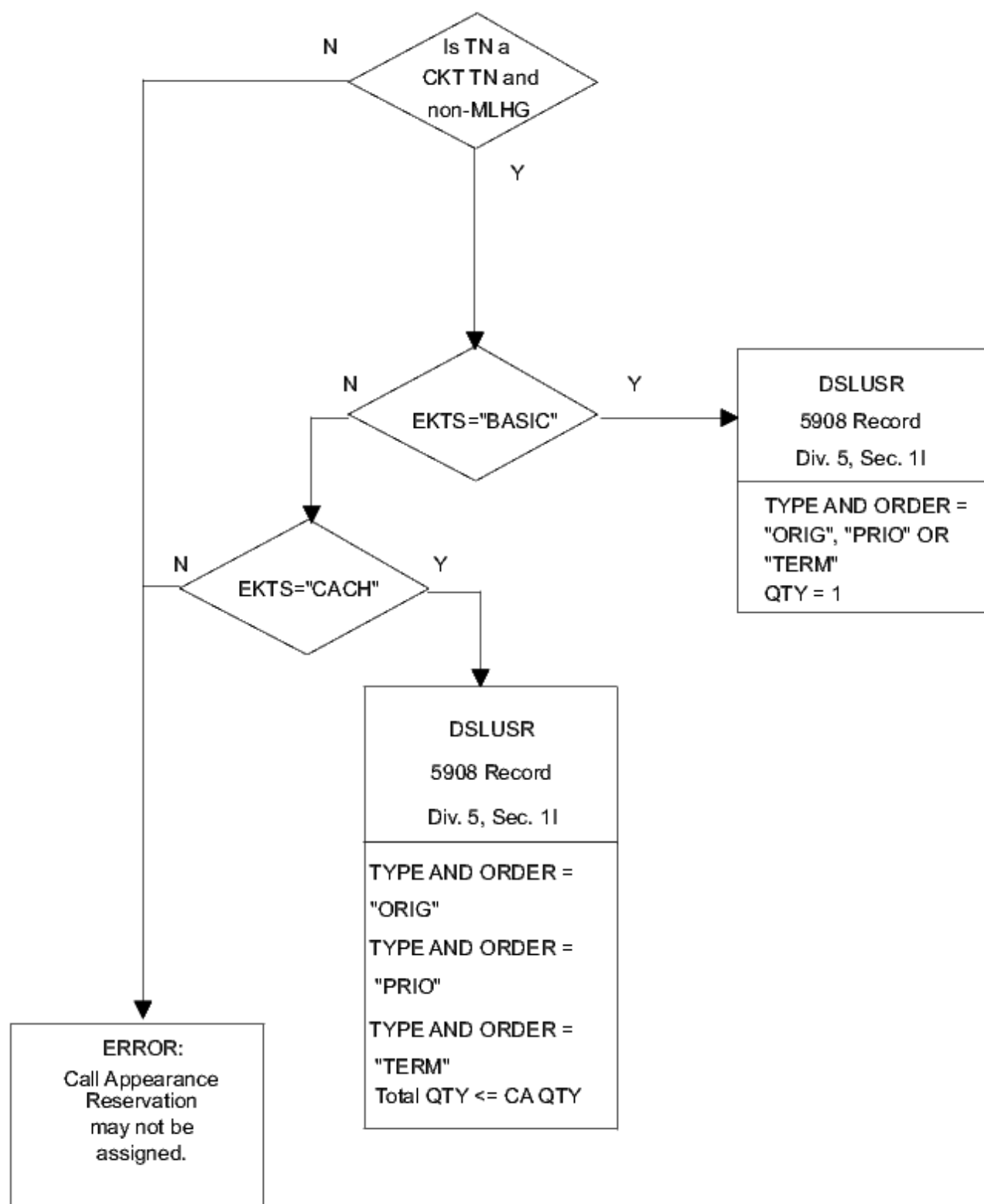


Figure 1 FORM FLOW FOR ISDN CALL APPEARANCE RESERVATION - DSLUSR FORM

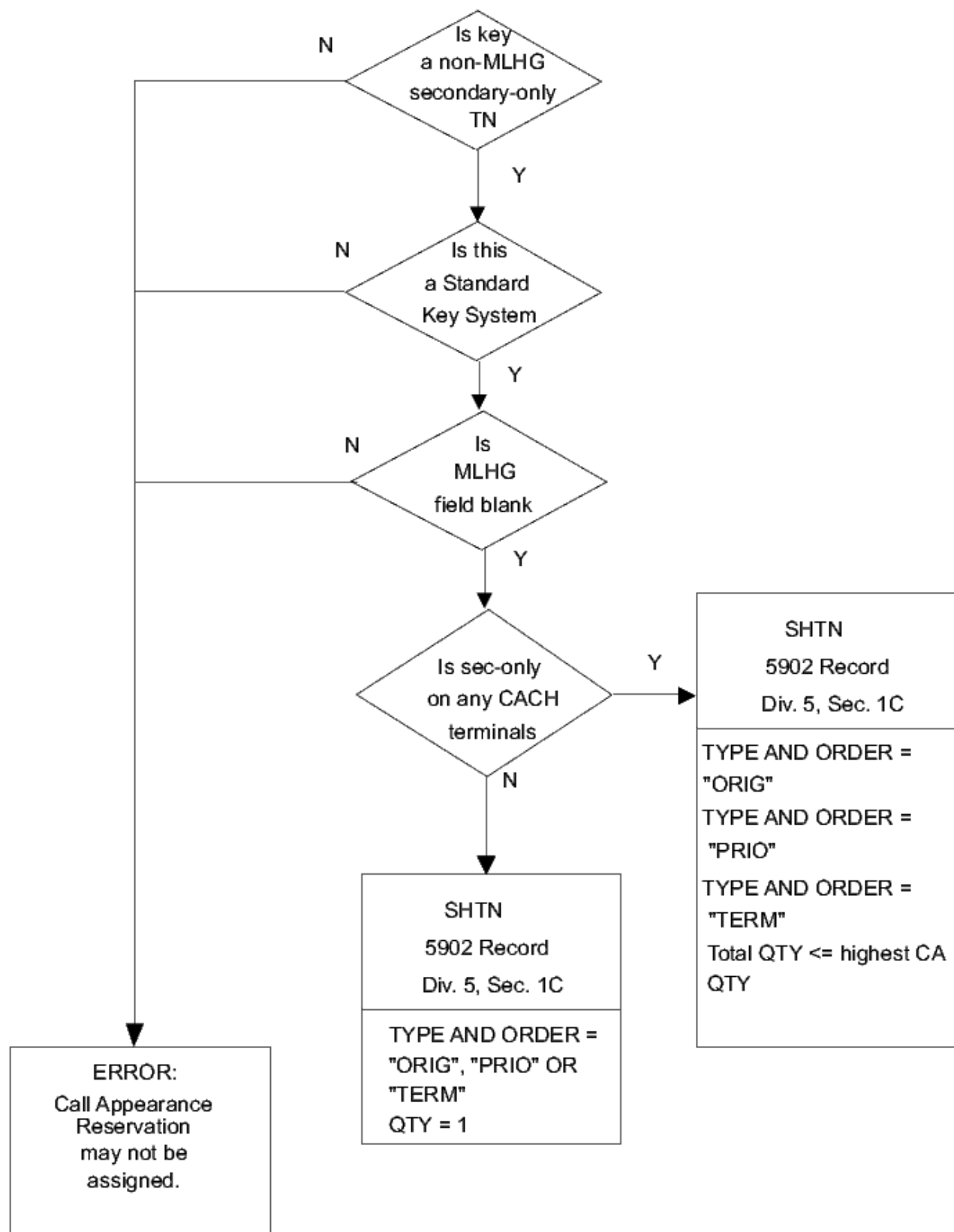


Figure 2 FORM FLOW FOR ISDN CALL APPREARANCE RESERVATION - SHTN FORM

SEC. 1BN: REORDER THRESHOLD ALARMS

1. FEATURE DESCRIPTION

Effective with the 5E11 Software Release, three thresholds were implemented to provide an alarm, on a per SM basis, when the call "re-order" count reaches a defined level. Re-order refers to the number of incompleting calls routed for retry (re-order). Calls may be re-ordered due to a busy trunk, lack of proper engineering or overload situation, software/hardware resource limitation, and/or database inconsistencies. These alarms provide advance warning as to potential upcoming trouble conditions.

2. FEATURE ASSIGNMENT

The existing re-order counter is compared to the number of call completions to determine a ratio which is checked against the threshold. Three RCR (Reorder Count Ratio) alarm thresholds were added to the OFCOPT form (5700 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1

OFCOPT form (5509 Record) - This form is used to define the various switch options. Three thresholds were added: RCR MINOR, RCR MAJOR, and RCR CRITICAL.

SEC. 1BO: AUTOMATED ISDN LINE ASSIGNMENT

1. FEATURE DESCRIPTION

Available with 5E11 and later, the AILA (Automatic ISDN Line Assignment) feature has feature number 99-5E-3777. This feature provides an optional parameter to turn the feature on in an office.

When the ISDN Automatic Line Assignment feature is activated, the following capabilities are available:

- The switch will automatically select packet channels for an ISDN line, i.e. ISCNs (ISDN Channel Numbers) when the application is created or updated on the DSL (Digital Subscriber Line) Assignment form (5907 Record) (RC/V 23.2 or 23.8).
- The switch automatically selects an available D ISCN (ISCN for the D-channel) when the ISDN service is created. If X.25 packet service is created at the same time, the switch automatically selects the B-channel ISCN(s).
- At service creation, the feature works by prohibiting the manual entry of data into the ISCN fields. An explanation appears on the recent change screen if a data entry person attempts to enter a value into an ISCN field.
- Since a D ISCN requires a quarter timeslot on a DPIDB and each B ISCN requires a full DPIDB timeslot, these fields are also prohibited from manual data entry if the AILA feature is turned on. The switch automatically selects ISCNs based on availability of the corresponding DPIDB timeslot(s).
- Once the ISDN service has been created, the ISCN(s) the switch has selected can be changed by updating the service and manually entering a new value. In addition, if X.25 packet service is added to a signaling-only line by updating the DSL Assignment form, the switch automatically selects B-channel ISCNs provided the ISCN fields are not entered.

2. FEATURE ASSIGNMENT

Before the AILA feature can be activated, the ACT field for FID 695 on the FOSYS form (5713-2 Record) must be set to "Y". See Figure 1 for the form flow for the assignment of this feature.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
DSL	5907	5	1H	23.8
DSLAP	5963	6	6A	24.7
DSLUSR	5908	5	1I	23.8
FOSYS	5713-2	3	5AS	8.31
MISLINK	5637	4	32B	6.11
PSUGP	5949	5	3J	22.16

DSL form (5907 Record) - This form is used to define attributes of a DSL (also referred to as a BRI (Basic Rate Interface) and to define the attributes of the B1 and/or B2 channel of the DSL. Data rules were added for this form.

DSLAP form (5963 Record) - This form is used to define the data links connecting an AP (Application Processor) and the 5ESS-2000 Switch. Each AP is connected to one ISDN SM with DSL links. Data rules were added for this form.

DSLUSR form (5908 Record) - This form is used to define the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form. Data rules were added for this form.

FOSYS form (5713-2 Record) - This form is used to activate special features. This feature is activated by setting the ACT field for FID 695 to "Y".

MISLINK form (5637 Record) - This form is used to make the MIS LINK assignments, providing the capability to provision an MIS (Management Information System) SM Event Link for ACD/BRCS on all valid DSLs. Data rules were added for this form.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. The AUTO ASSIGN field and data rules were added for this form.

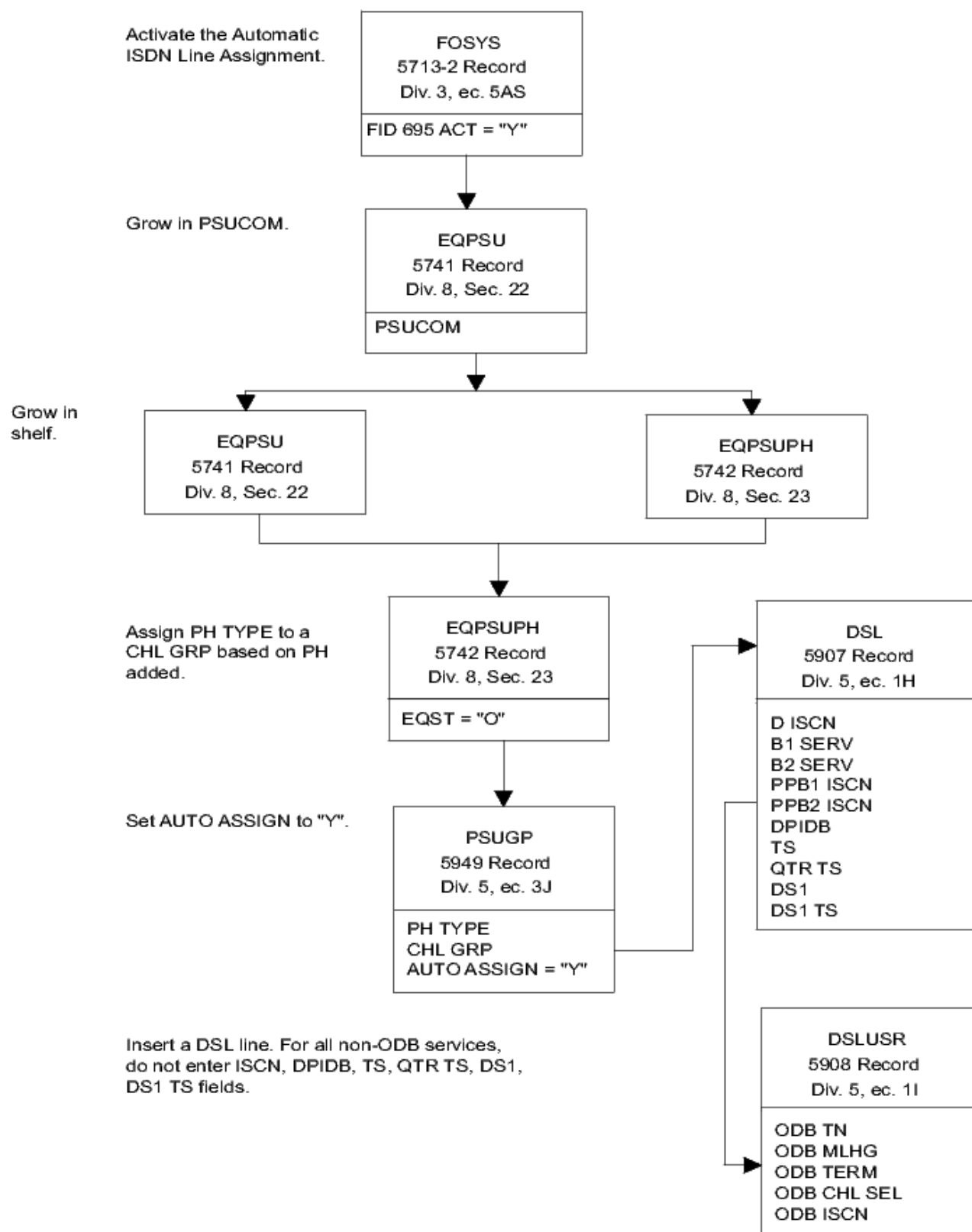


Figure 1 FORM FLOW FOR AUTOMATIC ISDN LINE ASSIGNMENT

SEC. 1BP: INCREASE DATA LIMITS FOR SELECTED TRAFFIC SECTIONS

1. FEATURE DESCRIPTION

Available with 5E14 and later Software Releases, the Increase Data Limits for Selected Traffic Sections feature has feature number 99-5E-7000. This feature enhances collection abilities for several selected TRFC30 (Traffic Measurements Report for 30 Minute Interval) sections. Several single section sizes will be increased to allow more collection capabilities beyond the 32000 byte limit. The following will be extended in size to allow the maximum number of components to fit into the 384 kB space assigned for certain sections.

TG (Trunk Group)

PSPH (ISDN Packet Switch Protocol Handler)

DSL (Digital Subscriber Line)

LINE (Per Line Measurements)

IPIDB (Integrated Digital Carrier Unit PIDB Peripheral Interface Data Bus)

ILINE (Integrated Digital Carrier Unit LINES)

IRT (Integrated Digital Carrier Unit RT)

SG (Switch Group)

LGC (Line Group Controller)

AIULN (Access Interface Unit Measurements for Lines)

AIULC (Access Interface Unit Line Measurements for AIU)

Some of the space in the TRFC30 buffer is occupied by the section header and the overall header. Hence the maximum space left for data in the TRFC30 buffer is 390016 bytes.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASLU	5539	3	5AM	13.6

MEASLU form (5539 Record) - This form is used to support the LU/ISLU Load Administration Measurements feature. The number of Study Groups allowed was increased from 5 to 19.

SEC. 1BQ: INHIBIT DELETE FOR ROUTE INDICES

1. FEATURE DESCRIPTION

Available with 5E13 and later Software Releases, the Inhibit Delete for Route Indices feature is assigned feature number 99-5E-7427. This feature provides the functionality to incorporate an additional level of security for lines terminating to a route index that are designated critical by the switch owner.

This feature requires that you check the status of the INHIBIT DEL field on the Line form (5109 Record) before allowing a deletion to occur. If the field is set to "Y", the deletion will be blocked and an error message is sent indicating which field failed. If the field is set to "N", the deletion will continue.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.1
MLHLN	5111	3	1K	1.6

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch.

MLHLN form (5111 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG. Each MLHG/Terminal Number must be assigned an equipment number and specific options and features. Every MLHG Number assigned on the MLHLN form must be defined on the MLHG form (5110-1/2/3 Record).

SEC. 1BR: INHIBIT DELETE FOR SELECTED LINES AND TRUNKS

1. FEATURE DESCRIPTION

The Inhibit Delete for Selected Lines and Trunks feature is available as a 5E13 Software Update. The assigned feature number is 99-5E-3900.A.

This feature provides the capability to display an error message upon an attempt to remove lines, DSLs (Digital Subscribers Lines), and trunk members from service that are marked as deletion inhibited.

Before allowing a deletion to occur, this feature verifies the status of the INHIBIT DEL field on the LINE and MLHLN forms (5109, 5111 Records) for analog lines, the DSLUSR form (5900 Record) for ISDN (Integrated Services Digital Network) lines, and the TRUNK form (5204 Record) for trunk members. If the field is set to "Y", the deletion will be blocked and an error message is sent. If the field is set to "N", the deletion will succeed.

2. FEATURE ASSIGNMENT

For 5E13 and later, to allow or disallow the deletion of lines and trunks, the INHIBIT DEL field must be set to "Y" indicating no deletion allowed and "N" if deletion is to be allowed:

on the LINE and MLHLN forms for analog lines,

on the DSLUSR form for ISDN lines, or

on the TRUNK form for trunk members.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2, 23.8
LINE	5109	3	1I	1.1
MLHLN	5111	3	1K	1.6
TRUNK	5204	3	2C	5.5

DSLUSR form (5908 Record) - The DSLUSR form defines the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form. Added the INHIBIT DEL field.

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch. Added the INHIBIT DEL field.

MLHLN form (5111 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG. Each MLHG/Terminal Number must be assigned an equipment number and specific options and features. Every MLHG Number assigned on the MLHLN form must be defined on the MLHG form (5110-1/2/3 Record). Added the INHIBIT DEL field.

TRUNK form (5204 Record) - This form defines trunk members that access DSU2-RAF (DSU2 With Recorded Announcement Function) channels that have been programmed for ASP (Advanced Services Platform) announcements. See Division 3, Section 2C and 2Q for details on making these assignments. Added the INHIBIT DEL field.

SEC. 1BS: TRAFFIC REPORTS FOR MODULAR METALLIC SERVICE UNITS

1. FEATURE DESCRIPTION

The Traffic Reports for MMSU (Modular Metallic Service Units) feature (99-5E-4717) is available as a 5E12 and later Software Update. It provides the capability to collect traffic measurements for MMSUs to identify resources which may be blocking testing paths and to identify and apply the optimal MMSU configuration. To implement this feature, two new measurement section names are provided on the MEASSUM form. The SECTION NAME field is used to define MMSU measurements for display on the Traffic 30 Report:

- "MMSUJMTB" - measurements for MMSU Metallic Test Bus
- "MMSUGMTIB" - measurements for MMSU Metallic Test Interface Bus

Note that the Recent Change View (13.9) that is equivalent to the ODA (Office Data Administration) MEASSUM form is a non-entry Recent Change View. Thus, in the Recent Change environment, the views used to further define these measurements are identified in the following tables:

Measurement Collection Selectivity

(13.7)

SECTION NAME = MMSUJMTB	SECTION NAME = MMSUGMTIB
START1COMP = MSU number or blank START2COMP = SG number or blank START3COMP = shelf number or blank DEST SM = SM number	START1COMP = MSU number or blank DEST SM = SM number

Measurement Range Selectivity

(13.8)

SECTION NAME = MMSUJMTB	SECTION NAME = MMSUGMTIB
START1COMP = MSU number or blank END1COMP = MSU number or blank START2COMP = SG number or blank END3COMP = shelf number or blank DEST SM = SM number COLLECT = Y or N ROP = Y or N	START1COMP = MSU number or blank END1COMP = MSU number or blank DEST SM = SM number COLLECT = Y or N ROP = Y or N

Measurement Range Selectivity

(13.9) Verify-Only for RC

SECTION NAME = MMSUJMTB	SECTION NAME = MMSUGMTIB
START1COMP = MSU number or blank START2COMP = SG number or blank END3COMP = shelf number or blank DEST SM = SM number COLLECT = Y or N ROP = Y or N	START1COMP = MSU number or blank DEST SM = SM number ROP = Y or N

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9

MEASSUM form (5563 Record) - This form is used to identify components in the SECTION NAME field that are to be selected for traffic measurements reporting on the "30-minute" Traffic Measurements Report. Two measurement names were made available to collect measurements for MMSUs.

SEC. 1BT: TRUNK GROUP HUNT SEQUENCE ENHANCEMENTS

1. FEATURE DESCRIPTION

1.1 Feature Overview

Available with 5E13 and later, the Trunk Group Hunt Sequence Enhancements Feature has feature number 99-5E-4267.

There are many different types of hunting that may be used to search for idle trunks within a particular trunk group. All hunting algorithms basically search the list of trunks in a trunk group when a trunk is needed for an outgoing call. The most common type of hunting is Linear Hunting, which may be performed in either a forward or backward direction. The feature being introduced in this FSD expands on the number of hunting algorithms to include two new trunk hunting algorithms:

- Least Idle: Will choose a trunk within a trunk group which was most recently in use. This will concentrate traffic on a smaller group of trunks, since the trunks that are used most often will be made idle and hunted again.
- Most Idle: Will choose a trunk within a trunk group which was least recently used. This will spread traffic across a larger group of trunks, since the trunk that has been idle the longest will be the one chosen during hunting.

Using different trunk hunting techniques at the opposite ends of the trunks could help alleviate the problems with glare.

Using subgroups when provisioning the trunk will allow the service provider to use only MIDL (Most Idle) hunting, only LIDL (Least Idle) hunting, or a combination of the two types of hunting.

There are four areas in the switch that will be affected by these new trunk hunt mechanisms:

1. Initialization of the trunks in the trunk group
2. Trunk searching
3. Trunk busying - removing the trunk from the MIDL or LIDL queue and marking it busy
4. Freeing the trunk - adding it back into the MIDL or LIDL queue

1.2 Trunk Group Initialization

In order for the traffic initially offered to the trunk group to be handled adequately, each end of the trunk group must populate its MIDL and LIDL queues in a consistent manner. This is especially important if one end of the trunk group uses linear search with a fixed start position and the other end uses MIDL-LIDL trunk hunting. (Such a case might apply if one of the exchanges had performance problems and used linear search to alleviate them).

Figure 1 illustrates the method of how subgroups would be used to define the MIDL and LIDL trunk hunting. For the purposes of description, Switch A has command of trunks *a*, *b* and *c*, while Switch B has command of trunks *d*, *e* and *f*.

When the LDP switch is processing calls, it knows when trunks were in use for a call and when trunks were

idle. When a trunk is selected from a MIDL queue, the oldest entry is used; when a trunk is selected from a LIDL queue, the youngest entry is used.

- **NOTE:** For a full size queue implementation the maximum MIDL queue size is the same as the number of trunks in the trunk group that Switch A commands; the maximum LIDL queue size is the same as the number of trunks that Switch B commands, and the split could be in any proportion determined by the network planner or service provider. The most likely scenario is that the planner will allocate 50% of the trunks to belong to the MIDL subgroup on Switch A, and the remaining 50% will belong to the MIDL subgroup on Switch B. There may be cases where an equal split is not used, again, depending upon how the trunks are provisioned.

It is also conceivable that one switch commands all the trunks in the trunk group. That would result in one switch searching solely for the most idle trunk, while the other switch always searches for the least idle trunk.

1.3 Trunk Searching

If a trunk is required for a call in a trunk group, the MIDL queue is examined first. If this queue contains idle trunks, the one that has been idle the longest (the "oldest" or most idle trunk of the diagram) is chosen. If the MIDL queue is empty, the LIDL queue is examined, "youngest" or least idle first. If this queue is empty, and there is no alternate route to the destination, the call is lost.

1.4 Trunk Busying

If a trunk is selected, it is made busy, and its entry is removed from the appropriate queue.

If a dual trunk seizure, or glare, has occurred however, either the sending switch or the receiving switch must back down and select another trunk for its call to continue.

For glare situations, the existing Glare Control mechanisms will be used. Thus, the non-controlling switch must back down and select another trunk if its call is to continue. This is irregardless of whether the trunk was on the MIDL or LIDL queue of that switch.

Because of the way that trunks are provisioned and hunted, the risk of glare situations is greatly minimized.

1.5 Freeing the Trunk

At the end of a call, the idle trunk is added back to the appropriate MIDL or LIDL queue, and marked as idle.

2. FEATURE ASSIGNMENTS

See Figure 2 .

2.1 Operational User

The operational user is the Service Provider.

The operational user for this feature will be Recent Change Technicians, Switch Administrators or Network Planners who are responsible for activating and maintaining the feature.

To specify that these new algorithms are used, the operational user would create a Trunk Group with a Hunt Type of "MLIDL" on the TKGRP form (Recent Change View 5.1). See Figure 2 .

After the MLIDL (Most Idle - Least Idle) Hunt Type is set for a trunk group, the Service Provider must then

assign a trunk to that trunk group, and for each trunk member in that trunk group, determine whether it should belong in the Most Idle Subgroup or the Least Idle Subgroup on the TRUNK form (Recent Change View 5.5). Set LEAST IDLE to "Y" if this trunk member is hunted based on Least Idle trunk hunting sequence. Set LEAST IDLE to "N" if this trunk member is hunted based on Most Idle trunk hunting sequence. See Figure 2 .

Administrative procedures between the two ends of the trunk group must ensure that for a MLIDL trunk group that connects the two switches, the trunks defined as the MIDL trunks at one switch will be defined as the LIDL trunks at the other switch. This is the essence of defining the MLIDL hunting for a given trunk. Thus, the trunks of the LIDL queue at one switch will be searched in exactly the opposite order as the same trunks in the MIDL queue at the other switch.

Due to the additional subgroup hunting that will need to take place, most likely, this feature will be less efficient and will use more memory than linear hunting methods.

The maximum number of trunk members that may be assigned to a trunk group in the 5ESS-2000 LDP is 192. This feature is sharing the same trunk resources with all of the other trunk groups and thus subject to the same member limits. This feature is neither adding nor increasing any limits.

There is also a concern regarding Least Idle Hunting in that during the time (i.e., milliseconds) it takes for one switch to release the trunk, the far end could be seizing the trunk again (assume the far end is the switch using LIDL Hunting). But since the trunk isn't completely idled at the near end, when the seizure comes in, a signaling error could result.

There is no way to avoid this situation, so care must be taken when a customer decides to use the LIDL algorithm. It is not recommended to use LIDL hunting on very small trunk groups that have a very high occupancy.

When a glare situation occurs, the Glare Control will be handled with the existing Glare Control parameter on the TKGRP form (Recent Change View 5.1). Glare control and retry will be based on the TKGRP form (Recent Change View 5.1), and not on the trunk belonging to the MIDL or LIDL subgroup queue.

2.2 Conceptual View of Least Idle Hunting

When a trunk belongs to the Least Idle subgroup, the trunk to be searched for is the one that was used most recently. The trunks being used can be viewed as each having a date/time stamp associated with each trunk within a trunk group. When a trunk is requested, the trunk that has a date/time stamp that is closest to that of when the trunk is requested can be viewed as the trunk that will be selected. This scenario can be viewed in Figure 3 .

NOTE: The following examples use date and time to illustrate the use of the LIDL hunting. This is not meant to indicate in any way that an actual date and time stamp is to be used in the development of this feature.

Utilizing the Least Idle trunk hunt algorithm will result in a smaller subset of trunks being utilized for a particular trunk group.

2.3 Conceptual View of Most Idle Hunting

When a trunk belongs to the Most Idle subgroup, the trunk to be searched for is the one that was used least recently (i.e., idle the longest). The trunks being used can be viewed as each having a date/time stamp associated with each trunk within a trunk group. When a trunk is requested, the trunk that has a date/time stamp that is furthest from that of when the trunk is requested can be viewed as the trunk that will be selected. This scenario can be viewed in Figure 4 .

- **NOTE:** The following examples use date and time to illustrate the use of the LIDL hunting. This is not meant to indicate in any way that an actual date and time stamp is to be used in the development of this feature.

Utilizing the Most Idle trunk hunt algorithm will result in all the trunks of a trunk group being utilized evenly.

2.4 Scenario 1 - Basic MIDL-LIDL Subgroups

This first scenario explains how a trunk group would be configured if a service provider did not want to make use of the subgroup functionality. All of the trunks in a trunk group would be searched either MIDL or LIDL at a given switch.

As shown in Figure 5, Switch A commands all of the trunks in the trunk group. This was established by Switch A designating all the trunks in that trunk group as belonging to the MIDL subgroup. Switch A will always search for the Most Idle trunk in the trunk group.

Switch B, however, does not command any of the trunks in the trunk group. Therefore, all of the trunks in Switch B must be assigned to the LIDL subgroup. Switch B will always search for the Least Idle trunk in the trunk group.

Although this scenario represents the simplest configuration for the trunk group, it does not capitalize on the flexibility of subgroups. Nor is it realistic to expect Switch B to not command any trunks in the trunk group.

2.5 Scenario 2 - MIDL-LIDL Subgroup Configuration

This scenario explains how a trunk group would most likely be configured if a service provider wanted to make full use of the subgroup functionality. Half of the trunks in a trunk group would belong to the MIDL subgroup on Switch A and the other half would belong to the MIDL subgroup on Switch B.

As shown in Figure 6, Switch A commands three of the trunks in the trunk group. This was established by Switch A designating those three trunks in that trunk group as belonging to the MIDL subgroup. Switch A will always search those three trunks (i.e., trunks *a*, *b*, *c*) for the Most Idle trunk in the trunk group.

Switch B, in this scenario, will command the other half of the trunks in the trunk group. Thus, it will command the three trunks that are not commanded by Switch A. Switch B will establish command of those three trunks by designating them as belonging to the MIDL subgroup. Switch B will always search those three trunks (i.e., trunks *f*, *e*, *d*) for the Most Idle trunk in the trunk group.

As shown in Figure 6, trunk *a* is busy, so if Switch A has to search for an available trunk, it will search its MIDL queue, consisting of trunks *b* and *c*. By using subgroups, the risk of glare is minimized. Switch A will always hunt for an available trunk within the trunks it commands and Switch B will hunt for a trunk within the subgroup that it commands.

Also by using subgroups with MIDL hunting, it will result in all the trunks in a trunk group being utilized evenly.

2.6 Scenario 3 - MIDL Subgroup Overflow

As in the previous scenario, this scenario explains how a trunk group would most likely be configured if a service provider wanted to make full use of the subgroup functionality. Half of the trunks in a trunk group would be commanded by Switch A and the other half would be commanded by Switch B.

As shown in Figure 7, Switch A commands three of the trunks in the trunk group (i.e., trunks *a*, *b*, *c*). Switch B commands the other half of the trunks in the trunk group (i.e., trunks *f*, *e*, *d*).

In this scenario, however, all of the trunks commanded by Switch A are busy, thus Switch A's MIDL subgroup is empty. In addition, one of Switch B's trunks is also busy.

If Switch A has to search for an available trunk, it will first go to its MIDL subgroup. Upon finding that subgroup empty, it will attempt to find a trunk in its LIDL subgroup. Since it is searching for the least idle trunk, it will seize trunk *e*. If, at the same moment that Switch A was searching for a trunk, Switch B was also searching for an available trunk, it would first search its MIDL subgroup. Since it searches its MIDL subgroup looking for the most idle trunk, it would seize trunk *f*.

Again, by using subgroups and by proper configuration, the risk of glare was avoided. Although Switch A and Switch B were searching among the same two available trunks in the trunk group, because of different subgroup searching, they each seized a different trunk.

If glare is ever encountered, the existing glare parameter on the trunk group will control the outcome. This is true regardless of whether the trunk belongs to the switch's MIDL or LIDL subgroup queue.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2SC	5.5

TKGRP form (5202) - The 5202 Record used to define each Trunk Group in a 5ESS-2000 Switch. For 5E13 and later, added valid entry of "MLIDL" to the HUNT TYPE field.

TRUNK form (5204) - The 5204 Record is used to define characteristics of individual trunks. For 5E13 and later, added the LEAST IDLE field.

4. GLOSSARY

LIDL - Least Idle

MIDL Most Idle

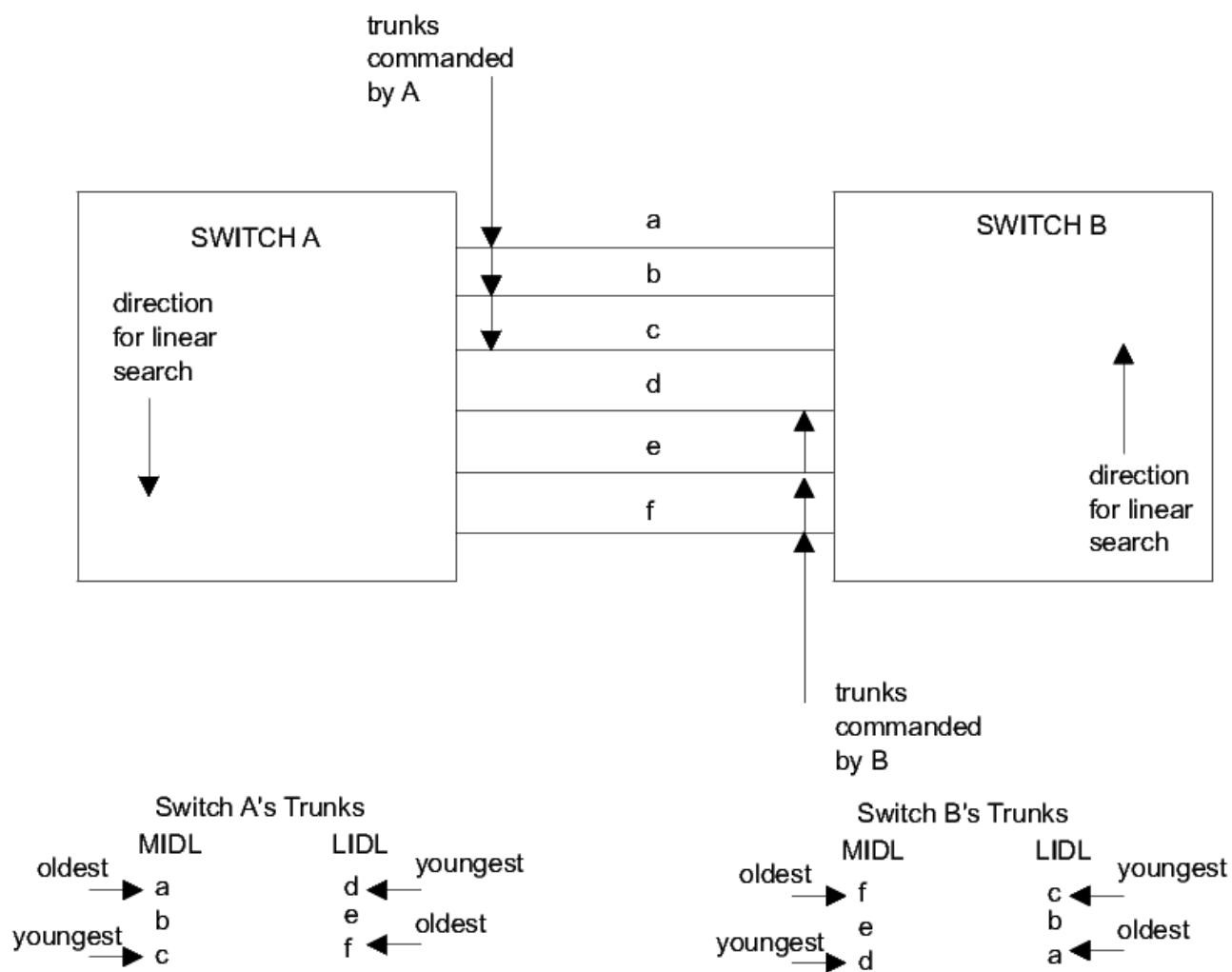


Figure 1 TRUNK GROUP INITIALIZATION

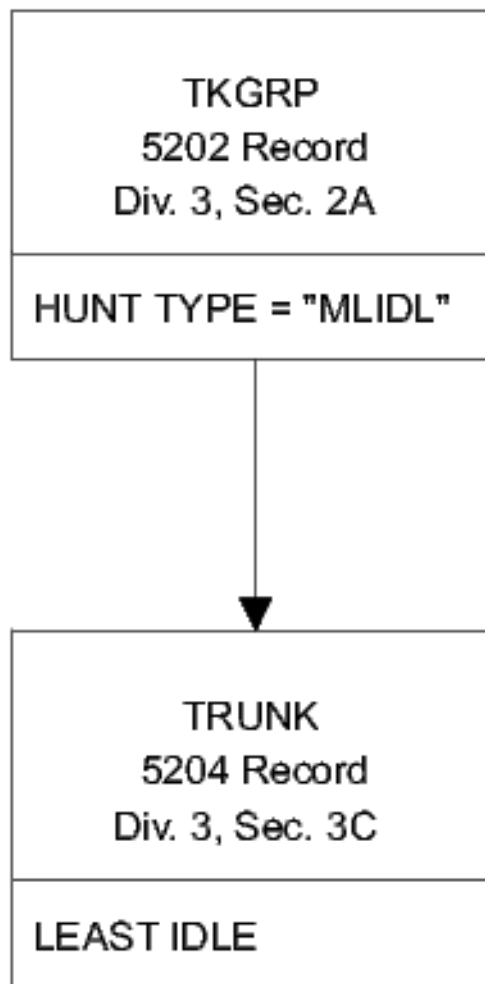
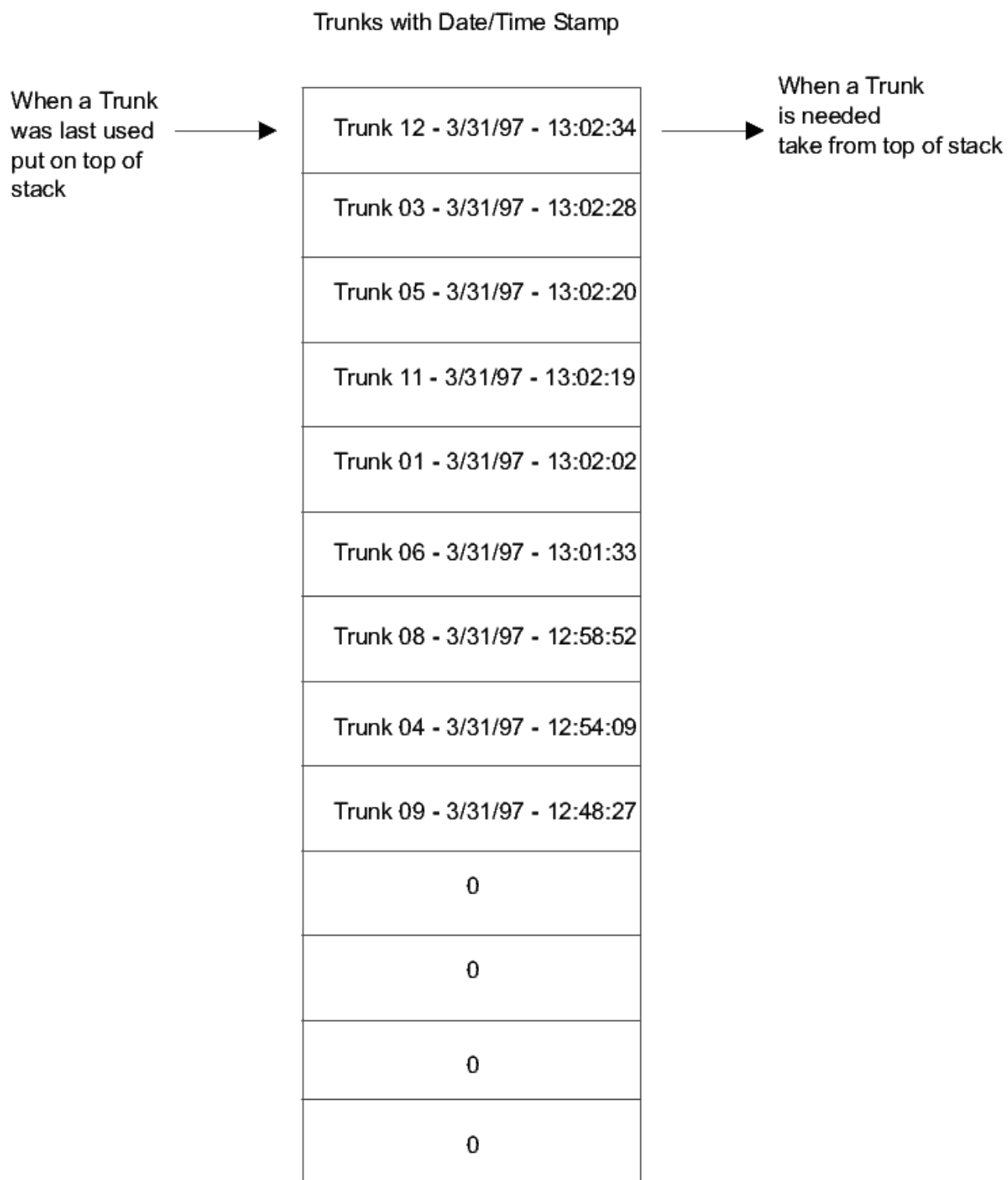


Figure 2 FORM FLOW FOR TRUNK GROUP HUNT SEQUENCE ENHANCEMENTS

**Figure 3 LEAST IDLE HUNT ALGORITHM**

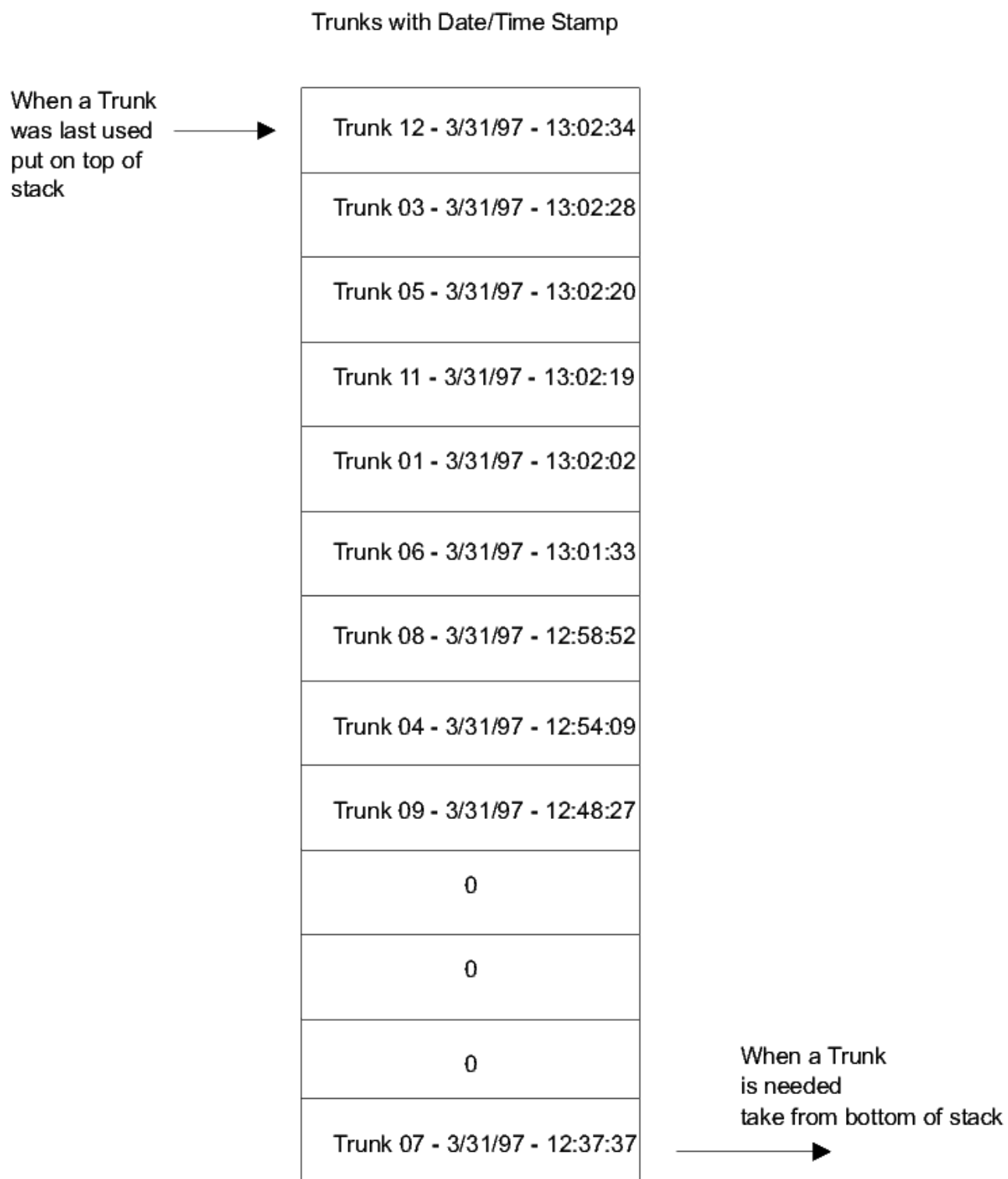


Figure 4 MOST IDLE HUNT ALGORITHM

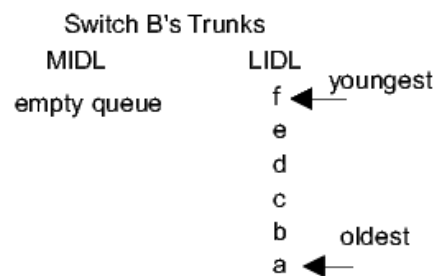
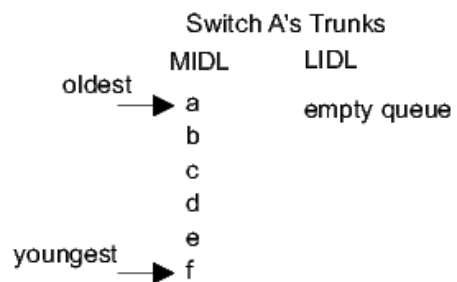
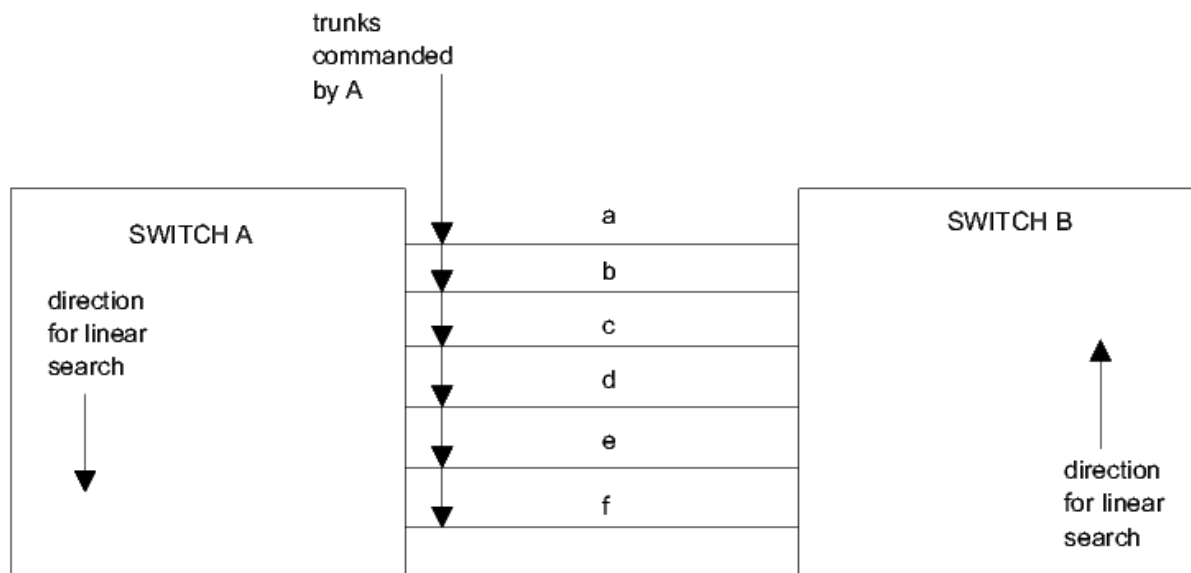


Figure 5 BASIC MIDL - LIDL HUNTING

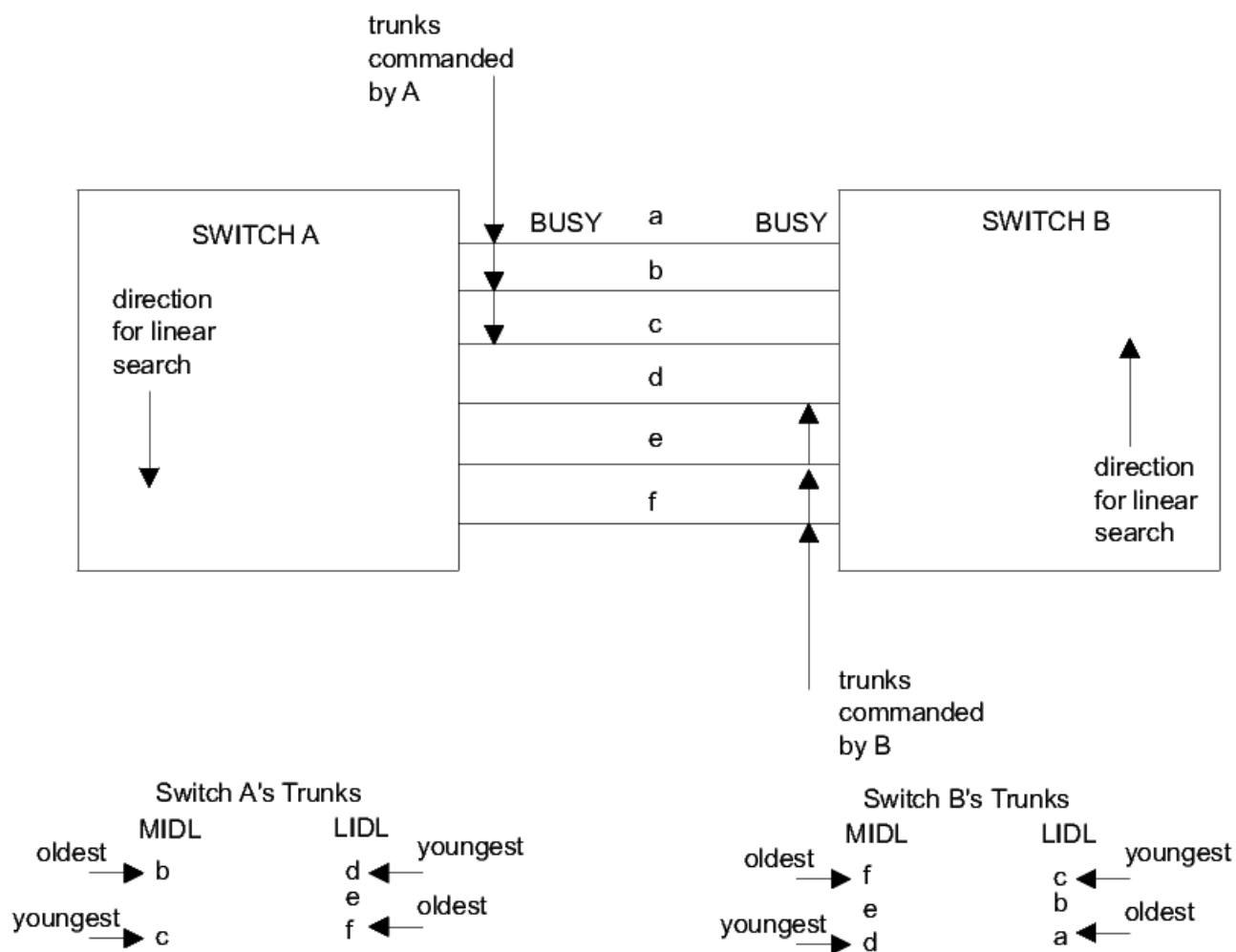


Figure 6 MIDL - LIDL SUBGROUP HUNTING

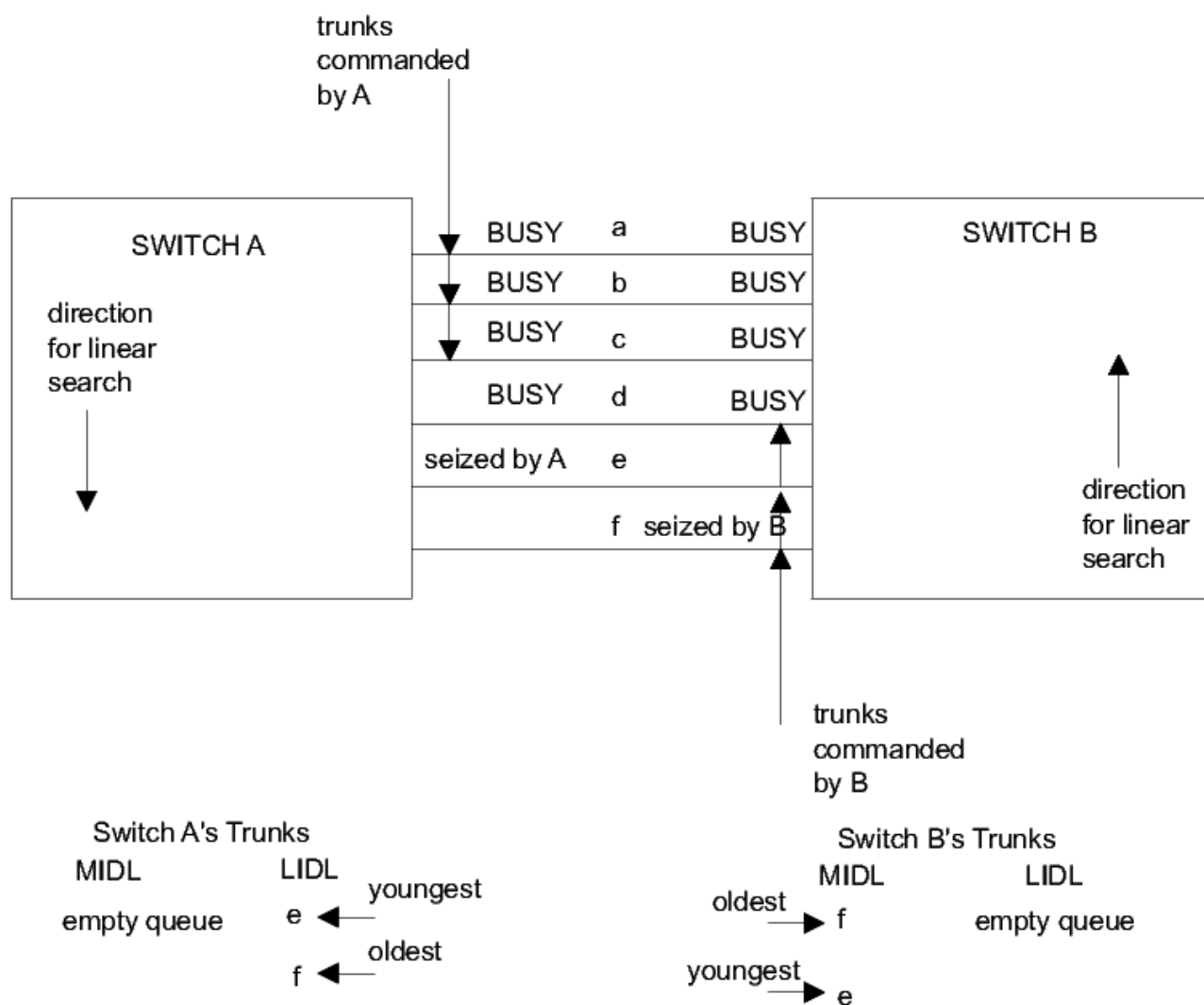


Figure 7 MIDL SUBGROUP OVERFLOW

SEC. 1BU: RELEASE WITH CAUSE CODE VALUE 1 FOR VACANT NUMBERS

1. BACKGROUND

The 5ESS Switch currently provides treatment locally at the terminating end-office for voice calls to vacant (unallocated) numbers. However, in the Canada PSTN for this case, a terminating end-office sends a release message with cause code value 1 back to the originating end-office. The originating end-office then provides the appropriate treatment.

2. FEATURE DESCRIPTION

Available with 5E13 and later, the Release with Cause Code Value 1 for Vacant Number has feature number 99-5E-7085.

This 99-5E-7085 feature provides a terminating 5ESS Switch the ability to send the Release with Cause Code Value 1 back to the originating switch when a call is made to a vacant number (unallocated number) and the path from the originating switch to the terminating switch is ISUP all the way. The calls originate from analog lines and ISDN lines where the bearer capability is speech, voice or 3.1KHz audio. Any intervening offices will pass on the release message.

This feature is intended for use in Canada only. There is no expectation at this time that this feature will be used in the U.S., and it is not recommended that this feature be turned on in U.S. switches. This is not a secured feature. This feature provides a recent changeable option to turn this feature on or off on an office-wide basis. This feature is for use in Canada so that the 5ESS Switch is consistent with their current procedures for voice calls to vacant numbers.

3. CALL SCENARIOS

When the Release with Cause Code Value 1 for Vacant Number feature is turned on for a terminating end-office, under the following conditions, the terminating end-office will send a Release message containing Cause Code 1 for Vacant Numbers to the originating end-office and the originating end-office will connect the calling party to blank number treatment:

- A. The calling party is analog or ISDN with a bearer capability of voice, speech or 3.1KHz audio.
- B. The path between the originating and terminating end-offices is ISUP all the way.
- C. If LRN routing is used and the NP - Cause Code 26 (ANSI 1) Suppression feature is on.

For the cases when the conditions are not true, existing procedures shall apply. For example:

- If the path is not ISUP all the way, the terminating end-office shall connect the call to blank number treatment.
- If the call was routed using LRN routing, and the regular procedure would be to send a release message with cause code value = 26 (ANSI 1), use that regular procedure. The Release with Cause Code Value 1 for Vacant Number shall not supersede LNP procedures where ANSI cause 26 is sent.

In the following scenarios, it is assumed that this feature 99-5E-7085 is turned on for the terminating end-office.

3.1 Scenario A

This scenario is the case where LNP (Local Number Portability) is not applicable and the route is ISUP all the way.

1. A call is made to the DN (312) 510-5999 from a analog line or ISDN line where the bearer capability is speech, voice or 3.1 KHz audio.
2. The call is routed through the network to a terminating end office.
3. The terminating switch determines that this DN is a Vacant Number.
4. The terminating switch determines that the call was routed ISUP all the way and formulates a REL message containing cause code 1.
5. The REL is sent back to the originating office.
6. On receipt of this REL, the originating switch looks up blank number treatment, and applies that treatment to the calling party.

3.2 Scenario B

This scenario is the case where LNP (Local Number Portability) is not applicable and the route is not ISUP all the way.

1. A call is made to the DN (312) 510-5999 from a analog line or ISDN line where the bearer capability is speech, voice or 3.1 KHz audio.
2. The call is routed through the network to a terminating end office.
3. The terminating switch determines that this DN is a Vacant Number.
4. The terminating switch determines that the call was not routed ISUP all the way.
5. The terminating switch looks up blank number treatment, and applies that treatment to the calling party.

3.3 Scenario C

This scenario is the case where LNP (Local Number Portability) is applicable and the routing is ISUP all the way.

1. A call is made to the DN (312) 510-5999 from a analog line or ISDN line where the bearer capability is speech, voice or 3.1 KHz audio.
2. The call is routed through the network to a terminating end office.
3. The terminating switch determines that this DN is unallocated and routed. that the call was not LRN
4. The terminating switch determines that the call was routed ISUP all the way, and formulates a REL message containing cause code 1.
5. The REL is sent back to the originating office.

6. On receipt of this REL, the originating switch looks up blank number treatment, and applies that treatment to the calling party.

3.4 Scenario D

This scenario is the case where LNP (Local Number Portability) is applicable, the cause 26 suppression feature (SFID 326) is on for the office and the routing is ISUP all the way.

1. A call is made to the DN (312) 510-5999 from a analog line or ISDN line where the bearer capability is speech, voice or 3.1 KHz audio.
2. The call is routed through the network to a terminating end office.
3. The terminating switch determines that this DN is unallocated and that the call was LRN routed, however the cause 26 suppression feature is turned on.
4. The terminating switch determines that the call was routed ISUP all the way, and formulates a REL message containing cause code 1.
5. The REL is sent back to the originating office.
6. On receipt of this REL, the originating switch looks up blank number treatment, and applies that treatment to the calling party.

3.5 Scenario E

This scenario is the case where LNP (Local Number Portability) is applicable, the cause 26 suppression feature (SFID 326) is off for the office and the routing is ISUP all the way.

1. A call is made to the DN (312) 510-5999 from a analog line or ISDN line where the bearer capability is speech, voice or 3.1 KHz audio.
2. The call is routed through the network to a terminating end office.
3. The terminating switch determines that this DN is unallocated and that the call was LRN routed, however the cause 26 suppression feature is turned off.
4. The terminating switch determines that the call was routed ISUP all the way.
5. The terminating switch formulates a REL message containing cause code 26.
6. The REL is sent back to the originating office.

4. FEATURE ASSIGNMENTS

To provision this feature, set the BLANK NBR REL field on the OFCOPT form to "Y".

5. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
OFCOPT	5509	3	5I	8.15

OFCOPT form (5509) - The 5509 Record used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The new field BLANK NBR REL was added for 5E13 and later.

SEC. 1BW: UUCP SUPPORT ON AM

1. BACKGROUND

UUCP (Unix-to-Unix Copy Program) is a standard facility of generic UNIX (UNIX(r) Operating System) dating back to the early 1980s. UUCP allows a user to execute a command to request the transfer of files from one system to another. Initially, the systems were linked by asynchronous serial ports which could be connected to modems for communications over long distances using telephone lines. Asynchronous serial ports are ubiquitous on computer systems for supporting ASCII (American Standard Code for Information Interchange) terminals, and thus provided an inexpensive and readily available method of connecting computer systems.

In addition to the copy utilities, the UUCP package includes the uux (Unix-to-Unix execute) command. A remote user requests the execution of a command on a system accessing either local or remote files and returning the results. This is subject to restrictions on the nature of the commands executed to prevent malicious or inadvertent execution of destructive commands originating on remote systems.

The UUCP Support on AM feature facilitates the distribution of software such as Software Update packages to multiple switches from a central site lowering their OAM&P (Operations, Administration, Maintenance & Provisioning) cost. The file transfer is completely general, however, and can be used for any type of file. Since most central offices where the 5ESS Switch is located do not have resident personnel, the ability to put files on the system without the need for a technician to visit the site with a tape cartridge results in a large cost savings to the service provider.

2. FEATURE DESCRIPTION

The UUCP Support on AM feature (99-5E-7582) is being deployed in the BMI (Beginning Managed Introduction) of the 5E15 Software Release.

This feature provides a method for moving files to and from the 3B21D computer or executing commands from remote sites on the 3B21D. The UNIX system that is sending files or receiving files must be a traditional UNIX system or the UNIX-RTR (Real Time Reliable) operating system running on a 3B21D computer. The UUCP Support on AM feature implements a subset of the UCCP functionality on the UNIX-RTR system running on the 3B21D computer. The UUCP support on the 3B21D is interoperable with UUCP running on a traditional UNIX system such as SUN Microsystems. The UUCP set of tools provides commands that may be used to transfer files between two UNIX systems and request remote systems to execute commands on their behalf. The possible uses for this feature are:

- Maintenance files such as SU (Software Update) packages may be automatically sent to the 3B21D from a UNIX system.

- A UNIX system could transmit requests to the 3B21D to execute routine administrative or bookkeeping commands.

As part of the UUCP on AM feature, the following commands are provided:

uucp

The uucp command requests a file copy to or from a remote system.

uux

The uux command requests that a remote system execute a command for a user on the local system.

uname

The uname command can be used to determine the names of remote systems known to the local system. It examines the `/usr/lib/uucp/Systems` file to determine which systems may connect to the local system.

uustat/uulog

The uustat command lists job status. Status may be listed by username or by system name.

The uulog command queries the UUCP log files to print out uucp or uuxqt transactions by system.

uucleanup

uucleanup is used to clean up the uucp spool directory. Entries older than a selectable number of days are removed.

uuclean.sh

The uuclean.sh command is a shell script that cleans and truncates log files and also spool files.

uucheck

The uucheck command verifies consistency of the configuration files and prints a user readable interpretation of the contents of the configuration files.

rmail

The rmail functionality of the RTR mail command is enhanced to allow for the removal of old messages from the user's mail file.

uusetup.sh

uusetup.sh is a new shell script which sets up the UUCP package on the 3B21D.

The uucico process sets the serial line to multicharacter raw mode for efficient file transfer. It negotiates with the remote system for compatible uucp protocol settings and then awaits commands for file transfers from the remote system.

The uuxqt process that handles remote execution requests. It examines the spool directory looking for X. files which contain the parameters and commands that are to be executed.

The UUCP system operates as a set of cooperating commands and worker processes to accomplish its function. The communication between these processes is through a spool area `/var/spool/uucp` (release 5E15 and later) or `/etc/bwm/spool/uucp` (release 5E14). The commands that users execute (such as, uucp and uux) place the request for service into the spool area. The worker processes (such as, uucico and uuxqt) examine the work requests in the spool area and cooperate with corresponding processes on other systems to transfer the files and initiate command execution. These processes also send notification of the results to the user who initiated the work, if this is requested.

Errors that can occur in UUCP fall into a few categories:

Communication errors during file transfers.

Attempts to transfer a file that is forbidden by access permissions.

Sequence number violations.

Attempt to execute a command with uux that is forbidden.

The UUCP feature requires that the uucp configuration files be preserved over transitions to 5E15 and later. An "evolution" script is executed at the end of the ENTER stage to modify these files to account for the new partition being introduced in 5E15. These "evolved" files are then copied over during the PROCEED stage, and are available to the UUCP feature running on the 5E15 side after booting to this new generic. This functionality is supported over retrofit and Software Release Update, for 5ESS offices. It is not supported for LTG (Large Terminal Growth) transitions. All files under the "/etc/uucp" directory (from the existing "etc" partition) are copied to the same partition/directory on the new side.

3. FEATURE ASSIGNMENT

To activate this feature, follow the instructions in the UUCP Feature Manual.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ECDOPT	5706	8	8	NA

ECDOPT form (5706 Record) - The ECDOPT form (Equipment Configuration Database Options) (5706 Record) is applicable to (and required for) all offices. It is required to translate all options in the AM (Administration Module) for initial offices. This form reflects the current hardware configuration of the system and describes the attributes and status of all processor and peripheral hardware entered into the UNIX-RTR Operating System, formerly DMERT (Duplex Multiple Environment Real Time).

SEC. 1BX: IMMEDIATE START ANNOUNCEMENT INTERFACE FOR PINNACLE ACD

1. FEATURE DESCRIPTION

Available as a 5E12 and later Software Update, the Immediate Start Announcement Interface for PINNACLE ACD (Automatic Call Distributor) feature provides an interface to the 17A announcement unit from the 5ESS Switch Call Vectoring software for use by existing PINNACLE ACD customers. (See Division 2, Section 4A121.) The 17A unit requires a three-digit announcement index in the range of 1 - 165. This value is defined on the ACDVCT form (5643 Record) in the CARG2 field. The announcement index outputted to the 17A unit identifies which announcement to play for the call out of a possible 165 stored announcements. In addition, this feature provides an enhancement to the Call Vectoring ANNOUNCE, PROMPT, and DISConnect commands to provision an announcement index identifying the announcement to be played when routing calls to announcement trunks connected to a 17A Immediate Start Announcement unit.

The feature number is 99-5E-4256.

2. FEATURE ASSIGNMENT

The following sequence should be followed when provisioning an Immediate Start Announcement trunk for use by this feature.

Provision a trunk group to use immediate start announcements (17A announcement machine) by setting the IMM START ANN field on the TKGRP form to "Y".

Assign the Immediate Start Announcement trunk group (i.e., TGN) a route index on the Route Index form (5303 Record)

Assign the Immediate Start Announcement TGN to a call vector command step (PROMPT, DISC, or ANNOUNC) on the ACDVCT form (5643 Record).

■ **NOTE:** The Route Index defined on the ACDVCT form in the ARG1 (call vector step Argument 1) field should be the same value as was assigned to the immediate start announcement trunk group on the Route Index form.

■ **NOTE:** The announcement index defined in the CARG2 (call vector step Conditional Argument 2) field should be set to a value between 1 - 165.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDVCT	5643	4	32H	6.7
TKGRP	5202	3	2A	5.1

ACDVCT form (5643 Record) - This form is used to define the Call Vectoring steps that determine how an incoming call is to be treated while waiting for a ACD (Automatic Call Distributor) agent. This form supports the ACD/BRCS Interworking II feature. For more information on this feature, see Division 2, Section 4A121. The Immediate Start Announcement feature makes use of three call vectoring command Codes defined in the CMD CD field: "PROMPT", "DISC", or "ANNOUNC". For this feature, as indicated in the Notes above, the CARG2 field must be entered with a value of 1 - 165 and the ARG1 field must be defined as the ROUTE INDEX on the RTIDX form. Each RTIDX form must have a TRUNK GROUP NUMBER which corresponds to a TGN on the TKGRP form where the IMM START ANN field is set to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire trunk group. For this feature, an IMM START ANN field was added to indicated if this feature is to be activated.

SEC. 1BY: RC TRANSLATIONS PROTECTION FOR HIGHLY CRITICAL ELEMENTS

1. FEATURE DESCRIPTION

1.1 Recent Change Translations Protection for Highly Critical Elements (99-5E-7336)

The RC (Recent Change) Translations Protection for Highly Critical Elements feature is being deployed on the 5ESS Switch in a Software Update for the 5E14 Feature Release 2, the 5E13 Feature Release 3, and in the BMI (Beginning Managed Introduction) of 5E15 Software Release. The feature number for this feature is 99-5E-7336.

This feature provides protection against the accidental and/or erroneous update or removal of data that has been identified by the operating companies during provisioning, as critical to the operation of the 5ESS Switch. It provides additional protection against user errors in customer specified RC Views. The layer of protection is not for all instances of a particular view. It is only for those which the customer marks as critical during provisioning. An error message, when attempting to remove or modify a critical view instance, indicates that it is a critical one and requires that the view instance be marked not critical before continuing. The critical data indicator field is used to identify a view instance or field that, if updated incorrectly or deleted accidentally, could cause service interruption. The field is required and defaults to a value of "N". The customer will be responsible for indicating that updates to fields in a specific view instance may be service impacting by setting this field to "Y". The translations protection becomes effective when the customer provisions the critical indicator field with a value of "Y".

The End User for this feature is the Service Provider, specifically the Recent Change Technician. When the critical indicator is set to "Y", updates or deletions of a view instance causes an error message to appear that will provide relevant information and describe the potential consequences to the user. An example of an error message is as follows:

INPUT DATA ERROR. CRITICAL DATA - POSSIBLE SERVICE INTERRUPTION.

Verify view number, field number, and data content. You must update CRIT IND to "N" to process this recent change.

The Recent Change Technician is required to reset the critical indicator to "N" before the original update or delete can proceed. Following an update transaction, if the data continues to be critical, the technician must reset the critical data indicator to a value of "Y" in order to preserve the integrity of the feature.

Recent Change processing supports all requirements for update and delete operations. ODA (Office Data Administration System) supports help and error messages during the insert operation and preserves the value of the critical indicator fields over Large Terminal Growth.

The CRIT IND field on RC View 10.2 is checked by the Digit Analysis RC Views 9.2, 9.3, 9.5, 9.6, 9.9 and 9.15, and Routing RC Views 10.10 and 10.25. These RC Views contain a RTI (Route Index) field. When a Route Index is marked critical on RC View 10.2, Recent Change blocks the attempted update of the RTI field on the above mentioned Digit Analysis RC Views and the Routing RC Views. Likewise, the customer is not allowed to delete a RC View instance that contains a RTI that is defined as critical on RC Views 10.2, 8.1, 8.49 and 10.3.

NOTE: Routing RC View 10.25 becomes a verify only view in 5E14 and therefore no longer is impacted by this feature.

Feature 99-5E-7336 is not a secured feature and, therefore, is available to all customers utilizing the NAR 5ESS Switch Release.

The RCOS (Recent Change Operations Systems) must be notified that failures due to the critical indicator

require that the RC transaction be reviewed, that the indicator be updated, and that the transaction be resubmitted.

1.2 Customer Recent Change Input for Critical Translations Protection (99-5E-7370)

The feature number for the Customer Recent Change Input for Critical Translations Protection feature is 99-5E-7370. This secured feature (SFID 566) is available for 5E15 and later.

This feature allows the customer to input additional information in a comment field that clarifies the important nature of the data. Feature 99-5E-7370 will send the error messages produced by feature 99-5E-7336 to the ROP. Also, it will display the critical data remark field as part of a warning message sent to the ROP when the critical data indicator field is changed from "Y" to "N". It will also display the critical data remark field, along with the critical data indicator field, on a separate screen when the critical data indicator field is changed from "Y" to "N".

2. FEATURE ASSIGNMENT

2.1 Recent Change Translations Protection for Highly Critical Elements (99-5E-7336)

Feature 99-5E-7336 is in use if a critical indicator field, on any Recent Change View impacted by this feature, is provisioned with a value of "Y". Recent Change processing supports all requirements for update and delete operations. ODA supports help and error messages without checks during the insert operation and preserves the value of the critical indicator fields over Large Terminal Growth.

2.2 Customer Recent Change Input for Critical Translations Protection (99-5E-7370)

To enable this feature, the ACT field for SFID 566 must be set to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms - Recent Change Translations Protection for Highly Critical Elements (99-5E-7336) - 5E13 and later

Form Name	Record Number	Div.	Sec.	RC View
ASPOPT	5670	4	31G	8.49
ESCO	5541	3	5AO	9.41
ESN	5540	3	5AN	9.40
ICF	5305	3	3R	10.3
ISDNOPT	5941	5	5B	8.1
OFCOPT	5509	3	5I	8.1
MCRTIDX	5304	3	3Q	10.4
RTIDX	5303	3	3P	10.2

ASPOPT form (5670 Record) - The ASPOPT form (5670 Record) is used to set the ASP office parameters for the office. CRITICAL INDICATORS fields were added for 5E13 and later - CRIT MAX TRIG, CRIT RDRCT THRES, CRIT SCP DAS, CRIT ASP OFC, CRIT MAX CONV, CRIT ORIG BL TRIG, CRIT ORIG NA TRIG, CRIT ARS FCD CDP and CRIT OHI OHD TAT.

ESCO form (5541 Record) - When a 911 call arrives at an E911 serving office, the ESCO form is used to retrieve an ESN (Emergency Service Number), NPD (Numbering Plan Digit), and selective routing indicator, based on the originating calling area. The CRIT IND field is added for 5E13 and later.

ESN form (5540 Record) - The ESN form (5540 Record) serves two purposes. First, it is used to define an ESN (Emergency Service Number), a set of telephone numbers for the emergency services, a 911 caller may require. Second, it is used to define SM stand-alone data, a set of emergency numbers for a 911 call that arrives at an SM unable to communicate with the CMP (Communication Module Processor). The CRIT IND

field is added for 5E13 and later.

ICF form (5305 Record) - The ICF form (5305 Record) is used to define the characteristics of Inter-LATA (Local Access Transport Area) and Intra-LATA carriers. The CRIT IND field is added for 5E13 and later.

ISDNOPT form (5941 Record) - The ISDNOPT form (5941 Record) defines a set of office parameters that must be entered when the office is an ISDN (Integrated Services Digital Network) switch. CRITICAL INDICATORS fields were added for 5E13 and later - CRIT PSN, CRIT IMPLIED NPA, CRIT INIC, CRIT PPSN DNIC, CRIT TNIC, CRIT SENSOR ID 1, CRIT SENSOR ID 2 and CRIT ILC.

OFCOPT form (5509 Record) - The OFCOPT form (5509 Record) is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. CRITICAL INDICATORS fields were added for 5E13 and later - CRIT EXPANDED INBAND SGNLING, CRIT NM DEFAULT NPA, CRIT HOME NPA, CRIT EXTRA START WINK, CRIT CPE OPTION, CRIT OFFICE TYPE, CRIT E911 OPTION, CRIT E911 DAS, CRIT E911 SCR, CRIT IHN SCP NPA DEL, CRIT SCP 800 DAS, CRIT FGD PHASE, CRIT TCAP CIC, CRIT USTWC FEAT, CRIT USTWC ACT, CRIT SPONT AVAIL, AND CRIT CICP BLOCK.

MCRTIDX form (5304 Record) - The MCRTIDX (Modular Customization Route Index) is similar to the Route Index defined on the RTIDX form (5303 Record). The MCRTIDX form (5304 Record), however, allows additional information that is required for ARS (Automatic Route Selection) and sometimes used for PFA (Private Facility Access). The CRIT IND field is added for 5E13 and later.

RTIDX form (5303 Record) - The RTIDX form (5303 Record) is used to define each Route Index in a 5ESS Switch. The record is intended to be used as an office record and as a source document for data entry into the RTIDX form. The CRIT IND field is added for 5E13 and later.

New And Modified ODA Forms - Customer Recent Change Input for Critical Translations Protection (99-5E-7370) - 5E15 and later

Form Name	Record Number	Div.	Sec.	RC View
ESCO	5541	3	5AO	9.41
ESN	5540	3	5AN	9.40
ICF	5305	3	3R	10.3
MCRTIDX	5304	3	3Q	10.4
RTIDX	5303	3	3P	10.2

ESCO form (5541 Record) - When a 911 call arrives at an E911 serving office, the ESCO form is used to retrieve an ESN (Emergency Service Number), NPD (Numbering Plan Digit), and selective routing indicator, based on the originating calling area. The CRIT RMK field is added for 5E15 and later.

ESN form (5540 Record) - The ESN form (5540 Record) serves two purposes. First, it is used to define an ESN (Emergency Service Number), a set of telephone numbers for the emergency services, a 911 caller may require. Second, it is used to define SM stand-alone data, a set of emergency numbers for a 911 call that arrives at an SM unable to communicate with the CMP (Communication Module Processor). The CRIT RMK field is added for 5E15 and later.

ICF form (5305 Record) - The ICF form (5305 Record) is used to define the characteristics of Inter-LATA (Local Access Transport Area) and Intra-LATA carriers. The CRIT RMK field is added for 5E15 and later.

MCRTIDX form (5304 Record) - The MCRTIDX (Modular Customization Route Index) is similar to the Route Index defined on the RTIDX form (5303 Record). The MCRTIDX form (5304 Record), however, allows additional information that is required for ARS (Automatic Route Selection) and sometimes used for PFA (Private Facility Access). The CRIT RMK field is added for 5E15 and later.

RTIDX form (5303 Record) - The RTIDX form (5303 Record) is used to define each Route Index in a 5ESS

Switch. The record is intended to be used as an office record and as a source document for data entry into the RTIDX form. The CRIT RMK field is added for 5E15 and later.

SEC. 1BZ: OFFICE TO OFFICE TESTING

1. FEATURE DESCRIPTION

The Office to Office Testing feature (99-5E-7158) is deployed in a Software Update for 5E13 and in the 5E14 BMI (Beginning Managed Introduction) Software Release.

The OTO (Office to Office) testing is responsible for verifying interoffice continuity and proper line polarity in addition to verification that the directory number associated with a particular cable pair is consistent in both the old and the new switching systems. To verify this consistency, an interface trunk, providing test access from the 5ESS Switch is required to perform line testing. The Office to Office Testing feature provides a digital trunk interface for the new office OTO testing platform. Currently, Office to Office Testing is done on an Analog Trunk Unit (SN102).

This feature allows service providers supporting DLTU (Digital Line and Trunk Unit) trunks in the new office to use the existing OTO platform to provide pre-cutover support on the old office trunks. This digital trunk interface, in conjunction with an IAD (Integrated Analog to Digital Converter) or D4 channel bank, serves as a replacement for the SN102 OTO analog trunk circuit in the new office supporting 5E13 and beyond. The functionality of the OTO test is not expected to change as a result of this feature. The primary focus of this feature is limited to upgrading the new office OTO test interface to support a digital interface. The ATU (Analog Trunk Unit) interface continues to be supported in the existing office configured with an ATU equipped with a SN102 OTO analog trunk circuit. However new office startups are encouraged to support the new interface when at all possible.

2. FEATURE ASSIGNMENT

To provision this feature, the Office to Office parameters should be assigned to the digital trunk members on the TRUNK form (Record 5204). The DEN, OTODPN 1, OTODPN 2, SLC OTODPN 3, and SLC OTODPN 4 fields have to be set on the TRUNK form.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. A data rule was added to the DATA RATE field.

TRUNK form (5204 Record) - The 5204 Record is used to define each member of a Trunk Group in a 5ESS Switch Office. The trunk information that is entered on this record is unique to the individual member of a Trunk Group. Data rules were added to the OTODPN 1 field.

SEC. 1CA: REROUTE ON RELEASE

1. FEATURE DESCRIPTION

The Reroute on Release feature is available with the 5E15 Feature Release 2 and later Software Releases. The feature number is 99-5E-7590.

The Reroute on Release feature allows a call to be rerouted if unavailable routes are encountered in the call path. When a call cannot be routed out of a switch, the switch can send a Release message (with an appropriate Cause value) back to the upstream switch. Normally, that Release message initiates the tearing down of the call, but for certain specified Cause values, receipt of the Release message (at the upstream switch) causes the upstream switch to try to reroute the call.

Reroute on Release is an original feature for the LDP (Long Distance Platform) and is part of the MINT (Multi-vendor Intra-Network Trunks) feature. (See Division 2, Section 4A217 for more information on the base MINT feature (TOLL 5ESS Switch Platform for MINT Processing)). A benefit of the Reroute on Release feature is that it was previously available only on the LDP, but is currently available on the local/toll switch. This feature is identical in operation to the Reroute on Release feature that is provided on the LDP (see Division 2, Section 4A250, MINT Reroute on Release feature).

For a complete description of the Reroute on Release capability and for the table summarizing possible Cause values used with the Reroute on Release capability, see Division 2, Section 4A217.

1.1 Interactions with ASP

The ASP (Advanced Services Platform) BLNA (Busy Line No Answer) feature also makes use of rerouting capabilities. This feature allows the SCP (Service Control Point) to be informed when a call encounters a Busy or No Answer condition in the network. It does this by using an NEL (Next Event List) on the call. If a switch receives a Release message, and there is an ASP NEL assigned to the call with User Busy armed, the Call value is checked to see if it should be interpreted by ASP as User Busy. If so, the ASP NEL takes precedence over the Reroute on Release feature, and call control is returned to the SCP. If not, the Reroute on Release is invoked.

2. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

SEC. 1CB: BICC STATIC CIC ALLOCATION

1. FEATURE DESCRIPTION

The feature number for the BICC (Bearer Independent Call Control) Static CIC (Call Instance Code) Allocation feature is 99-5E-7914. This feature is being deployed in the 5E16 BMI (Beginning Management Introduction) Software Release.

The purpose of this feature is to create a mechanical method to move CIC blocks from one SM-2000 to another SM-2000.

This feature provides both an automatic and manual method of moving many blocks of BICC CIC from one SM-2000 to another SM-2000. It also adds a new Traffic Measurement parameter, "BICCSM", reported on SM basis on the TRFC30 report.

The provisioned CICs required by the BICC protocol for each OPC (Origination Point Code) and DPC (Destination Point Code) pair are divided into blocks of 128 and stored on SM-2000s that are provisioned on RC/V (Recent Change and Verify) 5.70 as being BICC capable.

- **NOTE:** This does not mean that the SM-2000 is equipped with an IWG (InterWorking Gateway), but rather that there is sufficient memory and real time to support the BICC call processing model.

There are three conditions that may require that the CICs be moved from one SM to another. These conditions are:

Traffic - the SM-2000 is experiencing overload on a regular basis

Growth - a new BICC enabled SM-2000 is added to the office

De-Growth - a BICC enabled SM-2000 is being removed from being BICC enabled

In 7R/E PLS 3.0, a manual method was developed to allow the CIC blocks to be moved. This provides the parts to move CIC blocks. This process starts by using a new MML (Man/Machine Language) command that is used to identify CIC block numbers and CIC ranges for a given SM-2000 and BICC Group number. The craft then picks the block number and range that is to be moved and executes the steps necessary to remove the block from service CADN (Circuit Administration) and to block new calls from using the block of CICs. RC/V (Recent Change/Verify) view 5.73 - BICC Group Move - is then used to move the block from the source SM to the destination SM. The last step is to put the moved CIC block back in service.

- **NOTE:** There are several important facts that should be noted:

High CIC blocks are reserved for maintenance.

Low CIC blocks ranges are from 0 - 127.

CICs are provisioned in blocks of 128 CICs per block.

Provisioned as Base CIC and contiguous CIC Range.

Base CIC: Must be divisible by 128 and not reserved.

CIC range: Up to 65,536 BICC CICs for traffic between a single OPC/DPC (Originating Point Code/Destination Point Code) pair.

2. FEATURE ASSIGNMENT

In order to use this feature the following forms must be provisioned:

The following new fields on the OFCOPT form (5509 Record) are required for this feature.

CAMPON TIMER

- Camp-on Timer for CIC Redistribution defines the number of minutes to be used for camp-on for each CIC block that is to be moved during the CIC Redistribution process. It means that when this process is started for a given CIC block, the timer for this block is set to a value defined via this field (in minutes). When the timer expires, the behavior depends on the value of the KILL CALLS parameter.

KILL CALLS

- Kill BICC Calls at end of Camp-on parameter defines whether or not the CIC Redistribution process kills calls on selected CIC blocks when the camp-on timer (set via CAMPON TIMER field) has expired.
 - Y - will kill calls
 - N - will not kill calls
 - Default - Y

GROWTH VIA RCV

- This parameter specifies whether or not adding a new SM-2000 to CIC Distribution starts the CIC SM Growth process. It only applies to RC/V and has no impact on other parts of this feature (i.e. MML commands). Value entered in this field decides if CIC Redistribution process can be started via RC/V.
 - Y - adding a new SM-2000 to CIC Distribution automatically starts the CIC Redistribution process.
 - N - adding a new SM-2000 to CIC Distribution does not start the CIC Redistribution process.

The new field on view 5.70 is populated as follows:

INH DIST

The Inhibit CIC Distribution parameter specifies whether or not a given SM-2000 added to CIC distribution is inhibited from CIC block insertion. This field must have a value for each SM-2000 added on RC/V 5.70. By adding a new SM-2000 on this view, the process configured on view 8.1 in the CIC ALLOCATION section can be started automatically.

Y - given SM-2000 is inhibited from CIC block insertion.

N - given SM-2000 is allowed CIC block insertion.

3. TRANSLATION REQUIREMENT

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CICDIST	5217	3	2T	5.70
MEASSUM	5563	3	5BG	13.7/13.8/ 13.9
OFCOPT	5909	3	5I	8.1

CICDIST form (5217 Record) - This form specifies SM-2000 (Switching Module 2000) modules in an office for CIC block distribution. Added the INH DIST field.

OFCOPT (5509 Record) - This form must be completed for a 5ESS Switch and is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. Added the CAMPON TIMER, KILL CALLS, and GROWTH VIA RCV fields.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report (TRFC30). Added a new section for this feature: "BICCSM".

SEC. 1CC: AMA/RTCD MULTIPLE BILLING RECORDS

1. FEATURE DESCRIPTION

Available with the 5E15 Software Release, the AMA/RTCD (Automatic Message Accounting/Real Time Call Detail) Multiple Billing Records feature has feature number 99-5E-7393. This feature is an enhancement to two Secured Features, which are controlled by Secured Feature IDs 245 (99-5E-4387 Long Distance Platform RTCD Expansion Package A) and 348 (99-5E-3675, Long Distance Platform AMA Enhancement). For more information on these features, see Division 2, Sections 4A245 and 4A348.

In order for this feature to be activated for AMA billing, the "Long Distance Platform AMA Enhancement" feature (SFID 348) must also be active on the switch. In order for the feature to be activated for RTCD billing, the "Long Distance Platform RTCD Enhancement Package A" feature (SFID 245) must also be active on the switch.

The AMA/RTCD Multiple Billing Records feature is a billing feature that supports the recording of two peg counts in the AMA Correlation Module 960 or in the RTCD record for any call that generates an LDP (Long Distance Platform) originating access record and one or more ASP related records. For RTCD billing, the two peg counts are included in subfields of the Record Correlation Parameters (Table C.42). The first peg count contains the total number of records generated for a call at one office. The second peg count indicates the relative sequence number of the record to the other records for that call in the record stream.

1.1 AMA Correlation Module 960

For AMA recording, the total record count is contained in BCD character 1 of Table T900 (Reason Code). It can be populated with values 0-9 where 0 indicates the total is unknown and 9 indicates 9 or more records. The sequence record count is contained in BCD character 2 of the same table. It is populated with values 1-9. (For additional information, refer to the *5ESS Switch Billing Features and Specifications 235-190-300*.)

1.2 RTCD Record Correlation Parameters

For RTCD recording, the total record count is contained in BCD character 1 of the eighth byte of the Record Correlation Parameters. It can be populated with values 0-9 where 0 indicates the total is unknown and 9 indicates 9 or more records. The total is unknown for AMA records that are created while the call is still in progress. The sequence record count is contained in BCD character 2 of the eighth byte of the Record Correlation Parameters. It can be populated with values 1-9.

2. FEATURE ASSIGNMENT

In order for this feature to be activated for AMA billing, the "Long Distance Platform AMA Enhancement" feature (SFID 348) must also be active on the switch. In order for the feature to be activated for RTCD billing, the "Long Distance Platform RTCD Enhancement Package A" feature (SFID 245) must also be active on the switch. The ACT field for SFID 245 and 348 must be set to "Y" on the SFSYS form (5713-1 Record).

NOTE: Once this feature is installed, an upgraded version of the Data Server in the RTCD cabinet must be used for processing the RTCD record. Downstream OSS (Operating Services Systems) software must also be upgraded to process the new record.

3. TRANSLATION REQUIREMENT

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

SFSYS

5713-1

3

5AR

8.22

SFSYS form (5713-1 Record) - This form is used to activate Secured Features. The ACT field for SFID 245 and 348 must be set to "Y" to activate this feature.

SEC. 1CE: HIGH WATER MARK ON DLN

1. FEATURE DESCRIPTION

The High Water Mark on DLN (Direct Line Node) feature (99-5E-7693) is available with the 5E15 FR 2 and later Software Releases. This feature provides the capability to report traffic load (processor occupancy) on the DLN. This information will be reported on Section 66 of the TRFC30 report. To support this capability, two new parameters will be provided to measure processor occupancy ("high water mark") and to time stamp the measurement.

1. "APMAX" — measures the maximal traffic occupancy value (0 - 100%) that took place during the TRFC30 interval (scanned every 6 seconds).
2. "APMXTM" — reports the time, in milliseconds, that the maximal occupancy measurement was noted.

It may happen that the DLN actually experienced a large burst of traffic over a short time interval since the overload only lasted for about 1 minute. This kind of traffic may cause DLN overloads. This maximal occupancy value is the average occupancy value per TRFC30 collection interval.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9

MEASSUM form (5563 Record) - This form is used to identify traffic measurements components reported on the TRFC30 report. Two new measurements were added: "APMAX" and "AMXTM."

SEC. 1CF: CODE SPECIFIC REROUTE

1. FEATURE DESCRIPTION

The Code Specific Reroute feature is available with the 5E15 FR4.5 Release. The feature number is 99-5E-8029.

The CSRR (Code Specific Reroute) feature is an enhancement to the existing network management reroute control. It allows NM (Network Management) Personnel to input a 1-10 digit number and/or a Carrier which is then used as a destination by the switch for calls on a specified Trunk Group or BICC (Bearer Independent Call Control) Group. Those calls are then re-routed from their intended route to the route specified by the control. This allows NM Personnel to control traffic around congested or isolated routes.

The control may be entered at the remote Network Management Operations System or at the 5ESS Switch site via I/O messages. While the control is in effect, existing Network Management measurements are collected and analyzed by NM Personnel to determine the effectiveness of the control. This allows them to make any adjustments to maximize traffic flow.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 626 to "Y".

SEC. 1CG: HARD-TO-REACH

This feature was moved to Division 2, Section 4A625.

SEC. 1CH: OFFICE-TO-OFFICE TESTING SOFTWARE WITH DNU-S

1. FEATURE DESCRIPTION

The OTO (Office-to-Office) Testing Software with DNU-S (Digital Network Unit - SONET) feature (99-5E-8060) is made available with the 5E15 Feature Release 5 and in the 5E16(2) Beginning Managed Introduction.

The OTO Testing Software with DNU-S feature:

provides a digital trunk interface for the new OTO testing platform, and

allows customers supporting DNU-S trunks in the new office to use the existing OTO platform to provide pre-cutover support on the old office lines.

This feature is an enhancement to the Office-to-Office Testing feature (99-5E-7158) which provides the ability to assign either a traditional analog trunk or a digital trunk terminating on a DLTU (Digital Line and Trunk Unit) as the interface for the OTO testing function. The OTO Testing Software with DNU-S feature builds upon the capabilities of feature 99-5E-7158 and provides the ability to assign a digital trunk (NEN) terminating on a DNU-S as the interface on the 5ESS Switch for the OTO testing function.

OTO testing is executed when a new 5ESS Switch is replacing another switch and is planned to serve lines that were being served by the replaced switch. OTO testing is responsible for verifying that the wiring to the old and new switches is correct; that is, there is continuity, correct polarity, and the directory number associated with a particular cable pair is consistent in both the old and the new switching systems. To verify this consistency, an interface trunk, providing test access from the 5ESS Switch to a No-Test-Trunk on the switch being replaced is required to perform the verification testing.

The interface trunk from the 5ESS Switch can be a traditional analog trunk, or since the OTO Testing feature (99-5E-7158), a digital trunk. When a digital trunk interface is used, a signaling converter or a channel bank is needed to fully replace the functions formerly performed by the SN102 analog trunk circuit. Feature 99-5E-7158 only supports a digital trunk that is terminated in a DLTU. This feature (99-5E-8060) adds the ability to use a digital trunk (NEN) on a DNU-S.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
TRUNK	5204	3	2C	5.5

TRUNK form (5204 Record) - The 5204 Record is used to define each member of a Trunk Group in a 5ESS Switch Office. The trunk information that is entered on this record is unique to the individual member of a Trunk Group. For 5E13 and later, a data rule was modified for the DEN field. For 5E15 and later, data rules were modified and added for the NEN field.

SEC. 1CJ: INCREASED DCI THROUGHPUT FOR BILLING

1. BACKGROUND

In normal operation, the DCI (Data Communication Institute) Link can sustain an aggregate transfer rate of approximately 700 Kbytes/second and files can be transferred at a rate of approximately 540 to 720 Kbytes/second. The DCI Link has 256 channels that are served in round robin fashion to prevent a single application from consuming all or most of the bandwidth.

At present, the 5ESS NAR Switch software used to transport billing records from the 3B to the ASM runs under UNIX (not RTR) and operates as follows:

- Read a block of AMA data (1,536 bytes/block) from an AMA disk partition using the UNIX file system and place it in a buffer.
- Break the block into individual records.
- Remove the 28 byte block header and remove 5 bytes of "fill" from each record.
- Put the records into a shared memory segment whose size may be typically 80 Kbytes but which can be as large as 128 Kbytes.
- When the segment is full or nearly full (or maybe when a timer expires), send the address of the segment to the DCI driver along with the length.
- The DCI driver then sends the segment to the ASM.

2. FEATURE DESCRIPTION

The DCI (Dual serial channel Computer Interface) Throughput Increase for Billing feature (99-5E-7894) is made available with the 5E16(2) Software Release.

This feature increases the throughput of the billing data over the DCI from the current max of 95K per sec/342M bytes per hour to 150K per sec/540Mbytes per hour.

The DCI Throughput Increase for Billing feature is also needed to support the billing volume associated with the 1.5M BHC (Busy Hour Calls) generated by up to 256K ISUP (Integrated Services User Part) trunks. The background behind this need is that the AM (Administration Module) alone can not handle the billing for the 256K ISUP trunk call loads since it only has a single 56Kbps link to the billing center. However, the ASM (Administrative Services Module) has a high speed Ethernet link (10/100Mbps) and also a newer processor that can handle this billing rate. Thus an ASM is needed to support billing for 256K ISUP trunks. Moreover, the billing records must go through the AM (they are stored also in the AM's disk) which then sends them over a DCI link to the ASM.

This feature is used in the AM to prevent the DCI bandwidth from being fully utilized. With this feature the DCI can transport the billing rates associated with 256K trunks. This feature is also required in order to support 1.5M BHC and 256K ISUP trunks. The HA-SAM (High Availability -ASM) is not required to support this billing rate (a single ASM is enough).

SEC. 1CL: 3B21D/RTR MEMORY AND DMAC

1. FEATURE DESCRIPTION

The 3B21D/RTR (Real Time Reliable) Memory and DMAC (Direct Memory Access Controller) Test Only feature (99-5E-8202) is made available with the 5E16(2) Software Release.

This feature is for test purposes only on 5ESS Circuit Switch Applications for both NAR (North America Region) and International markets. It addresses both performance and life-cycle issues. It is used to test the KLV256 Memory and the KBN415 DMAC Boards in the 5ESS Switch environment. The redesigned hardware was developed to eliminate life-cycle issues and increase the performance of the 3B21D processor. The redesign of the KLV256 increased the 3B21D memory to 256 MB. The test requirements for this feature are:

This feature requires the testing of the redesigned KLV256 Memory Board but not the increase in memory capacity resulting from the redesign, and the KBN415 DMA Controller board for functionality and increased processor performance in the 5ESS switch environment.

The new hardware must be tested and become available in the 5ESS environment on 5E16.2 and the 5EE15.1 base generic releases for NAR and International markets respectively.

The KBN415 will be tested to the current generic releases and it doesn't have to be tested for portability to earlier releases.

SEC. 1CM: DATALINK DESCRIPTOR

1. FEATURE DESCRIPTION

The Datalink Descriptor feature (99-5E-7688) is made available with the 5E16(2) Software Release.

This feature provides the technician with information on which AP (Application Processor) Data Links are E911 (Emergency 911). Specifically, it adds an indicator on two MCC (Master Control Center) pages to indicate, for each AP Data Link, whether or not it is dedicated to E911. This new indicator is displayed on MCC pages 1480 and 1481, the "AP DATA LINK DSLS" pages. These pages display the status of AP DSL (Digital Subscriber Lines) and associated sessions. The layout of the two pages (1480, 1481) is identical. The 1481 page is used when the number of DSLs exceeds 15 (which is the display capacity of the 1480 page).

SEC. 1CN: UPGRADE ASM TO SOLARIS 8

1. FEATURE DESCRIPTION

The Upgrade ASM (Administrative Status Monitor) to Solaris 8 feature (99-5E-7893) is made available with the 5E16(2) Software Release.

This feature upgrades the current ASM operating system, Solaris 2.6, to Solaris 8. This feature also involves the selection, qualification, and deployment of a new hardware platform for ASM. This includes designating the product, and peripheral equipment (i.e., the number of processors, memory, disk configuration, and interfaces).

SEC. 1CO: LARGE TERMINAL GROWTH FOR IVTOA

1. FEATURE DESCRIPTION

The LTG (Large Terminal Growth) for IVTOA (Integrated Voice Telephony over ATM (Asynchronous Transfer Mode)) feature is available with 5E15 Feature Release 4. The feature number is 99-5E-8067.

The LTG provides the ability to add large quantities of lines, trunks, and other switch data to an operational 5ESS Switch. The LTG allows the bulk loading of new, non-operational, pre-cut office data. Manually input data or existing switch owner data base information is used to generate the new office data to be loaded during the LTG. The new office data is then merged with the existing 5ESS Switch ODD (Office Dependent Data) using off-site ODA (Office Data Administration) processing.

Use of LTG eliminates the need to manually populate line, trunk, and other switch data (using the Recent Change/verify mechanism) during terminal growth on the 5ESS Switch. This feature expands upon the current LTG capabilities to support LTG's for offices that have deployed PLS 3.0 (Packet Local Solution) integrated VTOA capabilities. This feature depends on feature number 99-5E-8018 (originally 99-5E-7554), ATM Global Routing and Signaling. (For more detailed information on the ATM Global Routing and Signaling feature, see Division 2, Section 4A567.)

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CICDIST	5217	3	2T	5.70
LTGCADN	5222	3	2Z	5.76
LTGPCI	5221	3	2Y	5.75

CICDIST form (5217 Record) - This form is used to specify SM-2000 (Switching Module 2000) modules in an office for CIC block distribution. For 5E15 and later, the SM2K MODULE field was added for the LTG CIC DISTRIBUTION (LTGCICDIST) section.

LTGCADN form (5222 Record) - This form is used to preserve the CADN values during the LTG for IVOTA (Integrated Voice and Telephony Over ATM (Asynchronous Transfer Mode)) data. For 5E15 and later, the LTGCADN form was added to support this feature.

LTGPCI form (5221 Record) - This form is used to preserve the SM2K (SM-2000 Switching Modules) and CADN (Call Instance Block Circuit Administration) values during the LTG (Large Terminal Growth) for IVOTA (Integrated Voice and Telephony Over ATM (Asynchronous Transfer Mode)) data. For 5E15 and later, the LTGPCI form was added to support this feature.

SEC. 1CP: SUPPORT MULTIPLE LEA FOR CCC DIAL OUT

1. FEATURE DESCRIPTION

The Support Multiple LEA (Law Enforcement ACT) for CCC (Customer Call Center) Dial feature (99-5E-8316) is made available with the 5E16(2) FR 2 (Feature Release 2) and later Software Releases. For information on the base CALEA (Communication Assistance for LEA) feature (99-5E-4275) see Division 2, Section 4A509.

Prior to this feature when a subscriber to a 5ESS Switch was identified as a subject, and provisioned with a dial out CCC surveillance, only one LEA collection box could be used to record the call content. If a second LEA desired to monitor the same subject, then dedicated CCCs had to be used to support the surveillance.

This feature provides the capability for two LEAs to monitor the same subject using CCC dial out connections with the combined or separated CCC delivery mode to the respective LEA collection boxes. In addition, the capability for multiple LEAs to surveil the same subject using two CCC dial out connections and up to three dedicated CCC connections is supported.

2. FEATURE ASSIGNMENT

This feature has no ODA impact as it relates to the TG-5.

SEC. 1CQ: SECTION SIZE INCREASE FOR TRFC30 SECTIONS 224 AND 225

1. BACKGROUND

Prior to the Section Size Increase for TRFC30 (30 minute traffic report) Sections 224 and 225 feature (99-5E-7717), data limitations were being encountered for the TRFC30 report. Currently, the specification limits data collection to a 75000 bytes data buffer and individual section limits are set to 32000 bytes. To meet the increased data needs associated with new features and services as well as load balancing and administration of the switch, these limitations needed to be reduced. The number of TRFC30 sections that can be defined is also limited to 256.

Due to the limitation of the section size to 32000 bytes, the need to alternately choose which data was being collected during a given study period could result in severe data loss. As new features are defined, data collected for a specific field in a report increases, thereby causing corresponding decreases in the number of items that could be collected. This feature provides the capability for the customer to monitor the same number of items.

2. FEATURE DESCRIPTION

The Section Size Increase for TRFC30 Sections 224 and 225 feature (99-5E-7717) is made available with the 5E16(2) Software Release.

This feature allows the customer to use the whole buffer space (384 kbytes) for sections 224 (RDT) or 225 (RDT DNU-S (Digital Network Unit - Sonet) to enable collecting data for up to 8864 RTs (Remote Terminals) connected to the 5ESS Switch. The 8864 components may be collected if one of these sections occupies the whole TRFC30 buffer.

3. FEATURE ASSIGNMENT

The feature has no ODA impact, therefore no provisioning is needed.

SEC. 1CR: DECOMPOSE RLRT_SPEC RELATION

1. FEATURE DESCRIPTION

The Decompose RLrt_Spec Relation feature is available in the BMI (Beginning Managed Introduction) of the 5E16(1) Software Release. This feature reduces the current usage of memory on SM (Switching Module) memory. It is an enhancement to reduce the amount of space needed to store data. The feature number is 97-5E-7602.

2. FEATURE ASSIGNMENT

The feature has no ODA impact, therefore no provisioning is needed.

SEC. 1CS: PSU BUS OCCUPANCY MEASUREMENTS

1. FEATURE DESCRIPTION

The PSU (Packet Switching Unit) Bus Occupancy Measurements feature (99-5E-8275) is made available with the 5E17.1 FR 1 (Feature Release 1).

This feature provides direct measurement of the PSU packet bus occupancy via a message and message byte counter in a PHA2 (Protocol Handler for ATM (Asynchronous Transfer Mode) Version 2) hardware. Specifically, this hardware provides a programmable timer to load message bytes and message counts, per packet bus side, that are read by the software. The timer has a default value of 1 second (1000 milliseconds), and can be updated by the software. Only ACT/IS (Active/Immediate Start) PHA2 ATM channel group types can keep counts of Packet Bus occupancy.

While a message byte counter measures all bytes from the opening to the closing flags of a message, a message counter is added to take into account additional preamble and bit stuffing bytes that were not included in a "pure" message byte count measurement.

Additionally, a new section on TRFC30 #165 (30 Minute Traffic Measurements Report) called "PSU Packet Bus Occupancy Report" is used which indicates:

- AVE PBOCC (Average Packet Bus Occupancy) in a TRFC30 section or C-interval report logging period.

- MAX PBOCC (Maximum Packet Bus Occupancy) in a TRFC30 or C-interval collection interval.

- The values of two provisionable thresholds (PB OCC 1TH and PB OCC 2TH).

- The percentage of time the Packet Bus Occupancy exceeds the thresholds in PBOCC1EX, PBOCC2EX.

This feature can only be provisioned if the PSU is a PSU2 (on the EQPSU form (5741 Record)).

2. FEATURE ASSIGNMENT

To provision this feature the following fields will be used:

- PB OCC 1 TH represents the lower threshold for packet bus occupancy, and defaults to 70

- PB OCC 2 TH represents the upper threshold for packet bus occupancy, and defaults to 80

- PB INT is a required field that defaults to 5.

Provision the MEASSUM form for Measurement Range Selectivity:

- SECTION NAME = PBOCC
- START1COMP = SM number
- START2COMP = PSU number
- START3COMP = blank
- DEST SM = blank

The ROP (Read Only Printer) informs the user whether or not a summary report is printed for the component indicated by fields START1COMP and START2COMP when SECTION NAME is "PBOCC".

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CDMAOPT	5599	8	80	8.75
MEASSUM	5563	3	5BG	13.9

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. Added the PB OCC 1TH, PB OCC 2TH, and PB INT fields to the form.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the new traffic report value "PBOCC".

SEC. 1CT: CALEA CDC WITH VOICE BAND DATA TRANSMISSION

1. FEATURE DESCRIPTION

The CALEA (Communication Assistance for Law Enforcement ACT) for CDC (Call Detail Channel) with Voice Band Data Transmission feature (99-5E-8318) is made available with the 5E16(2) FR 1 (Feature Release 1) and later Software Releases. For information on the base CALEA (Communication Assistance for LEA) feature (99-5E-4275) see Division 2, Section 4A509.

This feature allows the 5ESS Switch to deliver CALEA CDC data to law enforcement by using a PSTN (Public Switched Telephone Network) voice band dial-out connections of two types:

Forward transmission (5ESS Switch to Collection Box) uses 1200 BPS (Bit Per Seconds) GR30 (Telcordia Generic Requirement 30 for Voice Band Data Transmission) FSK (Frequency-Shift-Key) packets, similar to caller-ID data, which are Large CALEA ASN.1 (Abstract Syntax Notation 1) messages segmented into multiple GR30 packets.

Backward transmission (Collection Box to 5ESS) uses DTMF (Dual Tone Multi Frequency) digits. Examples are Collection Box login and packet retransmit requests (simple error corrections).

The GR30 CDC implementation runs at a much slower speed than the existing CALEA core TCP/IP (Transport Control Protocol/Internet Protocol) over X.25 ISDN (Integrated Services Digital Network) implementation (1200 BPS vs. 64K BPS). However, it has an advantage for switches with low levels of CALEA activity. It eliminates the dependence upon ISDN provisioning, the presence of PSDN (Public Switched Data Network), and switch-room equipment owned by the LEA.

In general, CALEA Core CDC delivery depends on one of the following:

- Local BRI (Basic Rate Interface),

- BRI remoted over T1 (e.g. BRITE (BRI Terminal Equipment) card),

- BRI converted to V.90 with a switch-room routers, or

- X.75, X.75' or XAT access to PSDN

All of the hardware used for GR30 CDC delivery is integrated in the switch. Typical PSTN voice-quality circuits are sufficient for the 1200 BPS rate.

The GR30 CDC implementation is an alternative to the ISDN delivery, not a replacement. CALEA compliance levels and Law Enforcement requirements dictates which interface(s) are used on a case-by-case basis.

The Collection Box terminating line must enable proper supervision and voice band data transmission. The most likely termination will either be a 2-wire analog line, or an ISDN B channel. Refer to [GR30-EIS] Section 3.1 for requirements and recommendations.

2. FEATURE ASSIGNMENT

This feature has no ODA impact as it relates to the TG-5.

SEC. 1CV: RTCD DSM STORAGE EXPANSION

1. FEATURE DESCRIPTION

The RTCD (Real Time Call Detail) DSM (Data Server Module) Storage Expansion feature (99-5E-8372) is made available with the 5E16(2) FR 1 and later Software Releases.

This feature increases the disk storage in the DSM used by RTCD by providing the largest SCIC (Semiconductor Integrated Circuit) drive/disc available. This may be a 40 or 80 gigabyte disk. This feature can be applied to all of our Long Distance customers that own a RTCD (Real Time Call Detail) for billing.

SEC. 1CW: PROXY DATABASE PHASE II - PROXY DATABASE

1. CROSS REFERENCE

This section has been moved to Division 2, Section 4A539.

SEC. 1CX: RTCD CAPACITY COMPATABILITY WITH NXTMS

1. FEATURE DESCRIPTION

The RTCD Capacity Compatability with NxTMS feature (99-5E-8447) is made available with the 5E16(2) FR 2 and later Software Releases.

The RTCD feature verifies that the RTCD recording CPR (Capacity, Performance, and Reliability) requirements can be met in a 5E-XC environment. This specifically means that RTCD's CPR will be verified while the switch is processing 1.6 MBHCA (Million Busy Hour Call Attempts).

This feature adds the capability to the LDP (Long Distance Platform) 5E-XC Switch to generate per call information in the form of RTCD records. It also enables the LDP (Long Distance Platform) to transmit these records from the switch in near real time via a standard data interface.

Service providers using the RTCD feature may use the records for subscriber billing, network planning and maintenance, and rapid fraud detection, etc. Service providers will recognize much of the initial content of the RTCD records as being similar to that delivered in AMA (Automatic Message Accounting) records, such as calling number, called number, answer time, and carrier connect time. The content of the RTCD records, was driven by existing 5E-XC Switch capabilities and customer input, and is expected to grow with new features and customer needs in the future.

While AMA records are usually only generated at the first switch in a provider's network, sufficient for subscriber billing, RTCD records may be generated on a per trunk group basis anywhere in a service provider's network. A service provider may decide to activate the RTCD feature nominally on all NATs (Network Access Trunks) for those calls entering their network, but will occasionally activate the RTCD feature on their INTs (Intra-Network Trunks) to pinpoint network problems. Other network providers may elect to have the RTCD feature active all the time on all of their toll trunk groups.

Currently, a 5E-XC advertises a maximum call capacity of 1,600,000 busy hour call attempts using low-speed signaling links as of 5E16(2) FR2. RTCD has to meet that capacity assuming 100% of all attempts are billed and that no more than 25% of all call attempts use ASP (Advanced Services Platform) call processing (i.e. 8YY, LNP, or N11 calls). The initial release of RTCD guarantees that 99.999% of the RTCD records generated by the switch, is accurately transmitted. Future enhancements may improve this reliability.

For those service providers currently using AMA, the RTCD feature does not affect the ability of the 5E-XC Switch to format and generate AMA records. Both AMA and RTCD could be active for the same calls.

The RTCD records generated by the 5E-XC are transmitted from the switch via an Ethernet interface to a local Data Server where they are stored on disk and transmitted to a downstream Data Manager. The office will have its local Data Server in a "duplex" configuration (two Hubs and two data Servers).

The trunk groups can carry a mixture of voice and circuit switched data calls. The service provider can activate the RTCD feature on any toll trunk group. When a call enters the LDP 5E-XC Switch via a trunk group with the RTCD feature active, the switch generates a RTCD record when the call disconnects, and transmits the record out of the switch via an Ethernet link. Barring unusual conditions (SM in stand-alone, Ethernet link unavailable, etc.), the switch transmits the RTCD record within ten seconds after the call disconnects, even during the busy hour. The switch does not retain a copy of the RTCD record once the record is transmitted to the Data Server.

Each 5E-XC Switch using the RTCD feature equips one SM-2000 with a MHEIB (Message Handler Ethernet Interface Board). This SM-2000 is referred to in this document as the GBSM (Global Billing SM). The GBSM provides the termination of the Ethernet link at the switch side. The GBSM receives RTCD records generated by the various SMs in the office, including itself, and transmits the records to the outside world via the Ethernet

link and TCP/IP (Transmission Control Protocol/Internet Protocol). RTCD messages transmitted via this interface is sent utilizing the GDI (Generating System to Data Server Interface) protocol. Due to the volume of messages produced by this feature, the QLPS (Quad-Link Packet Switch) is required. Switches with more than one SM-2000 already has need of the QLPS, regardless of the RTCD feature. The Ethernet links from the Data Server to the Data Manager uses the DDI (Data Server to Data Processing Management System) Interface protocol utilizing FTP (File Transfer Part).

1.1 Call Processing Impacts

The RTCD feature provides a mechanism for displaying information previously defined in Call Processing (from previous features). AMA and RTCD routines are normally called at call-termination - when some of the desired information is no longer accessible. Hence, the need to modify some Call Processing requirements, to retain these values for RTCD formatting

MINT placeholder fields: The 5E12 RTCD record layout contains placeholder-fields (and default values) for several screening and routing parameters defined within the 5E12 MINT (Multifarious Intra-Network Trunks) feature.

Advanced Services Platform: Sometimes the translation of the received "called number" forces the 5ESS-2000 Switch to query an external network database - an SCP (Service Control Point) . The call leaves the "long distance platform" software, to be handled by ASP software.

The original "called number" will always be placed in the destination number field (C.13 of RTCD record).

The SCP can return a new destination address, to be used for routing the call through the network. This will be stored in the translated number field (C.14 of RTCD record). If more than one SCP query is made, and more than one translated number returned from the SCP, only the final one is recorded.

Only one RTCD record per call is generated at any given office. In contrast, it is possible to generate multiple AMA records per call: (1) an LDP originating-toll AMA record, and (2) one or more separate ASP AMA records. (Note that an ASP AMA record is generated each time that an SCP message contains the AMAslp parameter. A call with multiple SCP-triggers (i.e., a call with multiple billable legs) has the potential for causing multiple ASP AMA records to be generated.)

SEC. 1CY: SIGNALING PH OUTAGE PREVENTION

1. FEATURE DESCRIPTION

The SPOP (Signaling PH (Protocol Handler) Outage Prevention) feature (99-5E-8529) is made available with the 5E17(1) FR 3 and later Software Releases.

Prior to this feature, if an office had only 2 active signaling PH's on the same GSM (Global Switching Module), they would be pumped in sequential order. However, the second PH can be taken out of service before the first PH is fully handling traffic. This leaves the first PH in the state of not fully restored back to service and the second PH already out of service with UP (Update Program) in progress. This sometimes resulted in a total signaling outage.

The SPOP feature modifies the update code so that an accessibility check is done to determine if the same point code is accessible via another signaling link (from a different PH) from the same GSM. If so, the SU (Software Update) will proceed. If not, the SU will skip that signaling PH and proceed to the next. Upon completing the update to the rest of the office, the SU will abort and indicate on the ROP (Read Only Printer) the reason for the abort. Please note, the office signaling state has no impact on the SPOP feature, (i.e., if the office signaling state is not normal, the SPOP feature may proceed).

2. FEATURE ASSIGNMENTS

This feature has no ODA impact, therefore no provisioning is needed.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1

OFCOPT Form (5509 Record) - The OFCOPT form is used to supply various miscellaneous office options and parameters. Added the SPOP field.

SEC. 1DA: CHANNEL ELEMENT - FRAME SELECTOR BACKWARD COMPABILITY

1. FEATURE DESCRIPTION

The Channel Element - Frame Selector Backward Compatibility feature (99-5E-8391) is made available with the 5E17(1) FR 2 and later Software Releases.

This feature (previously called CBC (Cell Backward Comptibility)) was designed to reduce the incompatibilities between the entities (ECP (Executive Cellular Process), 5ESS_DCS (Digital Cellular Switch), and Cells) and enhance the interoperability between the cells and 5ESS, the Cell and ECP, and between the ECP and 5ESS. This feature applies to both voice and data services.

From the 5ESS perspective, this feature impacts the SMP (Switch Module Processor) software and the PSU2 (Packet Switching Unit) software. More specifically, this feature requires the SMP software to negotiate with the ECP by exchanging the protocol versions via heartbeat checks (i.e., Heartbeat messages). Depending upon whether or not the ECP supports the CBC feature, the 5ESS will send a SH_ASGN with or without a MAX_X_FS_PP_PV (protocol version) information element to the ECP. The ECP relays the MAX_X_FS_PP_PV to the cell site. If the cell site supports CBC, then the CE (Channel Element) establishes PP (Packet Pipe) connection via modified XID_CON_CMD, XID_MAINT_CMD (protocol version), and modified FS_messages. If the cell site does not support CBC, then the messages will not be modified and the interface between CE-SH (Channel Element-Speech Handler) will work as it previously worked.

1.1 Protocol Versions

MAX_FS_PP_PV

The maximum frame selector packet pipe protocol version represents the most recent packet pipe protocol version supported by the frame selector.

MAX_CE_PP_PV

The maximum channel element packet pipe protocol version represents the most recent packet pipe protocol version supported by the channel element.

PP_PV_IN_USE

The packet pipe protocol version in use represents the protocol version used for a call leg.

PP_PV_FOR_MAINTENANCE

The packet pipe protocol version for maintenance represents the protocol version used for link maintenance in the XID (Exchange Identifier) maintenance message.

2. FEATURE ASSIGNMENTS

There is no specific provisioning related to this feature.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP Form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added data rules to the TRKCLS field.

SEC. 1DB: MULTI-CHANNEL SIGNALING LINK NAILUP CONNECTION IN 5ESS DCS

1. FEATURE DESCRIPTION

The Multi-channel Signaling Link Nailup Connection in 5ESS DCS (Data Control System) feature (99-5E-8609) is made available with the 5E17(1) and later Software Releases.

In the 5ESS, nailed up connections for the signaling links are configured as two or more independent single-DS0 (Digital Signal Level 0) connections. This results in the nail-up connections being established without invocation of the wideband path control code. Prior to this feature, the NAILUP form (Recent Change view, 7.11), did not support configuring multi-channel nailup connections for the trunk channels used for cell signaling links.

This feature provides N*DS0 wide band connections on the multi-channel signaling links in the 5E DCS (Data Control System) in order to provide data integrity on the signaling links connecting Modcell 4.0 to 5ESS DCSs. This feature is applicable only for SM2000.

2. FEATURE ASSIGNMENTS

The provisioning information for this feature is as follows:

ENABLE (TURN ON) wideband signalling for an N*DS0 nail-up connection:

Select RC view 7.11.

Enter "u" for update mode

Enter the following input data:

C OE (Controlling Port Equipment Number)

Enter "c" for change mode

Enter "28" for the WIDEBAND field

Enter "Y" to activate the wideband code.

Enter return

Enter "u" to update the form.

Remove and Restore each of the trunks associated with the Controlling and Non-Controlling ports of the link.

Repeat steps for each of the other links in the N*DS0 signalling links.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

NAILUP	5207	3	2F	7.11

NAILUP Form (5207 Record) - This form contains data to directly link ("nailup") two ports. Added the WIDEBAND field.

SEC. 1DC: CFDA AFTER CW FOR DSN SUBSCRIBERS

1. FEATURE DESCRIPTION

The CFDA (Call Forward Don't Answer) After CW (Call Waiting) for DSN (Defense Switched Network) Subscribers feature (99-5E-8710) is made available with the 5E16(2) and later Software Releases. This is a Call Processing Special feature.

This feature allows MLPP (Multi-Level Precedence Preemption) subscribers to use existing CFDA After CW functionality. The restriction which prohibited MLPP subscribers from obtaining the CFDA After CW functionality has been removed. However, the previous feature (see Division 2, Section 4A62) must be purchased before this feature can be used.

Prior to this feature, CFDA after CW, enabled customers to subscribe to both CWT (Call Waiting Terminating) and CFDA, and receive the benefits of both features. With this feature (CFDA after CW for DSN) subscriber are able to receive a call waiting tone, answer that call, and put the first call on hold. Or they can choose not to answer the call and let CFDA call processing assume control of the call — forwarding the call to a customer selected remote DN (Directory Number). No new pre-constructed or new customized features are required for this new feature operation. It is operated on a per-office basis.

This feature (99-5E-8710) provides analog users with functionality that is very similar to the ISDN (Integrated Services Digital Network) CFDA and ISDN CFBL (Call Forwarding Busy Line) interaction with Flexible Call Offering. In addition, this feature (99-5E-8710) provides a direct interface with voice messaging systems, and it provides transparency with the 5ESS Switch CFDA/CW interaction.

2. FEATURE ASSIGNMENTS

Precedence and Preemption subscribers are eligible for CFDA/CW assuming the following three conditions:

1. A Precedence and Preemption feature is assigned
2. Either of the following Call Waiting Terminating feature combinations are assigned:
 - a CWT (Call Waiting Terminating) feature or,
 - a CWT and a Precedence Call Waiting Terminating feature or,
 - The originator uses the DCW (Dial Call Waiting) or CWO (Call Waiting Originating) feature when calling the Precedence and Preemption subscriber.
3. A CFDA feature(s) is assigned with the forward condition "FWDCOND" equal to either "IDLE", "PIDL", or "PRCI" with CFDA AFTER CW set to "Y".

Prior to this feature, when the CFDA/CW was purchased it was, by default, turned on in the whole office for CFDA features when the forward condition (FWDCOND) was equal to "IDLE". That is, on the CFWFD form (5614-1/2 Record) or (RCV (Recent Change View) 12.12) "CALL FORWARDING FEATURE DEFINITION", the DEFAULT PARAMETERS value of the CFDA AFTER CW field for CFDA features with FWDCOND equal to "IDLE" was "Y". This value can, of course, be set to "N" for the individual line on the CFWLPA/CFWMPA form (5614-3 Record) or (RCV 1.22) "CALL FORWARDING LINE PARAMETERS". This also allows the feature on the CFWFD form (RCV 12.12) to change back to CWT operation without CFDA.

A script will be run with the SU (Software Update) application which modifies the current default of "N" for

"CFDA AFTER CW" field to "Y" for:

- all Precedence and Preemption CFDA features (FWDCON of "PIDL" and "PRCI")
- all individual lines (with the exception of Shared analog and ISDN lines) assigned a Precedence and Preemption CFDA feature.

After this script has run, updates can be made on the CFWFD form (RCV 12.12) or on the CFWLPA/CFWMPA form (RCV 1.22) for MLPP users assigned PIDL or PRCI CFDA features if CFDA/CW is not desired for those users. Note that the "CFDA After CW for DSN Subscriber" feature will also now allow MLPP users assigned CFDA features with FWDCON equal to "IDLE" to use CFDA/CW. If this is not the desired operation for a user, then that user's "CFDA AFTER CW" field for the IDLE CFDA feature will also have to be updated to "N".

Retrofit to a release after the SU has been applied and the script has been run maintains the updates. However, if the script has not been run, then retrofit will update the CFDA AFTER CW fields for PIDL and PRCI features and lines assigned those features to the default value of "Y".

2.1 Typical End-user Scenarios

- CFDA AFTER CWT
 - CFDA After CW (SFID 62) has been purchased.
 - Party A has MLPP, CWT and CFDA with CFDA After CW set to "Y".
 - Party A is off-hook on a call with Party B.
 - Party C calls Party A.
 - Party A gets Call Waiting Tone for the incoming Party C call.
 - Party A does not respond to the Call Waiting tones.
 - Party C gets forwarded to the CFDA Remote DN when CFDA timer expires.
- CFDA AFTER DCW or CWO
 - CFDA After CW (SFID 62) has been purchased.
 - Party A has MLPP and CFDA and is in the same Terminal Group as Party C.
 - Party A is off-hook on a call with Party B.
 - Party C Dial Call Waits or Call Wait Originates a call to Party A.
 - Party A gets Distinctive Call Waiting Tones for the incoming call from Party C.
 - Party A does not respond to the Call Waiting Tones.
 - Party C gets forwarded to the CFDA Remote DN after the CFDA timer expires.

2.2 Miscellaneous Information

Existing CWT feature precedence rules (with the exception of the CFDA after CW feature interaction) are not changing. This includes the fact that Call Waiting Deluxe will not be processed if assigned since it is currently not supported during a Precedence and Preemption Call Waiting scenario.

Existing CFDA feature precedence rules are used to determine which CFDA feature is being used to forward the call. This includes support for OFID 996 (see Division 2, Section 4B996) which modified the order in which CFDA features are processed. As with all existing CFDA features, if the CFDA timer is provisioned to "0", the call will forward immediately. This implies that in the case of a CFDA After CW scenario, the call will not be offered as a waiting call, but will forward immediately.

Restrictions which block the "CFDA AFTER CW" field on the CFWFD form (RCV 12.12) "CALL FORWARDING FEATURE DEFINITION" from being set to "Y" has been removed for the Precedence and Preemption CFDA features - those with FWDCOND of either "PIDL" or "PRCI". In addition, restrictions which block the "CFDA AFTER CW" field from being set to "Y" on the CFWLPA/CFWMPA form (RCV 1.22) "CALL FORWARDING LINE PARAMETERS" have been removed for these features.

For more further information on the BRCS (Business and Residence Customer Service) features see the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions Document*.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFWFD	5614-1/2	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22
CFWMPA	5614-4	4	15C	1.22

CFWFD Form (5614-1/2 Record) - This form is used to define a number of separate, but related features, by selecting various feature options for Call Forwarding. Added and modified data rules for the CFDA AFTER CW field and added a note before the Preconstructed Features table.

CFWLPA Form (5614-3 Record) - This form defines parameters for a constructed Call Forwarding Feature that will be assigned to lines (which are not multi-line hunt group lines). Added and modified data rules for the CFDA AFTER CW field.

CFWMPA Form (5614-4 Record) - This form is used to define specific parameters assigned to every Multi-Line Hunt Line assigned a specific constructed Call Forwarding feature. Modified a data rule for the CFDA AFTER CW field.

SEC. 1DD: SIP ENHANCEMENTS TO PSTN GATEWAY

1. FEATURE DESCRIPTION

The SIP (Session Initiation Protocol) Enhancements to PSTN (Public Switched Telephone Network) Gateway feature is available as a software update to the 5E16(2) FR6 (Feature Release 6) Software Release and is associated with feature number 99-5E-8658.

This feature introduces a series of enhancements to the 5E-XC Switch so that it can perform as a gateway between PSTN and IP subscribers. These enhancements include:

- SIP to PSTN Parameter Interworking Mapping

- Introduction of new SIP headers

- Modifications to existing SIP headers

- Service Groups

- Operator Assisted Calls

- Audible Ringing

1.1 SIP PSTN Parameter Interworking Mapping

This feature introduces a new RC/V view, view 5.83 (ODA form, SIPPSTN), that allows service providers to specify a set interworking rules that specify how many call parameters are interworked between SIP messages and ISUP messages.

If there are parameters in an ISUP message that are not included in the SIP to PSTN interworking rules, they are used in the outgoing IAM message. If the SIP to PSTN interworking rules specify to use call parameters in the SIP header, the parameters in the encapsulated ISUP messages are not used. This procedure is the same as the existing Base SIP for Packet Trunking.

1.2 Introduction of new SIP headers

This feature introduces support for the following SIP headers:

Diversion Header

This feature allows the 5E-XC to include diversion headers in the SIP INVITE message. Each header may include the following parameters about a redirection attempt:

- Name-address

- Diversion-reason

- Diversion-counter

- Diversion-privacy

- Diversion-limit

Diversion-screen

Diversion-extension

When interworking from ISUP to SIP, one diversion header is populated if call diversion occurred once. Two diversion headers are populated if call diversion occurred more than once. When two diversion headers are included, the first header identifies the most recent redirection and the second identifies the original redirection. The interworking rules are controlled by the "DIVERSION" field on RC/V View 5.83 (ODA form, SIPPSTN).

When interworking from SIP to ISUP, up to two diversion headers are interworked. When there are multiple diversion headers, only the first and last diversion headers are interworked. The interworking rules are controlled by the "REDIRECTING INFO" field on RC/V View 5.83.

P-Asserted-Identity

This feature allows the 5E-XC to include a "P-Asserted-Identity" header in the SIP INVITE message. The inclusion of the "P-Asserted-Identity" header implies that the specified user has been authenticated in some way. The "P-Asserted-Identity" header is comprised of a URI (normally a SIP URI) and an optional display name. The interworking rules are controlled by the "P-ASSERTED ADDR", "P-ASSERTED NAME", and "CALLING PARTY INFO" fields on RC/V View 5.83.

Privacy Headers and Extensions enable a network of trusted SIP servers to assert the identity of end users or systems and to convey indications of end-user requested privacy. The use of these extensions is only applicable inside a "trusted domain". Nodes in such a trusted domain are explicitly trusted by its users and end-systems to publicly assert the identity of each party, and to be responsible for withholding that identity outside of the Trust Domain when privacy is requested.

Privacy

This feature allows the 5E-XC to include a "Privacy" header in the SIP INVITE message. The "Privacy" header indicates that identity information (such as the P-Asserted-Identity) should be removed if the connection leaves the trusted domain. The "privacy" header is included when there is a "p-asserted-identity" header and the ISUP APRI value equals "presentation restricted".

Modifications to existing SIP headers

This feature introduces or modifies the following parameters:

1.3 Modifications to existing SIP headers

This feature introduces or modifies the following parameters:

Display Name

This feature expands the interworking between the "display-name" parameter of the "from" header of a SIP message and the ISUP generic name (type of name = calling name) parameter. The interworking rules are controlled by the "FROM NAME" field on RC/V View 5.83.

OLI (Originating Line Information)

This feature allows the 5E-XC to append an "isup-oli" parameter to the uri parameter portion of a SIP

"from" header. This parameter is interworked to/from the ISUP OLI parameter. This interworking is controlled by the "ORIG LINE INFO" and "FROM OLI" fields on RC/V View 5.83.

- **NOTE:** At the time this feature was released, there is no standard OLI implementation. The implementation used by this feature is based on a non-standard solution.

CSEL (Carrier Selection) Information

The feature allows the 5E-XC to append the "csel" parameter to the user portion of the SIP INVITE Request URI. This parameter is interworked to/from the Carrier Selection Information ISUP parameter. This interworking is controlled by the "CARRIER SELECTION" and "REQUEST URI CSEL" fields on RC/V View 5.83.

- **NOTE:** At the time this feature was released, there is no standard CSEL implementation. The implementation used by this feature is based on a solution proposed by Lucent Technologies.

1.4 Service Groups

This feature introduces utilizing a service group (trunk group) rather than a packet group to identify a packet trunk termination. The service group is used in:

- billing records,
- Verify Office commands,
- ASP Query commands, and
- ISUP EXM messages sent in the backward direction.

1.5 Operator Assisted Calls

To allow SIP call to connect to operator and emergency services, SIP calls can now route to trunks with the following classes of service:

- FC_TRK_EMERG
- FC_SRVTRNK
- FC_TSPS
- FC_911
- FC_EMERG
- FC_ICPTTRK
- FC_OPRISP
- FC_OPRTSP

1.6 Audible Ringing

The 5E-XC supplies audible ringing tone to the calling party when:

- the 5E-XC receives a 180 ringing SIP message without an ISUP MIME,
- audible ringing is not currently provided by the 5E-XC, and
- the "LOCAL TONES" field on RC/V View 5.71 (ODA form, PKTGRP) is set to "Y".

The 5E-XC removes audible ringing when:

- it receives 18X or 200 OK with SDP or
- the call is released.

1.7 TNS (Transit Network Selection)

The rules for interworking the ISUP TNS parameter from a SIP INVITE message are controlled by the TRANSIT NETWORK SELECTION" field on RC/V View 5.83. When this field is set for SIP without encapsulated ISUP, all the needed fields for interworking are not available since there is not a SIP equivalent to the ISUP TNS parameter. To fill this gap, this feature introduces an office wide National Circuit Code parameter on RC/V View 8.15 (ODA form, OFCOPT) for use as the Circuit Code when interworking from a SIP INVITE message to an ISUP IAM message.

2. FEATURE ASSIGNMENT

In order to provision this feature, execute the following step:

Activate the base SIP for Packet Trunking feature (99-5E-8382) by setting the ACT field on the SFSYS form (5713-1 Record) to "Y".

Set the NATIONAL CIRCUIT CODE field on the OFCOPT form (5509 Record) to a non-zero value.

Insert the SIPGSM and SIPTPARM forms (5880 and 5882 Records, respectively), (if a non-DEFAULT SIP-T parameter set is being used).

Insert a new SET NAME on the SIPPSTN form (5893 Record).

Insert the PKTGRP form (5219 Record) with set UDP PATH, SIP-T GSM, SIP-T PARM SET NAME, SIP PSTN SET NAME, LOCAL TONES, or with set ASSOC SET NAME, SIP-T GSM, SIP-T PARM SET NAME, SIP PSTN SET NAME, ENABLE LOCAL.

Insert/update the TKGRP form (5202 Record) with PKT GRP and INTGI fields set.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
INTGI	5894	5	3AR	5.84
OFCOPT	5509	3	5I	8.1
				8.15
PKTGRP	5219	5	3Z	5.71
SIPPSTN	5893	5	3AQ	5.83
SIPTPARM	5882	5	3AD	5.82

TKGRP	5202	3	2A	5.1

INTGI form (5894 Record) - This form is used to obtain the service group information associated with the packet group and inter-nodal traffic group identifier. This is a new form that supports this feature.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the NATIONAL CIRCUIT CODE field.

PKTGRP form (5219 Record) - This form is used to insert, review, update, and delete ATM (Asynchronous Transfer Mode) or IP (Internet Protocol) packet groups. Added the SIP PSTN SET NAME and the ENABLE LOCAL fields. Also added a data rule to the SIP-T PRECOND field and changed the TGN field to a no_display field.

SIPPSTN form (5893 Record) - This form is used to define rules for interworking signaling information from headers in the SIP protocol message, to the appropriate field in PSTN (ISUP) signaling and vice versa. This is a new form that supports this feature.

SIPTARM form (5882 Record) - This form is used to insert, review, update, or delete the SIP parameters. Added the WAIT FOR PRACK, LIMITED 302 INDICATOR, and PRACK ENABLED fields.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added the INTGI field.

SEC. 1DE: UDP TRANSPORT LAYER FOR SIP

1. FEATURE DESCRIPTION

Available in 5E16(2) FR5 (Feature Release 5) and later Software Releases, the UDP (User Datagram Protocol) Transport Layer for SIP (Session Initiation Protocol) feature is associated with feature number 99-5E-8581.

This feature extends the 5E-XC's current SIP-related capabilities by allowing UDP to be used as a transport layer for SIP signaling. Feature 99-5E-8382 provides the base SIP functionality and includes SCTP (Stream Control Transport Protocol) as the transport protocol (see Division 2, Section 4A684). This feature primarily includes:

- Adaptation of existing UDP-related capabilities on the 5E-XC for use in SIP transport.

- Special retransmission-related SIP procedures specific to UDP.

- Special procedures that take advantage of the existing "Reroute-on-Release" 5E-XC capability in order to address possible failures in a UDP Transport Layer for SIP network.

Note that the UDP Transport Layer for SIP feature (99-5E-8581) requires only SIP without preconditions scenarios to be supported. Thus, in addition to the functionality provided by the base SIP feature (99-5E-8382), this feature will also depend on the functionality provided by feature 99-5E-8582 (Support for SIP without Preconditions). The use of SIP preconditions will be disallowed when UDP is used as the transport for SIP. For more information on the Base SIP and the Support for SIP without Preconditions features see, Division 2, Section 4A684 and Division 2, Section 4A766, respectively.

2. FEATURE REQUIREMENTS

Provisioning for this feature is as follows:

SIP Connectivity Provisioning:

- SIPGSM form (5880 Record), RC/V 5.80

 - Insert SIP Global SM

- EQPSUPH form (5744 Record), RC/V 22.4

 - Define a PH (Protocol Handler)

- PSUGP form (5949 Record), RC/V 22.16

 - Assign the PH Channel Group

- QPHPIPE form (5828 Record), RC/V 17.24

 - Insert QPH Pipes to QLPS network 0 & 1 (creates a GQPH channel group)

- EQPIPE form (5544 Record), RC/V 17.20

Assign MH Pipes

QGCON form (5829 Record), RC/V 17.27

Update GSM - Non-GSM Communication

SIPTSMS form (5881 Record), RC/V 5.81

Insert Call Processing SM

Signaling Provisioning:

SIPGSM form (5880 Record), RC/V 5.80

Insert SIP Global SM

EQPSUPH form (5742 Record), RC/V 22.4

Define a PH (Protocol Handler)

PSUGP form (5949 Record), RC/V 22.16

Assign the PH Channel Group

IPPROC form (5987 Record), RC/V 33.1

Assign IP Address to SM

PCRGRP form (5883 Record), RC/V 33.16

Insert Processor Group

ETHIP form (5995 Record), RC/V 33.4

Insert Ethernet - IP Interface

IPROUT form (5989 Record), RC/V 33.3

Insert IP routing information.

Insert a new UDP path on the UDPPATH form (5891 Record), RC/V 33.24.

IPPING form (5884 Record), RC/V 33.17

Insert Router Pinging

OFCOPT form (5509 Record), RC/V 8.15

Update CCS Office Parameters and set COUNTRY CODE

SIPTPARM form (5882 Record), RC/V 5.82

Insert SIP Parameters

PKTGRP form (5219 Record), RC/V 5.71

Insert Packet Group with the UDP PATH field populated.

TKGRP form (5202 Record), RC/V 5.1

Insert Trunk Group

RTIDX form (5304 Record), RC/V 10.2

Assign Route Index

For a more detailed description of the provisioning sequences, refer to the Lucent Technology document number *235-200-118 OA&M Manual*.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PKTGRP	5219	5	3Z	5.71
SIPTPARM	5882	5	3AD	5.82
SFSYS	5713-1	3	5AR	8.22
UDPPATH	5891	5	3AN	33.24

PKTGRP form (5219 Record) - This form is used to insert, review, update, and delete IP packet groups. Added the UDPPATH field and associated data rules.

SIPTPARM form (5882 Record) - This form is used to insert, review, update, or delete the SIP-T parameters. Added the INIT RETR TMR field.

UDPPATH form (5891 Record) - This form is used to identify the UDP (User Data Protocol) Path in an office. This is a new form that supports this feature.

SEC. 1DF: SUPPORT FOR SIP WITHOUT PRECONDITIONS

1. FEATURE DESCRIPTION

Available in 5E16(2) FR5 (Feature Release 5) and later Software Releases, the Support for SIP (Session Initiation Protocol) without Preconditions feature is associated with feature number 99-5E-8582.

This enhancement allows the 5E-XC to interwork with other network elements that do not support the precondition procedures. This is also part of the ANSI (American National Standards Institute) T1.679 SIP Interworking between SIP and Bearer Independent Call Control or ISDN User Part specifications. Support for SIP without preconditions is an extension to the SIP for Packet Trunking base offering.

The switch will provide a new provisional parameter that is used to determine if the precondition procedures should be used when initiating a call. In order to setup a successful call without precondition procedures, both originating and terminating switches have to support SIP without precondition procedures. When terminating a call, the 5E-XC switch will determine if precondition procedures should be used or not based on the SIP headers and SDP (Session Description Protocol) received in the INVITE message.

Note that since the support for SIP without precondition procedures is transport independent, it works for either UDP or SCTP.

A SIP packet group can be supported by either an SCTP association set, or by a UDP path. When the SIP packet group is supported by a UDP path, it is required that SIP be provisioned to operate without precondition procedures. When the packet group is supported by an SCTP association set, it can be provisioned to operate either with or without precondition procedures, depending on the capabilities of the far end. The default for packet groups with SCTP transport is to operate with the precondition procedures.

2. FEATURE ASSIGNMENTS

Provisioning for this feature is as follows:

Set the ACT field for SFID 684 to "Y" on the SFSYS form (5713-1 Record)

Set the ACT field for SFID 766 to "Y" on the SFSYS form (5713-1 Record)

Insert all necessary forms for a SIP-T Packet Group (see Division 2, Section 4A684 and Division 2, Section 4A700) and then set SIP-T PRECOND to either "Y" or "N" on the PKTGRP form (5219 Record).

The new Preconditions flag (SIP-T PRECOND field) used by the 5E-XC originating switch is added to the existing 5E-XC Packet Group View (R/C 5.71; PKTGRP form for ODA). The precondition flag determines the SIP signaling messages that is required to setup a packet call. Set the SIP-T PRECOND flag to Yes if the SIP signaling requires an additional step to verify the resource is available before setting up a call. (This is done by the SIP UPDATE method). For a basic SIP call that does not require this extra step, set the SIP-T PRECOND flag to No. For details, refer to the *Recent Change Reference Manual 235-118-258*.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PKTGRP	5219	5	3Z	5.71
SFSYS	5713-1	3	5AR	8.22

PKTGRP form (5219 Record) - This form is used to insert, review, update, and delete IP packet groups. Added the SIP-T PRECOND field and associated data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 766 to "Y". Added SFID 766 to the table.

SEC. 1DG: QUANTIFIED FEATURE ID

1. FEATURE DESCRIPTION

Available in 5E20(1) and later Software Releases, the QFID (Quantified Feature ID) feature is associated with feature number 97-5E-8687.

This feature provides a mechanism by which purchased switch software resources are administered and provisioned. A customer purchase order for QFID associated resources results in generation of an encrypted password by Lucent Technologies personnel, which is provided to the customer for entry via Recent Change. This office-specific encrypted password includes a value specifying the number of resources purchased. Following application of this password, the customer has the ability to provision up to and including the total number of resources purchased.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CDMAOPT	5599	8	80	8.75
SFSYS	5713-1	3	5AR	8.22
TRFOPARM	5593	3	5CI	8.76

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. For more information on this feature, see Division 2, Section 4A552. Added the PHVDATA WARNING THRESHOLD, PHVVOICE WARNING THRESHOLD, and IPSHO WARNING THRESHOLD fields.

SFSYS form (5713-1 Record) - This form is used to enable secured features. Change the FEATURE NAME field name to RESOURCE NAME and change the FEATURE PASSWD field name to RESOURCE PASSWD. Also added a new table named "RESOURCE HISTORY INFORMATION". The new table contains 16 entries and each entry contains three elements: "DATE", "NUM PURCHASED", and "MAX LIMIT".

TRFOPARM form (5593 Record) - This form is used to provision parameters for Packet Frame Selector, Circuit Vocoder, and Packet Vocoder. This form is created in the 5E20(1) Software Releases. This form supports the TrFO(Transcoder Free Operation/RTO(Remote Transcoding Operation) feature (99-5E-8663). For more information on this feature see Division 2, Section 4A775. Added the NPH WARNING THRESHOLD, PFS WARNING THRESHOLD, and CVPV WARNING THRESHOLD field.

SEC. 2: MAINTENANCE AND TESTING FEATURE REQUIREMENTS

SEC. 2A: AUTOMATIC LINE INSULATION TESTING (ALIT)

1. FEATURE DESCRIPTION

Automatic Line Insulation Testing is a feature to detect lines with leakage to battery or ground and unpressurized or under pressurized line cables, on a routinely scheduled basis. Its primary use is in preventive loop and cable maintenance, to detect gradual cable deterioration through frequent checking and identification of line faults.

This feature is available with all 5ESS Switch Software Releases.

2. TEST INITIATION

2.1 ALIT sequential testing can be requested from three different sources. These are:

- Programmed start by the 5ESS Switch software.
- Via an input message from the TLWS (Trunk and Line Work Station) at the local office.
- Via a message from the RSB (Repair Service Bureau) TTY link.

In most cases, programmed start will be used to start sequential testing, with the output sent to the appropriate channel. Sequential testing will be requested via a message only in those cases where a start time other than the programmed start time is desired, or when the switch owner wishes testing to begin at a particular line. Single line testing will be requested via message only, either from the TLWS or the RSB.

3. TRANSLATION REQUIREMENTS

The start time, test duration and resistance range for the programmed ALIT testing are office options and should be entered on the OFCOPT Form.

Once an ALIT request has been received, the 5ESS Switch software determines the particular MSU (Metallic Service Unit) whose Metallic Test Buses serve the Line Unit containing the line to be tested (see the EQLU Form). ALIT software accesses translations from the MSURI Form (5E1, Issue 1a Software Release), or the IMINFO Form (5E1, Issue 2 and later Software Releases), and obtains two Route Indexes, an ALIT Route Index and a Metallic Access Junctor Route Index.

For offices with multiple SMs (Switching Modules), a unique ALIT Route Index is required for each SM which has one or two Metallic Service Units (Regular or Modular) with at least one ALIT type pack assigned. Each ALIT Route Index is associated with a unique Logical Test Port Trunk Group.

Each SM which requires an ALIT Route Index must also have a unique MAJ (Metallic Access Junctor) Route Index. These MAJ Route Indexes are also associated with unique Logical Test Port Trunk Groups.

Each ALIT Route Index must be defined on the RTIDX Form with a Route Type of Hunt and associated with a unique LTP (Logical Test Port) Trunk Group. Each Trunk Group must be defined on the TKGRP Form with the following characteristics:

- Trunk Direction - LTP
- Hunt Type - FIFO

- Trunk Class - LTPALIT
- IAPT - Yes
- The number of LTP members in the Trunk Group must equal the number of ALIT packs equipped as operational on all Metallic Service Units (Regular or Modular) of the given SM (i.e., the SM specified on the MSURI Form or the IMINFO Form). Each LTP member must be in this SM and defined on the Trunk Form.

The Metallic Access Junctor Route Indexes and Trunk Groups are shared by ALIT testing and DC Jack Testing as well as other line and trunk testing. For these requirements refer to the Metallic Access for Line and Trunk Testing section in Division 2 of this guide.

SEC. 2B: AUTOMATIC PROGRESSION TESTING (APT)

1. FEATURE DESCRIPTION

Automatic Progression Testing consists of sequential, progressive testing of Outgoing and Two Way Trunks based upon the AUTO form (Automatic Trunk Test Table) assigned to each trunk. APT Test Types are:

- Synchronous
- Non-Synchronous
- Permanent Busy
- 103 Tests
- INV Tests (ISTF)
- NINV Tests (ISTF)
- CONT

The Synchronous, Non-Synchronous, Permanent Busy and 103 Test Types are available with 5E1 and later Software Releases. INV and NINV Test Types are available with 5E4 and later Software Releases and requires an ISTF Unit. CONT Test Type is available with 5E3 and later Software Releases.

2. TEST INITIATION

APT is initiated either by a manual request from the TLWS (Trunk and Line Work Station) or automatically, based upon a predefined schedule.

3. TRANSLATION REQUIREMENTS

The start time and test duration for the predefined APT testing are office options and should be entered on the OFCOPT Form (5509 Record). Once APT has been initiated, the 5ESS software examines each Trunk Group, and determines whether or not the group is to be tested. This is based on the value entered in the IAPT (Inhibit Automatic Progression Tests) field. A Yes would indicate that the Trunk Group should not be tested; while a No would indicate that the Trunk Group should be tested.

If the Trunk Group is to be tested, appropriate information is obtained from the AUTO Form and carried through the testing of each member of the Trunk Group. At the same time, the Software Release accesses the FIXRT (Fixed Route Type) data and obtains the APT Route Index.

The APT Route Index points to a Logical Test Port Trunk Group. The Route Type on the Route Index is HUNT. The Trunk Group has the following characteristics:

- The number of members recommended is based upon the number of Two-Way and Outgoing Trunks in the office: Up to 500 Trunks - 2 members; 501 to 2000 Trunks - 3 members; More than 2000 Trunks - 4 members.
- Trunk Direction - LTP
- Hunt Type - FIFO

- Trunk Class - LTPOGTC
- IAPT - Yes
- LTPOGTC - The Logical Test Ports assigned must be in the same Switching Module as a TTF (Transmission Test Facility) and should be evenly distributed among them in the instance of multiple TTFs.

The Route Index and/or Trunk Group assigned may be the same one used for Outgoing Transmission Test calls and Interactive TLWS testing. If the test functions share a Trunk Group, the number of members in the Trunk Group should be the maximum required for any one of the test functions.

The ISTF XMIT Route Index points to a Logical Test Port Trunk Group. The Trunk Group has the following characteristics:

- The number of members recommended is based upon one of the following.
- Assign one member per type of test services required (maximum if 31 per unit). Available test services are: EQUIPMENT (required) LOOPBACK TRANSMISSION.
- Assign three members per ISTF unit. Trunk Direction - LTP.
- Hunt Type - FIFO.
- Trunk Class - LTPISTFL or LTPISTFX.
- IAPT - Yes.
- LTPOGTC - The Logical Test Ports assigned must be in the same Switching Module as an ISTF Unit.

For 5E10 and later, with the introduction of the Global Digital Service Function, see the EQGDSC3 form (5860 Record), Division 8, Section 63.

SEC. 2C: OUTGOING TRANSMISSION TEST CALLS

1. FEATURE DESCRIPTION

Outgoing Transmission Test Calls consist of 100, 102, 104, 105, INV and NINV Test Calls initiated at the 5ESS Switch to test Outgoing and Two-Way Trunks. The 100, 102 and 105 Test Call Types are supported by all Software Releases. The 104 Test Call Type is available with the 5E1, Issue 2 Software Release. INV and NINV Test Call Types are available with 5E4, Issue 1 and later Software Releases.

2. TEST INITIATION

Outgoing Transmission Test Calls are manually initiated from the 5ESS Switch TLWS (Trunk and Line Work Station).

3. TRANSLATION REQUIREMENTS

Once an Outgoing Transmission Test Call is initiated, appropriate outpulsing information is obtained from the AUTO (Automatic Trunk Test Table) form (5505 Record) for the trunk under test. In addition, the Software Release accesses the FIXRT (Fixed Route Type Record) form (5302-2 Record) and obtains the "OGTRANS" Route Index.

The "OGTRANS" Route Index points to a Logical Test Port Trunk Group. The Route Type on the Route Index is "HUNT". The Trunk Group has the following characteristics:

NOTE: Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.

- The number of members recommended is based upon the number of Two-Way and Outgoing Trunks in the office:
 - Up to 500 Trunks - 2 members
 - 501 to 2000 Trunks - 3 members
 - More than 2000 Trunks - 4 members
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPOGTC
- IAPT - Yes
- LTPOGTC - The Logical Test Ports assigned must be in the same SM (Switching Module) as a TTF (Transmission Test Facility) and should be evenly distributed among them in the case of multiple TTFs.

For 5E10 and later, with the introduction of the Global Digital Service Function:

- LTPOGTC - The Logical Test Ports assigned must be in the same SM/SM-2000 as a GDSF of certain configuration types as illustrated in the following table:

SM Type	Configuration Type
SM	2, 5, 7, 8
SM-2000	2, 5, 8

For a given SM, the number of "LTPOGTC" trunk members cannot exceed the number of GDSF tone transceivers plus the number of GDSF guard-to-guard tone transceivers plus the number of TTF tone responders plus two times the number of TTF processors. The number of GDSF tone transceivers and the number of GDSF guard-to-guard tone transceivers are determined based on the CONFIGURATION and the number of PIDB LIST PIDBs entries on EQGDSC3 forms entered for a particular SM. The number of TTF tone responders is determined based on the DSU pack entries with TYPE of "TTFRESP" on EQDSP forms entered for a particular SM. The number of TTF processors is determined based on the DSU pack entries with TYPE of "TTFPROC" on EQDSP forms entered for a particular SM.

See Figure 1 of this section and the EQGDSC3 form (5860 Record), Division 8, Section 63 for more detailed information on configuration types.

The Route Index and/or Trunk Group assigned may be the same one used for Automatic Progression Testing and Interactive TLWS testing. If these test functions share a Trunk Group, the number of members in the Trunk Group should be the maximum required for any one of the test functions.

The "ISTFXMIT" Route Index points to a Logical Test Port Trunk Group. The Trunk Group has the following characteristics:

- The number of members recommended is based upon one of the following:
 - Assign one member per type of test services required (maximum of 31 per unit). Available test services are: EQUIPMENT (required) LOOPBACK TRANSMISSION
 - Assign three members per ISTF unit. Trunk Direction - LTP.
- Hunt Type - FIFO.
- Trunk Class - LTPISTFL or LTPISTFX.
- IAPT - Yes.
- LTPOGTC - The Logical Test Ports assigned must be in the same Switching Module as an ISTF Unit.

For 5E10 and later, with the introduction of the Global Digital Service Function (see the EQGDSC3 form (5860 Record), Division 8, Section 63):

- LTPOGTC - The Logical Test Ports assigned must be in the same SM/SM-2000 as a GDSF of certain configuration types, as illustrated in the following table:

SM Type	Configuration Types
SM	4, 5, 6, 8
SM-2000	4, 5, 7

GDSC Integrated Services Test Function - Number of Logical Test Ports by Configuration Type				
GDSC Configuration	Logical Test Port	SM - 1 PIDB	SM - 2 PIDBs	SM-2000

Type				
4	LTPISTFL	28	56	44
	LTPISTFX	4	8	10
5	LTPISTFL	8	28	32
	LTPISTFX	4	4	4
6	LTPISTFL	2	22	-
	LTPISTFX	6	12	-
7	LTPISTFL	-	-	32
	LTPISTFX	-	-	16
8	LTPISTFL	4	16	-
	LTPISTFX	4	4	-

Figure 1 GDSC LOGICAL TEST PORT ASSIGNMENTS 5E10 AND LATER SOFTWARE RELEASES

LTPISTFL = Logical Test Port for the DSU2 Integrated Services Test Function Loopback.

LTPISTFX = Logical Test Port for the DSU2 Integrated Services Test Function Transmission.

SEC. 2D: TERMINATING TEST LINES

1. TEST LINE DESCRIPTIONS

Synchronous Test Line - The Synchronous Test provides an automatic series of on hook/off hook flashes for each pulsing rate on a trunk. After all of the series of flashes are complete, the trunk is left in the quiet termination state.

Permanent Busy - The PB (Permanent Busy) test line provides a Busy Tone when accessed.

100 Test Line - The 100 Test Line provides far to near end loss measurements and near end noise measurements. The 100 Test Line supplies 5 seconds of milliwatt tone and then applies a quiet termination to the caller until the caller hangs up.

101 Test Line - The 101TL (101 Test Line) feature provides a path for communication and test access from any incoming trunk or line to a TWS (Trunk Work Station). A 101 TL call can be directed to one of the following.

At the 5ESS Switch:

- MCC/TLWS (Master Control Center/Trunk and Line Work Station)
- STLWS (Supplementary Trunk and Line Work Station)

At the Switching Control Center (SCC):

- Remote MCC/TLWS
- CTTU (Central Trunk Test Unit). The CTTU could also be at a remote work center other than the SCC

The 101TL call will terminate at a T&M (Talk and Monitor) phone at a TWS so the customer maintenance personnel can report trouble and/or initiate a testing session. Two customer personnel are needed to make the tests. The far end customer personnel initiate the 101TL call. The near end customer personnel accept the call. Depending upon how the office is engineered, a 101TL call may be initiated by dialing (or outpulsing) a specific TN (Telephone Number) or AC (Access Code) or a general TN or AC. The specific TN or AC will terminate to a specific TWS. The general TN or AC will terminate to any available TWS based on the priorities entered on the OFCOPT form (5509 Record).

102 Test Line - The 102 Test Line provides far to near end loss measurements. The 102 Test Line supplies 9 seconds of milliwatt tone and then applies a quiet termination for one second. This 10 second sequence is repeated indefinitely until the caller hangs up.

103 Test Line - The 103 Test Line provides supervisory and signaling testing for primary intertoll and TSPS trunks equipped with ring forward (re-ring) features.

- On seizure the 103 Test Line returns an off-hook signal
- On receipt of a re-ring signal, returns an on-hook signal
- On receipt of a second re-ring signal, returns a 120-IPM flash

104 Test Line - The 104 Test Line provides a test termination for 2-way transmission testing and 1-way noise

testing on toll connecting trunks.

105 Test Line - The 105 Test Line provides two-way loss and noise measurements. The 105 Test Line is used by the CAROT (Centralized Automatic Reporting On Trunks) system.

106 Test Line - Available with 5E3 and later Software Releases. The 106 Test Line is used in conjunction with the 102-type to provide loop around or two-way transmission testing of lines and trunks. The 106 Test Line provides 10 seconds of 1004 Hz tone followed by loop around of the T and R to T1 and R1 leads until a disconnect is sensed on the E lead.

NOTE: 106 Test Lines are available only in DSN (Defense Switched Network) offices.

2. LOCAL ACCESS APPLICATION

Calls to the Permanent Busy, Synchronous, 100, 101, 102, 104, 105 and 106 Test Lines may originate from a local line or at the far end of an incoming or two-way trunk. Line originated calls access the Test Lines by dialing a 7-digit Telephone Number. Trunk originated calls access the Test Lines by impulsing the code which would normally correspond to the 7-digit Telephone Number (e.g., The 4, 5 or 6-digit code that the 5ESS Switch would normally expect from the trunk to terminate in the 5ESS Switch office). All of these calls are initially processed like a normal POTS call to a Telephone Number.

Synchronous Test Line - The Telephone Number assigned to the Synchronous Test Line must have CLASS OF SERVICE and TERMINATING TREATMENT set to "TEST" on a LCC form (5306 Record) and TEST CODE "SYN" and RTI not entered on a LINE form (5109 Record).

Permanent Busy Test Line - The Telephone Number assigned to the Permanent Busy Test Line must have CLASS OF SERVICE and TERMINATING TREATMENT set to "TEST" on a LCC form and TEST CODE "PB" and RTI not entered on a LINE form.

100, 102, 104, 105, 106 Test Lines - The Telephone Numbers assigned to the 100, 102, 104, 105 and 106 Tests must have CLASS OF SERVICE and TERMINATING TREATMENT set to "TEST" on a LCC form and an appropriate TEST CODE (i.e., 100, 102, 104, 105 and 106) and ROUTE INDEX entered on a LINE form.

The Route Index points to a Logical Test Port Trunk Group. The ROUTE TYPE on the associated RTIDX form (5303 Record) must be "HUNT". The Trunk Group has the following characteristics:

NOTE: Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.

- The number of members should be the total number of incoming and two-way local trunks divided by 370, but a minimum of 3,
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPICTC
- IAPT - Yes
- The Logical Test Ports assigned should be evenly distributed among the IMs equipped with Transmission Test Facilities.

The same Trunk Group and Route Index should be used for all four test lines.

101 Test Line - A Telephone Number used for accessing the 101 Test Line may be defined as a General Access Telephone Number and Specific Access Telephone Number.

GENERAL ACCESS TN: For 5E2(2) and earlier Software Releases, the General Access Telephone Number must be defined on a LINE form with a value of "101" in the TEST CODE field and a value of "RTI" in the ENTYPE field, but no value in the RTI field. For 5E3 and later Software Releases, "101" must be in the TEST CODE field, and the RTI field must not be entered. The priority of routing to available TWSs must be defined with values in the TWS for 101TL fields of the OFCOPT form.

SPECIFIC ACCESS TNs: Each Specific Access Telephone Number must be defined on a LINE form with a value of "ICX" in the LCC field, where X is equal to 1-9. When X is equal to 1-8, then X is the Work Station Number on the corresponding TLWS form (5118 Record). "IC9" is used to access CTTU User Number 2. "RTI" must be in the ENTYPE field of the LINE form but the RTI field must not be entered. One Telephone Number may be defined for each of the TLWSs and the CTTU (Central Trunk Test Unit) User Number 2. These Telephone Numbers are used to distinguish which TWS to route the incoming Test Line Call to, but the call will actually be completed over the Talk and Monitor Telephone Numbers specified on the TLWS or CTTU form (5518 Record). For local TLWSs, the Talk and Monitor phones will be local Telephone Numbers (served by the 5ESS Switch) and usually the remote TLWS and the CTTU Talk and Monitor phones will not be local Telephone Numbers. In any case, the Specific Access Telephone Numbers must be distinct from the Talk and Monitor Telephone Numbers.

For both the General and Specific Access cases, the LCC form associated with each Telephone Number used for accessing the 101 Test Line must have a CLASS OF SERVICE and a TERMINATING TREATMENT of "TEST"; no LEN (Line Equipment Number) is allowed. Refer to Division 3, Sections 5k and 5r for other requirements.

3. TOLL ACCESS APPLICATION

All Terminating Test Lines are accessed from incoming and two-way toll trunks via the LDIT (Local Digit Interpreter Table) translations rather than line translations. The normal access codes are 10n, 95810n or 95910n.

If the 5ESS Switch is used as a toll-only switch (i.e., it has no lines), these translations must be used to access any of the desired types of test lines.

Offices with lines may use the toll access in addition to the local access application, if desired.

The access code (e.g., 10n) is defined on a LDIT form (5300-3) with an appropriate CALL TYPE as follows:

Access Code Table	
CALL TYPE	USAGE
100	100 Test Line Calls
101	General Access to 101 Test Line.
IC1-IC8	Specific Access to the 101 Test Line associated with the TLWS number which is the same digit of the ICX code.
IC9	Specific Access to the 101 Test Line terminating at the Central Trunk Test Unit User Number 2.
102	102 Test Line Calls
103	103 Test Line Calls
104	104 Test Line Calls
105	105 Test Line Calls
106	106 Test Line Calls
PB	Permanent Busy Test
SYN	Synchronous Test Call

Each entry must have a CODE INDEX value which must be defined on a RAR form (5301 Record) with an appropriate Route (and Charge) Index for the no prefix case.

Route Indexes must be established to handle these Test Line Calls. These Route Indexes must be separate and distinct from those used for local (i.e., 7 digit) access to similar test functions. These route indexes associated with the Local/Toll Test Line Access all require a ROUTE TYPE of "TEST". Route Index and Trunk Group requirements for specific Test Call Types are as follows:

Incoming 100, 102, 104, 105 and 106 Test Line Calls may share the same Route Index and/or Trunk Group. Each Route Index provided must specify a Trunk Group with the following characteristics:

■ **NOTE:** Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.

- The number of members should be the total number of incoming and two-way toll trunks divided by 370, but a minimum of 3.
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPICTC
- IAPT - Yes
- The Logical Test Ports assigned should be evenly distributed among the SMs equipped with Transmission Test Facilities.

■ **NOTE:** Local and Toll Access to the 100, 102, 104, 105 and 106 Test Lines may share a common Trunk Group (but not a common Route Index). If a shared Trunk Group is engineered, the number of members should be the total number of incoming and two-way trunks (both Local and Toll) divided by 370, but a minimum of 3.

The Incoming 101, 103, PB and SYN Test Line Calls require a Route Index so that the Software Release can identify the call as a Toll Test Line call. Any ROUTE INDEX value with a ROUTE TYPE of "TEST" may be entered on a RAR form. The TRUNK GROUP NUMBER on the RTIDX form is not used by the Software Release for this CALL TYPE but is a required entry on this form. Therefore the recommended ROUTE INDEX is the same as that used for 100, 102, etc. Incoming Test Line Calls.

SEC. 2E: LOCAL TEST DESK (LTD)

1. FEATURE DESCRIPTION

This feature allows the 5ESS to interface with the existing OS (Operational Systems). The OS could be a No. 14 LTD, No. 16 LTD, the LSV (Line Status Verifier), ALV (Automatic Line Verifier), MLT (Mechanized Loop Testing), SARTS (Switch Access Remote Test System; for simplicity, OS herein will be called LTD).

The LTD feature provides for the following:

- Establish metallic connection between LTD and a subscriber line, when LTD initiates the call.
- Line Circuit Test.
- Establish metallic connection between a subscriber line and LTD, when a field craft initiates a call from a subscriber premises.
- Touch-Tone Test.

There are two trunks associated with the LTD:

- an incoming test trunk for LTD originated calls and
- an outgoing test trunk for line originated calls to an LTD.

2. LTD ORIGINATED CALLS

The Local Test Desk originates a call from an Incoming Test Trunk Group. The LTD dials digits as if it were a normal incoming trunk call. The Trunk Group has the following characteristics:

- Trunk Direction - Incoming
- All normal incoming Trunk Group requirements
- Impulsing - MF
- Trunk Class - TSTK

Each Trunk Member required for LTD originated calls has the following characteristics to be specified on the Trunk Form:

- TEN - (SN107 - LTD TEST TRUNK CKT)
- CLEI - (Applicable CLEI Code for SN 107)
- IN START DIAL - WINK

There are no additional special translation requirements for LTD originated calls.

LTD originated calls are supported by all 5E Software Releases.

3. LINE ORIGINATED CALLS TO AN LTD

Line Originated calls to an LTD are available with 5E1 and later Software Releases.

An LTD is accessed from a local line by dialing a 3 or 7 digit code. Translation requirements for the two cases are different and are as follows:

Three (3) digit access to LTD - The 3 digit code is entered on the LDIT (Local Digit Interpreter) (5300-3a Record) with a Call Type of LTD.

The Fixed Route Type, TSTTRK (Test Trunk), must have a Route Index and a Charge Index entered on the FIXRT (Fixed Route Type) (5301-1 Record).

The Route Index points to a Trunk Group with the following characteristics:

- Trunk Direction - Outgoing
- All normal outgoing Trunk Group requirements
- Hunt Type - FIFO
- Trunk Class - TSTK
- IAPT - Yes
- Outpulsing - blank

Each Trunk Member required for LTD originated calls has the following characteristics to be specified on the Trunk form:

- TEN - (SN107 - LTD TEST TRUNK CKT)
- CLEI - (Applicable CLEI Code for SN107)
- OUT START DIAL - WINK
- Seven (7) digit access to LTD

The 7-digit directory is defined on the Telephone Number Record with a Route Index (no LEN) and a Test Code of LTD.

The Fixed Route Type, TSTTRK, must have a Route Index and a Charge Index entered on the FIXRT form.

The Route Index points to a Trunk Group with the following characteristics:

- Trunk Direction - Outgoing
- All Normal Outgoing Trunk Group requirements
- Hunt Type - FIFO

- Trunk Class - TSTK
- IAPT - Yes
- Outpulsing - blank

Each Trunk Member required for Line Originated Class to an LTD has the following characteristics to be specified on the Trunk form.

- TEN - (SN107 - LTD TEST TRUNK CKT)
- CLEI - (Applicable CLEI Code for SN107)
- OUTSTART - WINK

NOTE: The Semi-Integrated No Test Trunk feature (99-5E-7303) is available with 5E15 and later Software Releases. This feature provides the capability to support the NTT without requiring the use of an analog trunk unit and its associated circuit pack (SN107). For more information on this feature see Division 2, Section 7AS.

SEC. 2F: STATION RINGER TOUCH-TONE TESTS

1. FEATURE DESCRIPTION

The SRTT (Station Ringer Touch-Tone) Feature provides installation craft with the ability to test the Touch-Tone pad of a station set. In addition, it performs station ground tests to check the party identification and station ringer tests.

The SRTT Test is performed by the Telephone Company upon installation of a telephone or complaint of poor service from the Telephone Company's customer.

This feature is supported by the 5E1, Issue 2 and later Software Releases. It is not supported by the 5E1, Issue 1A Software Release.

2. TEST INITIATION

The connection to the SRTT line is initiated from the telephone to be tested by dialing a 3-digit SRTT Test Code followed by the 4-digit Directory Number of the line (station set under test).

3. TRANSLATION REQUIREMENTS

The 3-digit SRTT Test Code is translated in the Local Digit Interpreter Table with a Call Type of SRTT. A Code Index is meaningless for this Call Type and is prohibited.

The Call Type SRTT initiates a Software Release Software process which accesses the FIXRT (Fixed Route Type) data and obtains the ICSRTT Route Index.

The ICSRTT Route Index contains a Logical Test Port Trunk Group. The Route Type on the Route Index is Hunt. The Trunk Group has the following characteristics:

NOTE: Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.

- One member is recommended for each equipped TTF responder board, each with a Logical Test Port in the Switching Module containing the responder board. See the EQDSP Form for responder board equippage.
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPICTC
- IAPT - Yes

The Route Index and Trunk Group should not be shared with any other test functions.

For 5E10 and later, for a given SM, the number of "LTPICTC" trunk members cannot exceed the number of GDSF tone transceiver circuits plus the number of GDSF guard-to-guard tone transceiver circuits plus the number of TTF tone responder circuits plus three times the number of TTF processor circuits. The number of GDSF tone transceiver circuits and the number of guard-to-guard tone transceiver circuits are determined based on the CONFIGURATION and the number of PIDB LIST PIDBs entries on EQGDSC3 forms entered for a particular SM. The number of TTF tone responder circuits is five times the number of DSU pack entries with

TYPE of "TTFRESP" on EQDSP forms entered for a particular SM. The number of TTF processor circuits is the DSU pack entries with TYPE of "TTFPROC" on EQDSP forms entered for a particular SM.

SEC. 2G: OFFICE-TO-OFFICE TESTING

1. FEATURE DESCRIPTION

Office-to-Office Testing (or Board-to-Board Testing) is performed prior to the transfer of a number of customer lines from one telephone switching office (or offices) to another. There are two applications for this capability. The first application is office cutovers where one office is replacing another office (or offices). The second is an area transfer from office being deloaded to another office which can better handle that load.

Office-To-Office Testing ensures that the connections of the transferred lines in the old office to the transferred lines in the new office are correct with respect to the existing connections of these lines to the old office (or offices).

This feature, with 5E1, Issue 2 Software Releases, provides for automatic Office-To-Office Testing between a 5ESS Office and Step By Step offices. It can also provide Office-To-Office Testing between a 5ESS office and a Crossbar office that is equipped with regular LTD Test Trunk(s). However, no Series Completion or Multi-Line Hunt Lines can be tested for Crossbar offices.

With 5E2, Issue 1 and later Software Releases, this feature provides for automatic Office-To-Office testing between 5ESS and the following offices:

- Step-by-Step
- No. 5 Crossbar
- 1A Crossbar
- 1/1A ESS
- 2/2B ESS
- 3 ESS

If testing a crossbar office equipped with a non-no test trunk, series completion and Multi-Line Hunt Group lines cannot be tested.

Office-To-Office Testing is supported by the 5E1 Issue 2 and later Software Release. It is not supported by 5E1, Issue 1A Software Release.

2. TEST INITIATION

Testing is initiated from the MCC, TLWS, STLWS, or RC/V terminal via input request specifying the Route Index and line(s) to be tested. The testing progresses through the specified lines, bypassing untestable lines. Untestable lines currently include unassigned lines.

3. TRANSLATION REQUIREMENTS

Every 5ESS that is replacing a Step-By-Step, Crossbar office or ESS requires a Trunk Group for Office-To-Office Testing. A Route Index must be specified on the RTIDX Form which points to the Office-To-Office Trunk Group. The Trunk Group has the following characteristics:

- Maximum of 2 members for 5E1, Issue 2 Software Releases or a maximum of four members for 5E2, Issue 1 and later Software Releases, per Trunk Group per office to be replaced.

- Trunk Direction - Outgoing
- Hunt Type - FIFO
- Trunk Class
- BTBTK (5E2, Issue 2 and earlier Software Releases).
- OTOTK (5E3 and later Software Releases).
- IAPT - Yes
- OUTPLS - DP or MF

Each trunk required for Office-To-Office Testing has the following characteristics to be specified on the 5ESS Trunk Form:

- TEN - SN102 1-way outgoing Loop Supervision
- CLEI - Applicable CLEI Code for SN102
- OUT START DIAL - Must be WINK when replacing a crossbar and ESS offices and must be IMED when replacing a Step-By-Step office.
- BTBDIST1 - Distributing Point (5E2, Issue 2 and earlier Software Releases) OTODPN1 - Distributing Point (5E3 and later Software Releases)
- BTBDIST2 - Distributing Point (5E2, Issue 2 and earlier Software Releases) OTODPN2 - Distributing Point (5E3 and later Software Releases)

NOTE: BTBDIST1/OTODPN1 and BTBDIST2/OTODPN2 must be located on the same Metallic Service Unit Service Group.

If a Crossbar or ESS office is being replaced, Fixed Route Type BBTF or OTOTTF is required. This Fixed Route Type must have Tone set to "N" and must point to a Route Index. The corresponding Route Index has a Route Type of Hunt and points to a Trunk Group with the following characteristics:

NOTE: Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.

- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class
 - LTPBBTF (5E2, Issue 2 and earlier Software Releases).
 - LTPOTOTF (5E3 and later Software Releases).
- IAPT - Yes

- Two members are required with Logical Test Ports in the same SM (Switching Module) as a Global Digital Service Unit which is equipped with a TTF (Transmission Test Facility). The TTF is used for the Office-To-Office Testing.

SEC. 2H: TRUNK AND LINE WORK STATION TEST ACCESS UNIT

1. FEATURE DESCRIPTION

Effective with the 5E2 and later Software Releases, each TLWS associated with a 5ESS Switch must be defined on the TLWS form (5511). The TLWS TAU (Test Access Unit) provides two AC Jacks and two DC Jacks on a TLWS for testing of lines and trunks. The TAU is used with portable AC and DC plug-in test equipment to test lines and trunks.

The TAU is required on the MCC (Maintenance Control Center) TLWS and is optional on STLWSs (Supplementary TLWSs). The TAU is not available on Remote TLWSs.

The MCC and SCC are usually designated as WORK STATION NUMBER 1 and 2, respectively. The remaining TLWS designations are referred to as STLWSs. Prior to 5E9(1), six STLWSs were allowed (WORK STATION NUMBERS 3 - 8). Effective with 5E9(1) and later, twenty-four STLWSs were added (WORK STATION NUMBERS 9 - 32).

Prior to 5E6, the system automatically computed an associated DEVID for each STLWS based on the WORK STATION NUMBER entered. For 5E7 and 5E8 Software Releases, the DEVID must be entered on the TLWS form and its associated DEVICE TYPE defined on the ECDOPT form (5706 Record). For 5E9(1) and later, the requirement of designating an associated DEVICE TYPE for an STLWS on the ECDOPT form was removed. However, it is recommended that all STLWS designations continue to be identified on the ECDOPT form using the DEVICE TYPE field even though a one-to-one DEVICE/TYPE relationship is no longer enforced.

1.1 Test Initiation

A TAU test call is originated by Software Release software as a result of a manual request from the TLWS to test a specific DN (Directory Number), LEN (Line Equipment Number), MLHG (Multi-Line Hunt Group) and MBR NO. (Member Number) or MBR NO. (Trunk Group and Member Number).

2. FEATURE ASSIGNMENT

Once the test call is initiated, Software Release software accesses the FIXRT (Fixed Route Type) data and obtains the INTTF Route Index.

The INTTF Route Index points to a Logical Test Port Trunk Group. The Route Type on the Route Index is Hunt. The Trunk Group has the following characteristics:

- **NOTE:** Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.
- The number of members should be two times the number of TLWSs equipped with TAUs.
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPWSTTF
- IAPT - Yes

- The Logical Test Ports assigned must be in the same Switching Module as a Transmission Test Facility and should be evenly distributed among them in case of multiple TTFs.

For 5E10 and later, for a given SM, the number of "LTPWSTTF" trunk members cannot exceed two times the number of GDSF tone transceivers plus the number of TTF tone responders plus three times the number of TTF processors. The number of GDSF tone transceivers is determined based on the CONFIGURATION and the number of PIDB LIST PIDBs entries on EQGDSC3 forms entered for a particular SM. The number of TTF tone responders is determined based on the DSU pack entries with TYPE of "TTFRESP" on EQDSP forms entered for a particular SM. The number of TTF processors is determined based on the DSU pack entries with TYPE of "TTFPROC" on EQDSP forms entered for a particular SM.

2.1 D.C. Jack Connections

For D.C. Jack connections, 5ESS Switch software determines the Logical Test Port of the DC Jack from the TLWS Form data and the equipment location of the line or trunk being tested from the Line or Trunk Form data. 5ESS Switch software then determines the particular MSU (Metallic Service Unit) whose MTBs (Metallic Test Buses) serve the line or trunk under test.

Once the MSU is determined, the system accesses the IMINFO Form data and obtains the Metallic Access Junctor Route Index. The Metallic Access Junctor Route Indexes and Trunk Groups are shared by DC Jack testing and Automatic Line Insulation Test testing as well as other line and trunk testing. For these requirements refer to the Metallic Access for Line and Trunk Testing section in Division 2 of this guide.

The Logical Test Ports associated with DC Jacks must be defined on both the TLWS Form and in a Trunk Group. No Route Index may point to the Trunk Group. The Trunk Group has the following characteristics:

- Two members are required for each TLWS containing a TAU.
- Trunk Direction - LTP
- Hunt Type - Blank
- Trunk Class - LTPDCJCK
- IAPT - Yes

2.2 AC Jack Connections

For AC Jack Connections, the TEN is entered on the TLWS Form. A normal connection is then established through the network to the trunk or line under test.

In addition to the TLWS interactive connection request, an AC Jack connection may be established by plugging an appropriate test set into the AC Jack, going off-hook and keying in the appropriate digits. This type of origination is handled identically to any other incoming trunk call.

2.3 Trunk Group Assignments

It is recommended, but not required, that all AC Jacks for all equipped TAUs be included in the same Trunk Group. Members of the Trunk Group should be spread over different trunk units. The Trunk Group(s) has the following characteristics:

- Two members per equipped TAU

- Trunk Direction - Incoming
- Trunk Class - ACJACK
- IAPT - Yes
- Impulsing - MF

2.4 Trunk Member Assignments

Assignment of members is not related to the AC Jack number or TAU but the member numbers or TENS (Trunk Equipment Numbers) entered on the TLWS Form must be included in the Trunk Group.

The Trunk Member characteristics are:

- TEN - 4W E and M Trunk Circuit (SN104) For AC Jack No. 1 specify a 4-Wire E and M circuit from SG 0 of a Trunk Unit. For AC Jack No. 2 specify a 4-Wire E and M circuit from SG 1 of a Trunk Unit.
- CLEI - Applicable CLEI for 4-Wire E and M Trunk Circuit.
- TRANS CLS - Blank
- SUPV - EM2
- IDLESTATE - On (Default)
- IN START DIAL - Blank
- OUT START DIAL - Blank

See Division 3, Section 5K for more information on TLWS assignments. For a description of CALL TYPES associated with TLWS, see the LDIT/MLDIT (Local Digit Interpreter Table/Multiple Local Digit Interpreter Table) form (5300-3/5 Record) and the RDIT (Remaining Digit Interpretation) form (5300-7/8 Record), Division 3, Section 3C and Division 3, Section 3H, respectively.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LDIT/MLDIT	5300-3/5	3	3C	9.15
RDIT	5300-7/8	3	3H	9.9
TLWS	5511	3	5K	14.3

For 5E9(1) and later, the following forms were updated to add new CALL TYPES IC10 through IC33, and to redefine CALL TYPE IC9.

LDIT/MLDIT form - 5300-3/5 Record

- RDIT form - 5300-7/8 Record

TLWS Form (5511 Record) - This form is used to define TLWSs. The valid range of WORK STATION

NUMBERS was increased from 3 - 8 to 3 - 32 to accommodate the addition of twenty-four new TLWS.

SEC. 2I: REMOTE OFFICE TEST LINE

1. FEATURE DESCRIPTION

The ROTL (Remote Office Test Line) feature provides 5ESS the ability to interface with the existing CAROT (Centralized Automatic Reporting On Trunks) system for trunk maintenance. CAROT accesses ROTL through the Direct Distance Dialing network by dialing a Directory Number assigned to ROTL which will terminate at test software in the 5ESS switch. Once this access is made, CAROT and ROTL communicate via Multi-Frequency digits and tones. CAROT may request trunk tests, trunk status information or changes in the maintenance status of trunks. ROTL replies to these requests with appropriate responses or indications of error conditions. The ROTL feature is available with 5E1, Issue 2 Software Release.

2. TRANSLATION REQUIREMENTS FOR OFFICES WITH LINES

The Remote Office Test Line "test line" must be defined on the line form with the following requirements:

- Line type must equal "RTI".
- Equipment number fields LEN and SLEN must be blank.
- Route Index field must be numeric and point to a Route Index on the RTIDX form that is associated with a Trunk Group with LTP members.
- Test code must equal ROT for 5E1, Issue 2, Release 1; and ROTL for 5E1, Issue 2, Release 2 and later Software Releases.

The Route Index (RTIDX Form) is of Route Type "HUNT" and points to a Trunk Group with the following characteristics (TKGRP Form):

- **NOTE:** Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.
- One member per 7000 trunks rounded up to the next integer - but a minimum of two members
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPROTL
- IAPT - YES
- The Logical Test Ports assigned to the Logical Test Port members must be in the same Switching Module(s) as TTF (Transmission Test Facility).

Once the Software Release software selects an LTPROTL trunk, it then uses the impulsed Centralized Automatic Reporting On Trunks Identification Code to obtain the security callback number from the Remote Office Test Line form. This information plus the LTPSCR (Logical Test Port Screening) and the LTPDAS (Logical Test Port Digit Analysis Selector) fields on the Office Option Table (OFCOPT) form are interpreted using normal line digit analysis (forms PDIT and LDIT) and screening (form RAR) to call the Centralized Automatic Reporting On Trunks back through the Direct Distance Dialing network. When the security callback succeeds, trunk testing commences.

For a Connection Appraisal Test, the ROTL originates a call in a subscriber-like manner using normal call processing to a test line in a distant office. LTPSCR and LTPDAS from the Office Options Record (OFCOPT) are used for screening and digit analysis during this process.

3. TRANSLATION REQUIREMENTS FOR OFFICES WITHOUT LINES (TOLL OR TANDEM)

The FX (Foreign Exchange) lines for ROTL feature provides Centralized Automatic Reporting On Trunks system access to the ROTL in a toll or tandem 5ESS Switch which is not assigned an office code. This capability is available with 5E2 Software Releases.

With this capability, a toll or tandem ROTL is assigned a Directory Number on a near-by Central Office. The ROTL is then accessed via an FX line from that Central Office to a dedicated port in the toll or tandem office. An off hook on the ROTL dedicated port indicates a call from CAROT which is then routed to the ROTL.

The ROTL LTP (Logical Test Port) must be defined on the TKGRP Form with the following requirements:

- **NOTE:** Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.
- One ROTL LTP member per 5000 trunks rounded up to the next integer with a minimum of two members.
- TRK DIR - LTP
- Hunt Type - FIFO
- Trunk Class - LTPROTL
- IAPT - Yes
- The Logical Test Ports assigned to the LTP members must be in the same Switching Module(s) as the TTF.

The FX dedicated ports must be digital (on a DLTU) and be defined on the TKGRP Form with the following characteristics:

- TRK DIR - INC
- TRKCLS - FXROTL

One dedicated FX ROTL port must be assigned for each ROTL LTP plus one spare dedicated ROTL port for each group of four ROTL LTPs.

There must be a fixed route type ICROTL (FIXRT Form) which has a Route Index (RTIDX Form) pointing to the Trunk Group of LTPs.

SEC. 2J: DIRECTLY CONNECTED TEST UNIT (DCTU)

1. FEATURE DESCRIPTION

The DCTU (Directly Connected Test Unit) is available for Multi-module offices with 5E1 and later Software Releases and is used to perform basic metallic measurements and test on lines or trunks.

This capability provides a more efficient and convenient customer personnel interface for metallic testing than the present D.C. Jack method through a TLWS (Trunk and Line Work Station) TAU (Test Access Unit) with a portable test set.

Customers are now allowed to interactively do metallic tests between a line or trunk and the DCTU hardware from the Maintenance Control Center/Trunk and Line Work Station, a Supplementary TLWS or a CTTU (Central Trunk Test Unit). The DCTU test equipment performs DC and sub-audio voltage and current measurements on the trunk or line under test.

A DCTU can be functionally divided into one to three PMUs (Precision Measurement Units), from one to three EANS (Equipment Access Networks) and from one to twelve test circuits. The Precision Measuring Unit performs all measurements associated with the Metallic Interface including voltage and current measurements and application of DC or AC potential. The Equipment Access Network provides the capability to connect any port to be tested to any PMU through a series of multicontact relays. LTPs (Logical Test Ports) are required to be associated with the DCTU test circuits. The present recommendation is to assign one LTP for each DCTU test circuit.

The 5ESS software routing routines will establish a metallic connection by the Switching Module of the specified line or trunk and then obtaining that SM's DCTU Route Index from the IMINFO Form. The Route Index will point to a Trunk Group consisting of DCTU test circuit LTPs. Multiple DCTUs are possible in a 5ESS office and necessary in a RSM (Remote Switching Module) that is outside the metallic range (3000 ohms) of the host office.

2. TEST INITIATION

Testing performed by the DCTU can be requested from three different sources:

- The TLWS (Trunk and Line Work Station)
- The CTTU (Centralized Trunk Testing Unit). Available with 5E1 Release 2 and later Software Releases.
- The MLT-2 (Mechanized Loop Testing Version 2 System). Available with 5E2 and later Software Releases.

3. TRANSLATION REQUIREMENTS

Once a DCTU test request has been received, 5ESS software determines the Switching Module containing the line or trunk to be tested. The Directly Connected Test Unit software then obtains the DCTU Route Index for that SM, RSM or with 5E3 and later Software Releases, an ORM (Optically Remote Switching Module) or a TRM (Two-Mile Optically Remote Switching Module) (specified on the IMINFO form). The DCTU Route Index is a Route Type equal to HUNT if the SM is served by a DCTU or Route Type equal to REORDER if it is not served by a DCTU. If the DCTU Route Index is of Route Type HUNT, it points to a Logical Test Port Trunk Group with the following characteristics.

- One member per DCTU test circuit, each with a Logical Test Port assigned in the same SM as the DCTU test circuit.
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPDCTU
- IAPT - Yes

Each DCTU equipped on a non-RSM SM may have its own DCTU Route Index and Trunk Group or all DCTUs on non-RSM SMs may share the same DCTU Route Index and Trunk Group. In either case, a Trunk Group serving non-RSM DCTUs may not contain any members with LTPs in an RSM.

Each RSM (or with 5E3 and later Software Releases, "ORM" or "TRM") at a single-RSM (or with 5E3 and later Software Releases, "ORM" or "TRM") site that is equipped with a DCTU requires a DCTU Route Index and Trunk Group each of which is dedicated to the RSM (or with 5E3 and later Software Releases, "ORM" or "TRM"). All of the members of the Trunk Group must have LTPs in the RSM or with 5E3 and later Software Releases, "ORM" or "TRM".

For multimod RSM sites, each DCTU equipped on one of its RSMs or with 5E3 and later Software Releases, "ORM" or "TRM", must have its own DCTU Route Index and Trunk Group and all members of each Trunk Group must have LTPs on the SM equipped with the DCTU.

SEC. 2K: NO. 2 SES (SERVICE EVALUATION SYSTEM)

1. FEATURE DESCRIPTION

Service evaluation is a feature required for all local switching systems that serve more than 3000 lines. Service evaluation for offices serving less than 3000 lines is optional. This feature is used to assess the overall quality of network service and to direct quality control activities. The 5ESS Switch performs service evaluation by interfacing with the No. 2 SES. The hardware interface consists of one 2-way data link and up to four voice monitor links (see Figure 1). It should be noted that presently SES is not used to analyze the transmission quality of the network which is a subjective measure, but concentrates only on call completing activities, e.g., busy, reorder, answer, ring, announcements, etc.

The 5ESS Switch is required to support both dial line service evaluation and MECCA (Mechanized Evaluation of Call Completion Anomalies). Dial line service evaluation refers to determining the disposition (i.e. completion or incompleteness characteristics) of calls that originate from lines. MECCA refers to the monitoring of outgoing calls that have long holding times (e.g. 90 seconds) without answer supervision. The primary intent of MECCA is to identify potential trunk problems that will result in unbilled calls.

The service evaluation is controlled by No. 2 SES with the switching system acting as the slave. An evaluation begins with a request from No. 2 SES for the switch to bridge onto the next call of a specific type. The switch selects the call, collects call data, and establishes a bridge connection between the originating port and a voice monitor link. After No. 2 SES has analyzed the call to its satisfaction it requests the switch to terminate the connection.

2. TRANSLATION REQUIREMENTS

2.1 2-Way Data Link

No translations required.

2.2 Voice Monitor Links

A Trunk Group must be established with the following characteristics:

- Trunk Direction - Outgoing
- Hunt Type - blank
- Trunk Class - "SES"
- IAPT - "Y"
- Outpulsing - blank
- The Trunk Group may have from one to four members which must be numbered consecutively starting with 1. The Member Numbers correspond to the voice monitor link numbers known to SES.

When an "SES" trunk group is defined on the switch, the trunk group number must be entered in the SES field on Recent Change View 8.1. The SES field does not appear on the corresponding OFCOPT form in the 5ODA system.

2.3 102 Test Line

Voice monitor link maintenance requires a 102 Test Line (see Terminating Test Lines in Division 4 of this guide). Access to the 102 Test Line by the 5ESS SES software requires that a fixed route type, "IC102", be defined with a Route Index and a Charge Index (normally defined as a free call). The Route Index should be the one defined for normal 102 Test Line access.

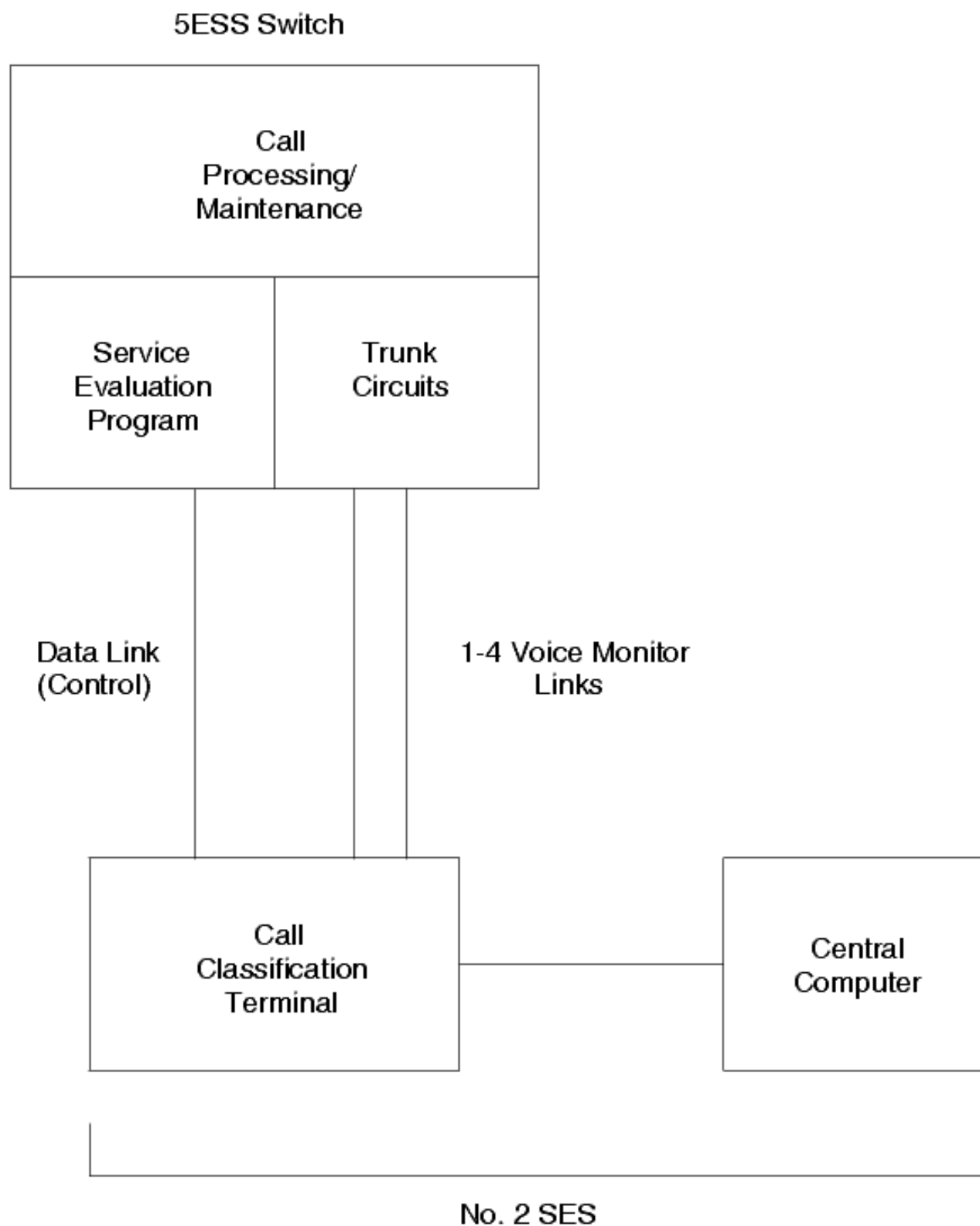


Figure 1 SES INTERFACE CONFIGURATION

SEC. 2L: CHANNEL CIRCUIT DIAGNOSTICS

1. FEATURE DESCRIPTION

In a 5ESS Switch office which has multiple SMs (Switching Modules), the TTF (Transmission Test Facility) is used by channel circuit diagnostics for analog trunk and line units and DLC (Digital Loop Carrier) remote terminals. These translations are required for all offices. This section describes the translations required for these diagnostics.

2. TRANSLATION REQUIREMENTS

2.1 Trunk and Line Unit Diagnostics

Two FIXRT (Fixed Route Type) forms (5301 Record) are required for trunk and line unit diagnostics. The first form is used to define the TTF tone generators (FIXED ROUTE TYPE set to "DGTGEN"). The second form defines the TTF responders (FIXED ROUTE TYPE set to "DGRESP"). Each of these fixed routes requires a CHARGE INDEX (usually "FREE") defined on the CGIDX (Charge Index Expansion) Form (5302 Record), and a unique ROUTE INDEX defined on the RTIDX Form (5303 Record) with a ROUTE TYPE of "HUNT", which points to a unique Trunk Group on the TKGRP form (5202 Record). Each Trunk Group should have the following characteristics:

NOTE: Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.

- The minimum number of LTPs (Logical Test Ports) should be one; the maximum number of LTPs should not exceed the number of TTF responders ; for GDSC3, the Configuration Type is used to determine the number of responders (see Figure 1).
- Trunk Direction - "LTP"
- Hunt Type - "FIFO"
- Trunk Class - "LTPDGTTF"
- IAPT - "Y"
- The LTP (Logical Test Ports) must be selected from SMs containing a TTF. It is recommended that the LTPs, assigned in both trunk groups, have the same SMs. For example, if the "TGEN" trunk group has LTP members in SMs 1 and 14, then the "RESP" trunk group should have LTP members in SMs 1 and 14.

For 5E10 and later, for a given SM, the number of "LTPDGTTF" trunk members cannot exceed the number of GDSF tone transceivers plus the number of GDSF guard-to-guard tone transceivers plus the number of GDSF tone generators plus two times the number of TTF tone responders plus the number of TTF tone generators. The number of GDSF tone transceivers and the number of GDSF guard-to-guard tone transceivers is determined based on the CONFIGURATION and the number of PIDB LIST PIDBs entries on EQGDSC3 forms entered for a particular SM. The number of TTF tone responders is determined based on the DSU pack entries with TYPE of "TTFRESP" on EQDSP forms entered for a particular SM. The number of TTF tone generators is determined based on the DSU pack entries with TYPE of "TTFTGEN" on EQDSP forms entered for a particular SM.

For 5E10 and later, with the introduction of the Global Digital Service Function, refer to the EQGDSC3 form

(5860 Record), Division 8, Section 63 for additional configuration information.

2.2 DLC Remote Terminal Diagnostics

One FIXRT form (5301 Record) is required for DLC (Digital Loop Carrier) diagnostics with a FIXED ROUTE TYPE set to "S96CTST" to define access to the TTF responder used by the DLC channel testing function. This fixed route is defined by a CHARGE INDEX (usually "FREE") and a unique ROUTE INDEX with a ROUTE TYPE of "HUNT", which points to a unique trunk group. This trunk group has the following characteristics:

NOTE: Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.

- One LTP member for each TTF responder in the office
- Trunk Direction - "LTP"
- Hunt Type - "FIFO"
- Trunk Class - "LTPS96TF"
- IAPT - "Y"
- The LTP must be selected from an SM/SM-2000 containing a TTF responder function.

For 5E10 and later, with the introduction of the Global Digital Service Function, refer to Figure 1 of this section and to the EQGDSC3 form (5860 Record), Division 8, Section 63 for additional configuration information.

GDSC Logical Test Port Assignments Per TTF Responder Function (LTPDGTTF, LTPS96TF)				
GDSC Configuration Type	Logical Test Port	SM - 1 PIDB	SM - 2 PIDBs	SM-2000
2	LTPDGTTF	6	6	6
	LTPS96TF	6	6	6
5	LTPDGTTF	2	4	2
	LTPS96TF	2	4	2
7	LTPDGTTF	1	2	-
	LTPS96TF	1	2	-
8	LTPDGTTF	3	3	6
	LTPS96TF	3	3	6

GDDC = Global Digital Service Circuit

LTPDGTTF = Logical Test Port Diagnostics using the TTF

LTPS96TG = Logical Test Port Diagnostics for remote terminals

TTF = Transmission Test Facility

Figure 1 GDSC LOGICAL TEST PORT ASSIGNMENTS - 5E10 AND LATER SOFTWARE RELEASES

SEC. 2M: SELECTED LINE AND TRUNK TRANSLATIONS (SLATTS)

1. GENERAL DESCRIPTION - SLATTS

SLATTs (Selected Line And Trunk Translations) consists of Selected line assignments, complete trunk assignments and other essential translations necessary to test selected hardware and verify operational integrity. Translations for trunking, routing and charging should be as complete and accurate as possible. SLATTs are used by Installation for testing.

SLATTs are shipped to the installation site three weeks after the main ship date.

Several categories of test lines are required for every 5ESS Switch and are assigned in the 5ODA SLATTs data entry interval. The TN (Telephone Number) and LEN (Line Equipment Number) assignments are made by the customer's office administrators on line-related 5ODA input forms.

Various test lines, such as the volume and optional feature test lines are required for use in the 5ESS Switch installation interval and can be removed at the customers discretion or need, after the office turns over. Other test lines, such as external sanity monitor, scan or TLWS (Trunk and Line Work Station) talk and monitor lines, are permanently assigned to the 5ESS Switch.

2. VOLUME TEST LINES - LINE UNITS

All 5ESS Switches with Line Units require a group of volume test lines to test sufficiently the call capacity of the LUs (Line Units) mounted on SMs (Switching Modules). The volume testing for heat and general acceptance purpose is provided by the procall test sets. A total of eight lines must be assigned to each LU, regardless of the line concentration ratio or type of LU (4AB1 or 4AC1). These lines are defined by unique TN and LEN (Line Equipment Number) combinations, and apply only to analog lines. The valid LU Concentration Ratios are 10:1, 8:1, 6:1, and 4:1. The 4:1 ratio is valid only with 4AC1 LUs. The 6:1 and 8:1 ratios are always allowed for all LU types. 10:1 ratio is valid with 4AD1 LUs and is available with 5E3 and later Software Releases. (See Figure 1.)

It should be noted that the actual LEN values assigned to unique TNs are fixed, based on the LU Concentration ratio of the associated LU. This allows the installation personnel to know which LENs are to be used for testing in each office. Figure 1 provides the fixed LEN assignments associated with each Line Unit Concentration Ratio. For ease of administrating the LEN load balance, it is recommended, but not required, that all local LUs in a host have the same Concentration Ratio. The LUs and their associated Concentration Ratio assigned to RSMs are independent of the local SMs, but their associated volume test lines are submitted in the same 5ODA SLATTs database as the host SM/LU LENs.

2.1 LINE Input Restrictions

The following information provides additional line input for restrictions:

Set Line Type - "LEN"

Set RAX - 1

Set LCC - "1FR" or "1MR" (see fixed tables)

Set LEN - unique value from table

Set PTY - "I"

Set TTC - "Y" for all test lines

Set PALIT - "Y"

Set TSTLINE (Precut) - "Y"

Set RMK - Data in fixed LEN tables LUz where z is 0-7

All other fields on the LINE form should be the default value of "N", or unknown (blank).

2.2 Volume Test Requirements

The following information applies to volume test line requirements as shown in Figure 1. The three tables show only the Line Class Code, Remarks, and the last four digits of the LEN. The leading four digits of the LEN will vary based on the particular SM/LU combinations equipped in the offices. The value "Z" in the Remarks field corresponds to the LENs associated LU value.

2.3 Automatic Generation Of Test Line Data

The test line data may be automatically generated by the User Interface ODA command gentline. The gentline command first prompts the SEE (System Equipment Engineer) for a starting TN. It then sequentially increments the TN for each LINE form that it generates. The automated process generates the assignments for the LEN, LCC, and REMARKS fields according to Figure 1. It also sets the remaining fields on the LINE form correctly.

Depending on the Concentration Ratio, the range of vacant TNs, from the starting TN, should equal eight to ten times the number of Line Units in the office. If a given TN is already assigned, the gentline command does NOT insert that individual generated test line into the database.

3. VOLUME TEST LINES - INTEGRATED SERVICES LINE UNITS

All 5ESS Switches with ISLUs (Integrated Services Line Units) require a group of volume test lines to test the call capacity of the ISLUs mounted on SMs. The call capacity can be tested by a number of available facilities, such as a DGC (Digital Call Generator) ITE-6500 which can generate up to 20,000 calls per hour. To perform the volume test, a total of 8 lines must be assigned to each ISLU. These assignments should be made in the following locations:

DRAWER	LINE GROUP	SLOT
1	2	0, 1
2	6	0, 1
3	10	0, 1
4	14	0, 1

Slot 0 is considered as originating and Slot 1 as terminating. The testing is performed on the lines *only* if the associated drawer is equipped.

These slots should be populated as "T" type interface cards unless the ISLU contains only "Z" type analog interface cards. In this case, these slots should be populated as "Z" cards.

The "T" or "Z" card must be indicated as "O" (Operational) on an ISLULC form (5942 Record).

The 8 lines that are needed must be defined by a unique Telephone Number, CKT TN, and an LCEN (Line Card Equipment Number) on DSL form for a "T" type interface.

- **NOTE:** For 5E4(2) and earlier, the DSL form (5900 Record) is used. For 5E5 and later, the DSL (5907 Record) and DSLUSR (5908 Record) forms are used for these assignments.

If the interface is a "Z" type, then a unique TN and an OE TYPE of "C" must be defined on the LINE forms. It should be noted that the actual equipment number values assigned to unique TNs are fixed. This allows the installation personnel to know which equipment numbers are to be used for testing for each office. The following table provides the fixed Equipment Number assignments:

LCEN (Line Card Equipment Number)		
LGC	LC	REMARKS
02	00	Orig1
02	01	Term1
06	00	Orig2
06	01	Term2
10	00	Orig3
10	01	Term3
14	00	Orig4
14	01	Term4

ISLU2 (2 - 4 SHELF) TEST LINES			
ISLU2 LINE SHELF NUMBER	LINE GROUP	LINE BOARD NO.	LINE CKT NO.
1	0	0	01 ORIG
	0	1	01 TERM
	4	0	01 ORIG
	4	1	01 TERM
2	8	0	01 ORIG
	8	1	01 TERM
	12	0	01 ORIG
	12	1	01 TERM
3 (When Equipped)	0	4	01 ORIG
	0	5	01 TERM
	4	4	01 ORIG
	4	5	01 TERM
4 (When Equipped)	8	4	01 ORIG
	8	5	01 TERM
	12	4	01 ORIG
	12	5	01 TERM

The table shows only the last four digits of the Equipment Number. The first four digits of the Equipment Number will vary based on the particular SM and ISLU combination equipped in the 5ESS Switch.

The following provides additional information needed on DSL forms (for "T" type interface testing) or LINE forms (for "Z" type interface testing):

DSL Form(5900 Record): 5E4(2) and earlier

Set CKT RAX - 1

Set CKT LCC - "1IR" (or any LCC assigned to ISDN lines)

Set LCEN - From the above table

Set DISCN as shown on the following table.

DISCN		
PSU SHELF	DSL GROUP	PH CHANNEL
odd	ISLU	000
odd	ISLU	001
odd	ISLU	002
odd	ISLU	003
even	ISLU	004
even	ISLU	005
even	ISLU	006
even	ISLU	007

NOTE: For odd assignments, the PSU SHELF is determined from the EQISLU form (5731 Record). Use the highest odd PIDB number (i.e., 1, 3, 5, 7, 9 or 11) where PIDB TYPE is equal to "PSU" to obtain the PSU SHELF.

For even assignments, the PSU SHELF is determined from the EQISLU form. Use the highest even PIDB number (i.e., 0, 2, 4, 6, 8 or 10) where PIDB TYPE is equal to "PSU" to obtain the PSU SHELF.

The DSL GROUP assignment should be the same as the ISLU number that the particular test lines are being

assigned in. For example, if test lines are being assigned in ISLU 0, the DSL GROUP would be 00; for test lines in ISLU 1, the DSL GROUP would be 01, etc.

Set D SERV - "SONLY"
Set DSL PROF - "ISDN"
Set CIDIAL - "ALLOW"
Set PKT SUST - "Y"
Set CA PREF - "I"
Set TSTLINE - "Y"

DSL Form(5907 Record): 5E5 and later

Set OE - From table for LCEN
Set DISCN - From table for DISCN
Set D SERV - "SX"

DSLUSR Form (5908 Record): 5E5 and later

Set CKT TN - Unique TN to be tested
Set OE - From above table for LCEN
Set MAXB CHL - 2
Set MAXB CHL -2
Set CKT LCC - "1IR" (or any LCC assigned to ISDN lines)
Set CSV - 2
Set CSV CHL - "ANY"
Set AC ALW - "N"
Set AR ALW - "N"
Set COT ALW - "N"
Set PCP ALW - "N"

LCC Form (5306 Record):

If an LCC is defined as "1IR", then define an LCC input form as follows:

Set LINE CLASS CODE - "1IR"
Set RATE AREA - 01
Set CLASS OF SERVICE - "ISDN"
Set TERMINATING TREATMENT - "INDIV"
Set SCREENING INDEX - 0001
Set LINE SCREENING - "N"
Set DIGIT ANALYSIS SELECTOR - 01

LINE Form (5109 Record):

Set RAX - 1
Set LCC - "1FR"
Set OE TYPE - "C"
Set NUMBER - From the LCEN table
Set PTY - "I"
Set TTC - "Y" for all test lines
Set PALIT - "Y"
Set TSTLINE - "Y"

4. VOLUME TEST TRUNKS

4.1 Toll Applications

Call loading in a toll office is accomplished with the CS5 (Call Simulation 5) program. VTT (Volume Test Trunk) assignments, required for call simulation, are entered automatically by the factory into your data base upon system registration and are unassigned by installation prior to turnover. Figures 2 and 3 illustrate the configurations that will be used to implement the test network. The office will be partitioned into as many groupings of Figure 2 as possible. The remaining SMs will follow the the Figure 3 configuration.

The following assignments must be reserved when preparing your data:

- Each SM: DLTU-0, DFIs 1 & 2, channels 1-12
- Trunk Group Numbers 700 through 959
- Screening Indexes 1000 through 1129
- DAS number 99
- INDIT number 999
- Code Index number 1000

It is recommended that when you first sign-on to the ODA data entry system that you obtain a copy of all populated forms. This will show you not only what the Systems Equipment Engineer has entered on the equipment forms, but also, the Volume Test Trunk assignments.

Note that the automatic assignment of Volume Test Trunk data will not work unless SMs defined on the EQIM form as "IM" or "HIM" are numbered sequentially starting with one.

4.2 Configuration Explanation

Figure 2 illustrates the standard configuration used to generate calls. CS5 is downloaded into SM A with the library supervisor. When CS5 is executed it seizes a member of outgoing trunk group 1 (T1) and outputses the defined digits over the T1 connection to incoming trunk group 3 (T3). At T3 the incoming digits are translated and routed to outgoing trunk group 4 (T4) in SM B. At T4 the digits are outputses over the T1 connection to incoming trunk group 5 (T5). At T5 the incoming digits are translated and routed to outgoing trunk group 6 (T6) in SM A. Trunk group 6 (T6) outputses the received digits over the T1 connection to CS5 incoming trunk group 2 (T2), where the call is terminated.

Figure 3 represents the configuration used for any SM or RSM that cannot be represented by the configuration in Figure 2. In this configuration CS5 is downloaded into the SM/RSM and seizes a member of trunk group 1 (T1). CS5 then outputses the defined digits over the T1 connection to incoming trunk group 7 (T7). At trunk group 7 (T7) the incoming digits are translated and routed to outgoing trunk group 8 (T8). Trunk group 8 (T8) outputses the digits over the T1 connection to incoming trunk group 2 (T2), where CS5 terminates the call.

NOTE: The reason that RSMs must be assigned to SM A in Figure 2 or to Figure 3 is that the RSMs may have to be tested in the stand-alone mode. The only way to satisfy this requirement is to have CS5 executing in the RSM under test.

4.3 Local/Toll Applications

The normal way of placing a load on a 5ESS Switch is to use the PROCALL call generator to originate and terminate calls on Line Units. In local/toll applications, however, it is not unusual to have SMs that have no Line Units. As it is desirable to have a call load in each SM, a way of providing the call load in SMs without Line Units is needed. Figure 4 illustrates the configuration needed to implement this load. PROCALL is used to originate a call in SM A. The incoming digits are translated and routed to outgoing Trunk Group T1 in DFI 1. The digits are outpulsed over a T1 carrier that is cross-connected to incoming Trunk Group T2 in DFI 2. At T2 the incoming digits are translated and routed to the terminating line in SM A.

4.4 Assumptions And Requirements

The following are considerations in determining the translations needed to equip the test network and to route through it.

- A. Channels in DFIs 1 and 2 of DLTU 0 should be reserved in each SM that will have trunk calls routed through it. One channel should be reserved, in each DFI, for each test line that will route a call to the DFIs.
- B. The same channels must be reserved in both DFIs inside a given SM. This requirement is necessary because of the T1 connection between the DFIs.
- C. The ODA input forms associated with equipping the trunks should contain the value "TST" in the remarks field.
- D. Digit Analysis and Routing translations will be required for a line to trunk and a trunk to line call for the test network. These forms should also have the value "TST" in the remarks field to allow easy identification when they are removed.

5. TRUNK AND LINE WORK STATION TALK AND MONITOR PHONES

A local Talk and Monitor phone is required for the MCC Trunk and Line Work Station and is recommended for all Supplemental TLWS (required if 101 Test Line processing is expected). These TNs must be assigned on either the LINE or MLHLN input forms. If 101 testing is expected with multiple work stations, then define the lines in a single Multi-Line Hunt Group with circle hunt. The main Directory Number of the group should be the T&M (Talk and Monitor) number of work station 1 (MCC).

Refer to the Trunk and Line Work Station section in Division 2, Section 2H for complete assignment requirements for TLWS entries.

6. SCANS DIAL UP ACCESS

If SCANS (Software Change Administrative and Notification System) is to be used in a given 5ESS Switch, two dedicated TNs must be defined on the 5ODA input LINE form. These TNs and their associated unique LENs are used as alternate 4-wire back up communication lines for dedicated SCANS access.

6.1 LINE Form Assignment Requirements

The LEN value must be unique and the LCC/RAX combination must be defined on the LCC (Line Class Code) input form with both Class Of Service Class and Terminating Treatment equal to "INDIV".

Additional **LINE Form** Requirements:

Set TTC - "Y"

Set SUSO - "Y"
Set EL - "Y"
Set PALIT - "Y"
Set TSTLINE (precut) - "Y"
All other features are set to "N" or default (empty) values.

7. AMARC LOAD TEST

If the office is linked to an AMARC OSS, twenty five lines are required for the AMARC load test. Each of these test lines are assigned a unique TN and LEN on the 5ODA input LINE form with the following additional restrictions:

LINE Form:

Set RAX - 1
Set LCC - "1MR"
Set TTC - "Y"
Set PALIT - "Y"
Set TSTLINE (precut) - "Y"
Set RMK - "AMARC TEST LINE"
Set all other fields to default values of the form.

Spread the LENs evenly over all LUs in the office. If there are more than 25 LUs, then assign test lines to cover selected LUs in all IMs. Additional test lines or new selection rules will be developed for offices with more than 25 SMs. These AMARC test lines are needed only in the installation interval and can be freed up for normal assignment use by the customers company at turnover.

8. TEST CODE LINES ASSOCIATED WITH TNS

The Telephone Numbers assigned for maintenance and craft testing purposes are defined on the LINE form using the assignment requirements described in Division 2. The TNs assigned to test codes must have their line type field set to "RTI", whether or not they are associated with a Route Index. The test code entries are optional, depending on the testing requirements of the individual company.

9. EXTERNAL SANITY MONITOR

The External Sanity Monitor feature (previous name was Dial Tone Delay Alarm) is required to be equipped in every multi-mod 5ESS Switch. Hardware circuits are mounted in a miscellaneous cabinet and two software TNs and associated LENs are assigned on the LINE form.

Refer to External Sanity Monitor in Division 2, Section 2Q for complete requirements.

NOTE: The External Sanity Monitor has been discontinued and is no longer required after 1990.

10. RSM STAND-ALONE TEST LINES

RSM Stand-alone Test Lines allow testing of RSM emergency number rerouting for a given RSM Site when the RSM Site is not in stand-alone mode. In addition, stand-alone may be tested from the Host 5ESS Switch if desired. Up to ten RSM stand-alone test lines may be defined per RSM. They are defined on the LINE form with an equipment number (LEN or SLEN) on the RSM for which stand-alone testing is required. The lines must have an LCC (Line Class Code) with a Service Class of "SATSTLN" and a Terminating Treatment of "INDIV". When conducting the stand-alone rerouting test from the RSM Site, the lines may be used to originate and dial each of the emergency numbers which is normally rerouted during stand-alone operation.

If it is desired to conduct the test from the Host 5ESS Switch, the test line must be defined with a remote call forwarding BRCS feature (the preconstructed feature "/CFR" is suitable) with the forwarded-to TN equal to one of the emergency TNs. Either one stand-alone test line may be defined for each emergency TN to be tested, or one stand-alone test line may be defined and Recent Change used during testing to change the forwarded-to TN. No station equipment is required at the RSM if the call-forwarding method is used.

VOLUME TEST LINE FIXED LEN ASSIGNMENT TABLE

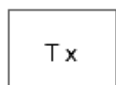
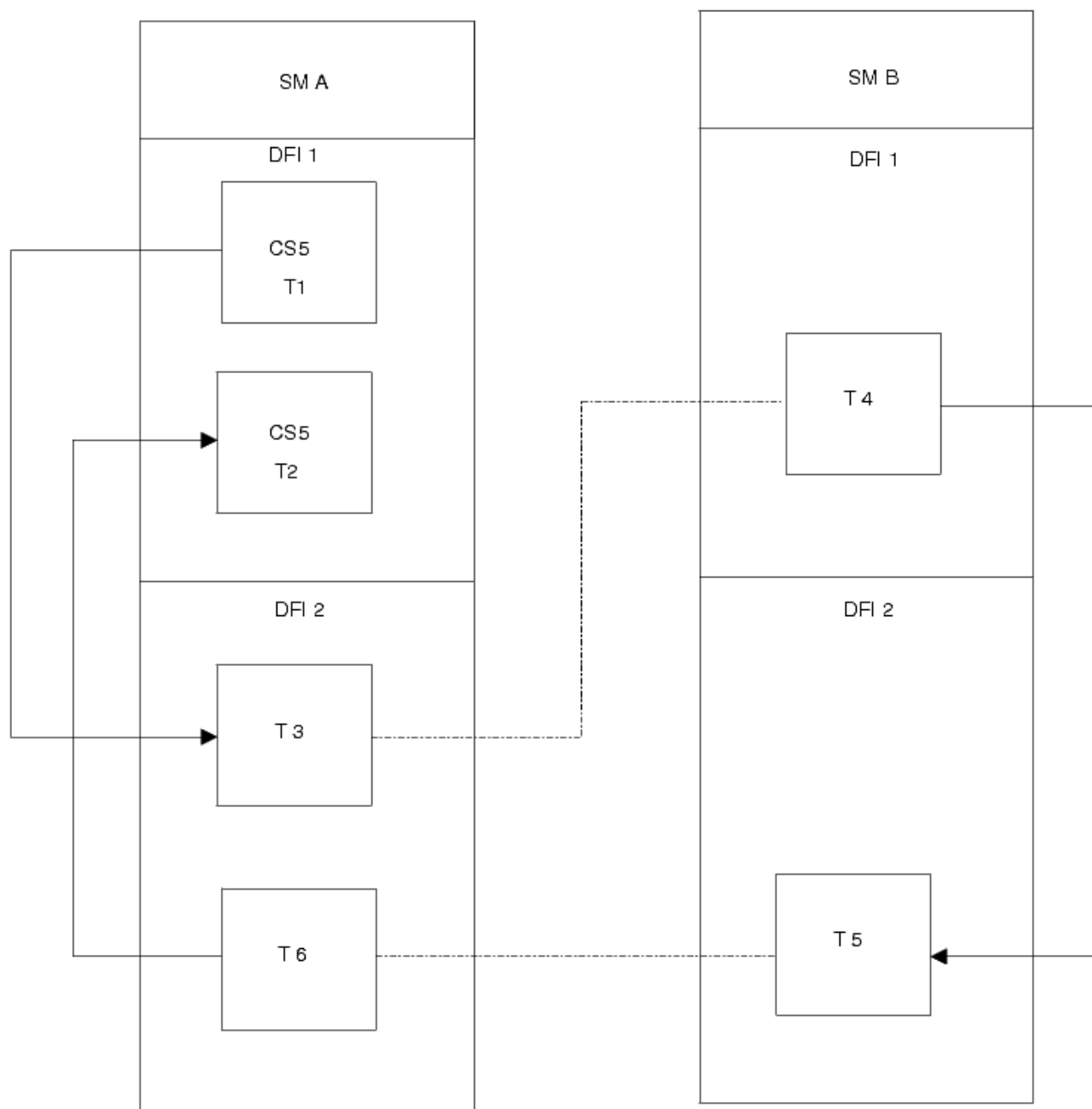
10:1 LU CONCENTRATION RATIO - VOLUME TEST LINES					
LCC	CONC	SWG	SW	LEV	REMARKS
1FR	0	0	0	0	Orig1-LUz
1FR	1	1	1	1	Term1-LUz
1MR	2	0	2	2	Orig2-LUz
1MR	3	1	3	3	Term2-LUz
1FR	4	0	4	0	Orig3-LUz
1MR	5	1	5	2	Term3-LUz
1MR	6	0	6	3	Orig4-LUz
1FR	7	1	7	1	Term4-LUz
1FR	8	0	0	0	Orig5-LUz
1FR	9	1	1	1	Term5-LUz

8:1 LU CONCENTRATION RATIO - VOLUME TEST LINES					
LCC	CONC	SWG	SW	LEV	REMARKS
1FR	0	0	0	0	Orig1-LUz
1FR	1	1	1	1	Term1-LUz
1MR	2	0	2	2	Orig1-LUz
1MR	3	1	3	3	Term1-LUz
1FR	4	0	4	0	Orig1-LUz
1MR	5	1	5	2	Term1-LUz
1MR	6	0	6	3	Orig1-LUz
1FR	7	1	7	1	Term1-LUz

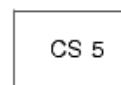
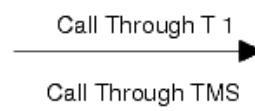
6:1 LU CONCENTRATION RATIO - VOLUME TEST LINES					
LCC	CONC	SWG	SW	LEV	REMARKS
1FR	0	0	0	0	Orig1-LUz
1FR	1	1	1	1	Term1-LUz
1MR	2	0	2	2	Orig1-LUz
1MR	3	1	3	3	Term1-LUz
1FR	4	0	4	0	Orig1-LUz
1MR	5	1	5	2	Term1-LUz
1MR	3	1	7	0	Orig1-LUz
1FR	2	0	6	3	Term1-LUz

4:1 LU CONCENTRATION RATIO - VOLUME TEST LINES					
LCC	CONC	SWG	SW	LEV	REMARKS
1FR	0	0	0	0	Orig1-LUz
1FR	1	1	1	1	Term1-LUz
1MR	2	0	2	2	Orig1-LUz
1MR	3	1	3	3	Term1-LUz
1FR	1	1	5	2	Orig1-LUz
1MR	0	0	4	1	Term1-LUz
1MR	3	1	7	0	Orig1-LUz
1FR	2	0	6	3	Term1-LUz

Figure 1 VOLUME TEST LINE FIXED LEN ASSIGNMENT TABLE

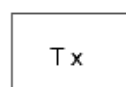
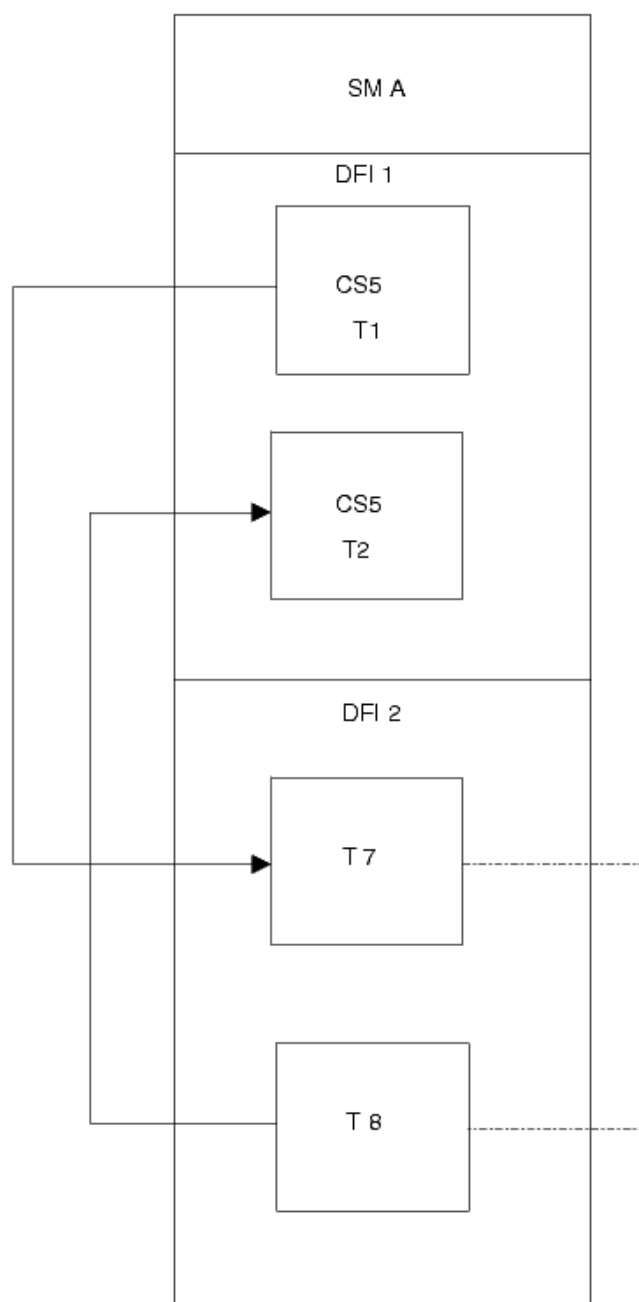


Trunk Group
x is the Trunk Group Number

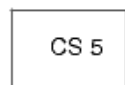


Trunk Group Used By CALLSIM5

Figure 2 CALLSIM5 SETUP FOR 2 SMs



Trunk Group
x is the Trunk Group Number



Trunk Group Used By CALLSIM5

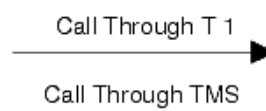


Figure 3 CALLSIM5 SETUP FOR A STANDALONE RSM OR REMAINING SM

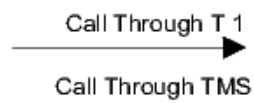
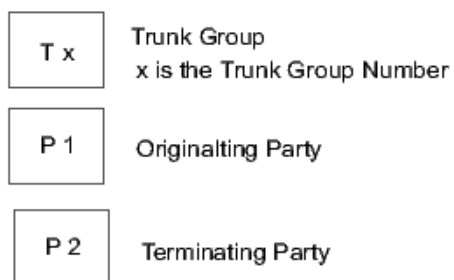
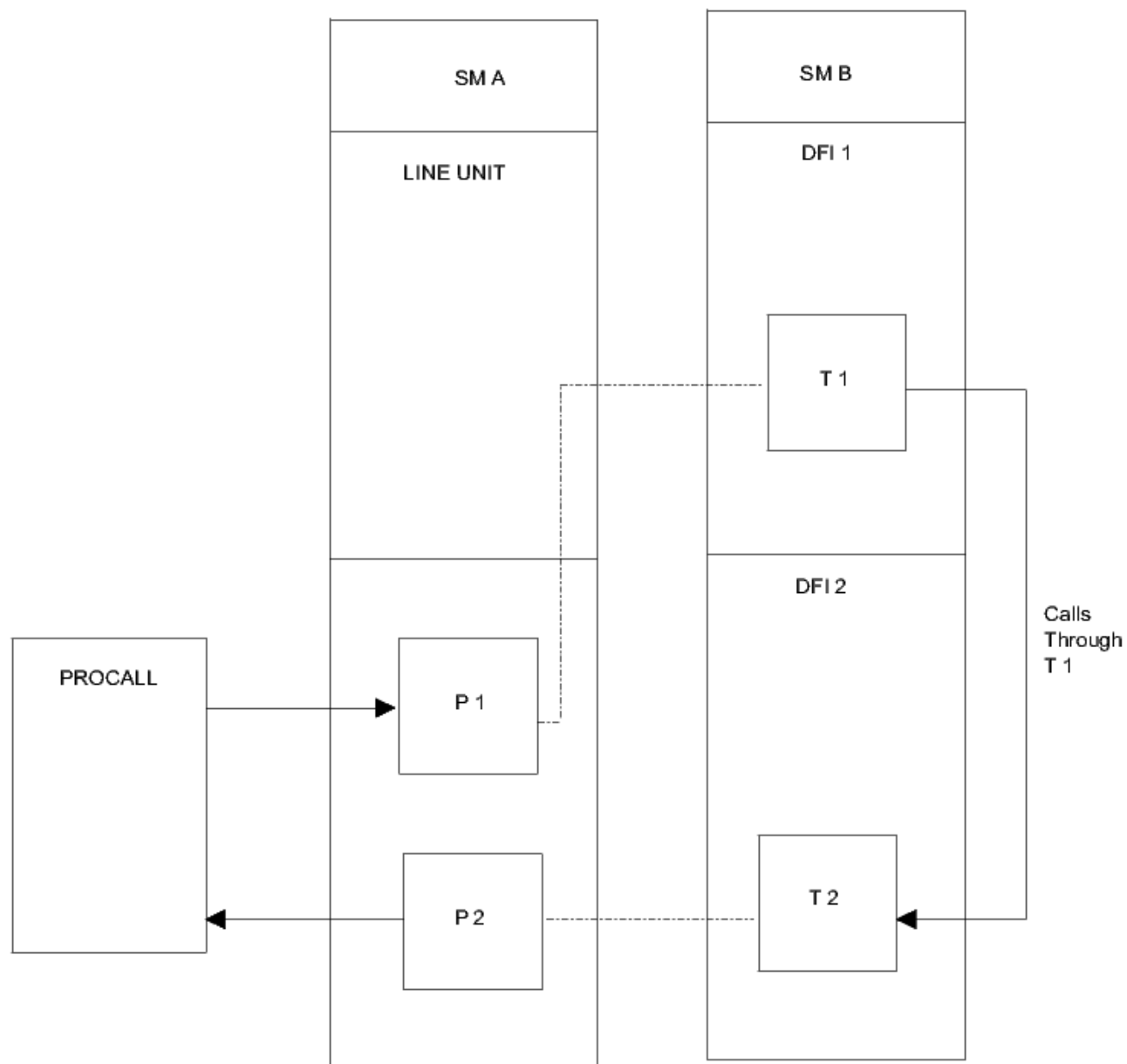


Figure 4 PROCALL SETUP FOR 2 SMs

SEC. 2N: COIN STATION TEST LINES (CSTL)

1. FEATURE DESCRIPTION

The CSTL (Coin Station Test Line) is used to allow a craftsman at a pay phone to test the operation of the coin station. It performs Coin Presence Tests, Ground Removal Relay Operation Test, Dial Pulse or Touch-Tone Receiver Test, Coin Relay Time Test, Coin Collect and Return Tests and Loop and Leakage Resistance Tests.

For a CSTL to be used in a RSM, ORM or TRM, please refer to the IMINFO form (5510 Record).

2. TRANSLATION REQUIREMENTS

A CSTL is accessed from a local coin line by dialing a 3 or 7-digit code. Translation requirements for the two instances are different and are as follows:

- Three (3) digit access to CSTL

The 3-digit code is entered on the LDIT (Local Digit Interpreter) Form with a Call Type of CSTL.

The FIXRT (Fixed Route Type), CSTL must have a Route Index and a Charge Index (normally free).

The Route Index is of Route Type - Hunt and points to a Trunk Group with the following characteristics to be specified on the TKGRP Form:

- Trunk Direction - Outgoing
- All normal outgoing Trunk Group requirements
- Hunt Type - FIFO
- Trunk Class - TSTK
- IAPT - Yes
- Outpulsing - Blank

Each trunk required for the CSTL has the following characteristics to be specified on the TRUNK Form:

- TEN - (SN107 - LTD TEST TRUNK CKT)
 - CLEI - Applicable CLEI Code for SN107
 - OUT START DIAL - WINK
- Seven (7) digit access to the CSTL

The 7-digit Telephone Number associated with the CSTL feature is defined on the line input form with the following requirements:

- Line Type must equal "RTI".
- Equipment number fields LEN and SLEN must be blank (unknown).
- Route Index must be numeric and point to an entry on the RTIDX input form with a defined Trunk Group.
- Test code must equal "CSTL".

The FIXRT (Fixed Route Type), CSTL must have a Route Index and a Charge Index (normally free).

The Route Index is of Route Type = Hunt and points to a Trunk Group with the following characteristics to be specified on the TKGRP Form:

- Trunk Direction - Outgoing
- All normal outgoing Trunk Group requirements
- Hunt Type - FIFO
- Trunk Class - TSTK
- IAPT - Yes
- Outpulsing - Blank

If both 3 and 7-digit access is provided to the CSTL, they may share both the Route Index and the Trunk Group.

SEC. 20: OPEN CIRCUIT TEST LINE (OCTL)

1. FEATURE DESCRIPTION

The OCTL (Open Circuit Test Line) is used to allow the customers personnel at a subscribers telephone to test the line for shorts or crosses without help from personnel at a centralized maintenance location or the central office.

NOTE: OCTL test calls are not supported on SLC lines.

2. TRANSLATION REQUIREMENTS

An OCTL is accessed from a subscribers telephone set by dialing a 3- or 7-digit code (based upon local practices). Translation requirements for the two cases are different and are as follows:

3. Three (3) digit access to OCTL.

The 3-digit code is entered on the Local Digit Interpreter, LDIT Form (5315 Record) with a CALL TYPE of "OCTL" if the data is being input via the ODA System and no Code Index. If the data is being input via Recent Change on the 9.3 view, CALL TYPE must be "OCT".

4. Seven (7) digit access to OCTL.

The seven digit Directory Number associated with the OCTL is defined on the LINE form (5109 Record) with the following requirements:

- Equipment number (LEN or SLEN) must be blank (unknown value).
- Line type field must equal "RTI".
- Route Index field must be blank.
- For ODA input, TEST CODE must equal "OCTL" for the LINE form.

For Recent Change, "OCT" must be entered on 1.6 view on the 5ESS Switch.

The Open Circuit Test Line must also have two office options assigned. The office options, OCTL Tone Duration and OCTL Open Duration must be defined on the OFCOPT Form (5509 Record).

SEC. 2P: ELECTRONIC LOOP SEGREGATION (ELS)

1. FEATURE DESCRIPTION

ELS (Electronic Loop Segregation) is a feature of the 5ESS Switch which periodically determines the loaded/non-loaded characteristics of analog lines and updates the office data base to specify the most accurate balance network option to be used in the line units channel circuit. The data base is used to set up the channel circuits during line calls.

2. TEST INITIATION

The ELS Program should be scheduled by the switch owner personnel to run on each line no less frequently than once a week and no more than twice a day. Once scheduled the ELS program runs automatically. Recent Change Messages are available to the switch owner to prohibit ELS from modifying the data base for specified lines.

3. TRANSLATION REQUIREMENTS

Once initiated, the ELS program obtains the DNRESP or ELSRESP Fixed Route Type (Form FIXRT) and obtains its Route Index. The DNRESP or ELSRESP Route Index has a Route Type of Hunt and points to a Trunk Group with the following characteristics:

- **NOTE:** Calculate the maximum allowable LTPs using the TTF Requirements Table. Refer to Division 2, Section 2X, for TTF Requirements information.
- The number of members equal to the number of TTF (Transmission Test Facility) responders in the office.
- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class
 - LTPELTTF (5E2, Issue 2 and earlier Software Releases)
 - LTPELSTF (5E3 and later Software Releases)
- IAPT - Yes
- The Logical Test Ports assigned to individual members must be in the same Switching Module as the corresponding TTF responder.

SEC. 2Q: EXTERNAL SANITY MONITOR

1. FEATURE DESCRIPTION

The External Sanity Monitor for 5ESS is an autonomous circuit which tests the ability of the 5ESS to complete calls. It accomplishes this by periodically originating a call on a direct connect (hotline), denied termination telephone which terminates at a denied origination line on another Switching Module. Failure of the External Sanity Monitor to detect audible ringing tone within 15 seconds of the origination results in an audible alarm in the office and at the SCC (Switching Control Center).

The External Sanity Monitor in 5ESS Switch consists of an SD1A277-01 Dial Tone Delay Alarm circuit mounted in an SD5D120-01 or SD5D130-01 Miscellaneous Cabinet with appropriate cabling and options. The two required telephone lines, two scan points and a distribute point are cross-connected to the circuit.

REX (Routine Exerciser) tests are used to test 5ESS Switch lines. REX executes diagnostics on Line Unit cards, executes grid board FAB (Fabric Test) to test the line loops between the grid boards and the SMs, and performs ELS (Electronic Loop Segregation) to check the lines' transmission specifications (db loss, gain, etc.). However, the REX tests should not be run for the originating and terminating lines connected to the External Sanity Monitor since it takes those lines out of service.

If the lines are out of service, then the External Sanity Monitor will be out of service and unable to detect a loss of dial tone in the lines. Also, REX tests will bring a line back in service after the testing is completed. However, if an error is detected, the line will remain out of service.

NOTE: The External Sanity Monitor has been discontinued and is no longer required after 1990.

2. TRANSLATION REQUIREMENTS

Two dedicated Telephone Numbers with associated LEN (Line Equipment Numbers) must be assigned in every multi-module office. The LENs must be selected from different SM (Switching Modules) which are not Host or RSM. These assignments are made on the LINE form (5109 Record) and input at the time of SLATTS.

The first of the two lines must be defined with SUST equal to "Y", NO DIAL equal to "HOT", and HOT LINE TN equal to the seven-digit Telephone Number of the second line.

The second line must be defined with SUSO equal to "Y".

Both lines should be defined with PTY equal to "I" and FLS, PALIT, and TSTLINE equal to "Y". Both lines also require a LCC (Line Class Code) defined on a LCC form (5306 Record) with CLASS OF SERVICE of "INDIV" and TERMINATING TREATMENT of "INDIV".

The two required scan points are on the IOP (Input-Output Processor) and must be defined in the 3B DEMERT Equipment Configuration Data. The distribute point is used to clear any alarm initiated by the External Sanity Monitor and is defined on the EQDPN form with an ASSIGNED CIRCUIT NAME of "DTDA" and an ASSIGNED CIRCUIT LEAD DESIGNATION of "RSTDP".

SEC. 2R: METALLIC ACCESS FOR LINE AND TRUNK TESTING

1. FEATURE DESCRIPTION

Metallic Access to lines or trunks for various testing is provided via the MACC (Metallic Access Circuit) packs of Metallic Service Units (Regular or Modular). MTBs (Metallic Test Buses) interconnect Line and Trunk Units with the Metallic Service Units.

In an office with multiple SMs (Switching Modules), not every SM will contain an MSU. However, every MSU which contains a MACC pack has access to some SM's Line Units and Trunk Units via the Metallic Test Buses or to other MSUs (and their served Line Units and Trunk Units) via the Metallic Test Interconnection Bus.

Types of testing that require connection to lines or trunks by metallic access include Automatic Line Insulation Test testing and DC testing via either a Trunk and Line Work Station Test Access Unit or a DCTU (Directly Connected Test Unit).

2. TRANSLATION REQUIREMENTS

When a test is initiated, the 5ESS software determines the particular Metallic Service Unit whose Metallic Test Buses serve the Line or Trunk Unit containing the line or trunk to be tested. Routing translations are obtained from the MSURI Form for 5E1 Software Release or the IMINFO Form for 5E1 and later Software Releases for a MAJ (Metallic Access Junctor) Route Index.

For offices with multiple SMs (Switching Modules), a unique MAJ Route Index is required for each SM which has one or two Metallic Service Units (Regular or Modular) with at least one MACC (Metallic Access Circuit) pack assigned. Each MAJ Route Index is associated with a unique Logical Test Port Trunk Group.

Each MAJ Route Index must be defined on the RTIDX Form with a Route Type of Hunt and associated with a unique LTP (Logical Test Port) Trunk Group. Each Trunk Group must be defined on the TKGRP Form with the following characteristics:

- Trunk Direction - LTP
- Hunt Type - FIFO
- Trunk Class - LTPMSU
- IAPT - Yes
- The number of LTP members in the Trunk Group is determined by the type of Metallic Service Units (Regular or Modular) equipped with MACC packs of the given SM (i.e., the SM specified on the MSURI Form or the IMINFO Form). The number of members is equal to eight times the number of Regular Metallic Service Units equipped with one or more MACC packs plus eight times the number of Modular Metallic Service Unit shelves equipped with one or more MACC packs. (This formula assumes that both Service Groups of the Metallic Service Units are similarly equipped. One LTP trunk is required for each junctor of a Metallic Service Unit equipped with MACC packs. For Regular Metallic Service Units there are four junctors per Service Group. For Modular Metallic Service Units there are four junctors per shelf per Service Group.) Each LTP member must be in this SM and defined on the Trunk Form.

SEC. 2S: INTEGRATED MECHANIZED LOOP TESTING SYSTEM

1. FEATURE DESCRIPTION

The IMLT-2 (Integrated Mechanized Loop Testing-2) feature allows the MLT-2 system to communicate directly with the 5ESS Switch through the IOP (Input/Output Processor) thus controlling test peripherals integrated into the 5ESS Switch.

IMLT-2 is available with 5E2 and later Software Releases. It provides the functions necessary to remotely test lines connected to the 5ESS Switch, its MDF (Main Distributing Frame), its RSMs (Remote Switching Modules), and its SLC-96 (Subscriber Loop Carrier) systems. MDF test access requires the DFTAC (Distributing Frame Access Controller) circuit pack. An optional PGTC (Pair Gain Test Controller) gives test access to Universal SLC-96 systems. The PGTC is external to the 5ESS Switch.

The DCTU (Directly Connected Test Unit) is used to perform all of the DC and low frequency AC measurements requested by MLT-2. The TTF (Transmission Test Facility) is used to perform the Touch Tone Analysis test.

The following items are required for test access for IMLT-2:

- Metallic access from a DCTU test circuit to a line. This includes access to lines connected to integrated SLC-96 systems. In order to establish a metallic connection to a Universal SLC-96 system, the DCTU test circuits are connected (as required) through the PGTC.
- MDF testing will require a Distributing Frame Test Access Controller (DFTAC) located in the MSU/MMSU. The DFTAC allows MLT-2 to control MDF Test Trunk Circuits (TTCs) and provides a metallic connection to the DCTU.
- A Touch Tone Analysis test can be requested by MLT-2. When requested, the TTF is set up to perform this test and software logic analyzes the results.
- A digit "0" security callback procedure is provided. If digit "0" is not detected by the 5ESS Switch within forty seconds, the callback access will be denied.
- This capability provides features to MLT-2 that are provided for in the 5ESS Switch (e.g., ringing, switching between metallic and callback modes).

2. TRANSLATION REQUIREMENTS

The IMLT-2 requires a Trunk Group of LTPs (Logical Test Ports) for callback, Data Link capability to the office from the MLT-2, and a DCTU (Directly Connected Test Unit). Optional DFTAC (Distributing Frame Test Access Controller) circuits for MDF (Main Distributing Frame) testing and a PGTC (Pair Gain Test Controller) for Universal SLC-96 testing are available. To turn on the IMLT-2 capability the OFCOPT form (5509 Record) must have IMLT-2 field equal to "Y" (Yes). To turn on the Data Link capability from the MLT-2 to the 5ESS Switch the ECDOPT form (5706 Record) must have the IMLT-2 field equal to "Y" (Yes), in 5E3 and earlier Software Releases. In 5E4(2) and later Software Releases, the value "SDL2" must appear in a DEVICE TYPE field in the FLEXIBLE IOP SELECTION list on the ECDOPT form.

Callback Requirements - The callback function is required for IMLT-2. It is necessary to establish a Trunk Group with a minimum of six members of LTPs (Logical Test Ports). There are no other restrictions on size or placement of these LTPs. This Trunk Group is pointed to by the Route Index of the Fixed Route Type of "CALLBACK".

The CALLBACK Trunk Group has the following characteristics defined on a TKGRP form (5202 Record):

- TRK DIR - LTP
- HUNT TYPE - FIFO
- TRKCLS - LTPCLBCK
- IAPT - Y
- Outpulsing - Leave Blank
- Minimum of six members. There are no other restrictions on size or placement of these LTPs.

The CALLBACK Fixed Route Type has the following characteristics defined on a FIXRT form (5301-1 Record):

- FIXED ROUTE TYPE - CALLBACK
- TONE - N
- ROUTE INDEX - Enter the Route Index number which points to Trunk Group of "LTPCLBK".
- CHARGE INDEX - As assigned by office.

The Route Index established for Fixed Route Type of "CALLBACK" has the following characteristics defined on a RTIDX form (5303 Record):

- ROUTE TYPE - Hunt
- TRUNK GROUP NUMBER - Trunk Group with Trunk Class of "LTPCLBCK"
- DIGITS TO BE DELETED - 0
- PREFIX DIGITS - Leave Blank
- NEXT ROUTE - As assigned by office (routing to reorder suggested)
- ANI OUTPUTSING - N
- OVERLAP OUTPUTSING - N
- SIGNALING PROTOCOL - TRAD
- CI ROUTE TYPE - OTHER

DFTAC Requirements - (An optional circuit pack) The DFTAC circuit is located in the MSU/MMSU. This circuit requires a dedicated line to a Line Unit (LU) and a Logical Test Port (LTP). The LTP must be assigned in the same Switching Module (SM) as the DFTAC circuit location.

The DFTAC Circuit Pack location is defined on the EQMSP/EQMMSP form (5750 Record). The pack position can be in rows 01 to 16 for the EQMSP form, or rows 01 to 32 for the EQMMSP form. Pack TYPE is "DFTC" and EQST is "0".

Each DFTAC circuit has a dedicated LEN on a LU (Line Unit). This is a "normal" POTS line (e.g. 1FR, 1MR) with denied origination. Do NOT use a LINE CLASS CODE which has a CLASS OF SERVICE or TERMINATING TREATMENT of "TEST". The DFTAC dedicated LEN is defined on a LINE form (5109 Record) with the following characteristics:

- RAX - As defined by office
- LCC - As defined by office
- OE TYPE - L
- PTY - I
- TTC - Y
- SUSO - Y
- Other line characteristics as for a "NORMAL" POTS line

Each DFTAC circuit requires an LTP. The Trunk Group and member numbers of the LTPs must be the same as the Trunk Group and member numbers established in the IMLT database. All DFTAC LTPs are assigned to the same Trunk Group. Each host office, RSM or RSM cluster must have a unique Trunk Group of LTPs.

The MDFTA form (5502 Record) is used to define the MDF, MDF Trunk, DFTAC and the LTP.

Each DFTAC circuit for a LTP Trunk Group must be defined on a TKGRP form with the following characteristics:

- TGN - Same as TGN in IMLT database
- TRK DIR - LTP
- HUNT TYPE - FIFO
- TRKCLS- LTPDFTAC
- IAPT - Y
- OUTPUTSING - Leave Blank The LTP trunk members must be defined on TRUNK forms (5204 Record) with the following characteristics:
- MEMB - Same as MBR No. in IMLT database
- LTP - In same SM as DFTAC circuit

PGTC Requirements - The PGTC (Pair Gain Test Controller) is an optional, external facility used to test Universal SLC-96 lines. The PGTC, if configured, requires two MTBs (Metallic Test Buses) and two DPs (Distribute Points). In order to use the PGTC, it is necessary to wire two MTBs to the PGTC test circuit; one to the input and one to the output of the PGTC. In addition, two DPs are wired through the 5ESS Resistor Panel out to the Sleeve Control input of the PGTC test circuit.

Only one PGTC frame is allowed per host office. The host PGTC frame will always be identified as one (1).

RSM PGTC frames will always begin with the module number of the RSM. In the case of clustered RSMs, only one PGTC frame will service the cluster and the frame number will be that of the lowest numbered RSM in the cluster.

The following restrictions apply to PGTC configuration:

- An MSU/MMSU shelf can terminate no more than one PGTC test port.
- A PGTC test port must terminate on each MMSU where a DCTU port used for testing universal SLC-96 remote terminals terminates.
- Both MTBs must be assigned sequentially to the same MACC pack.
- Both DPs must be assigned sequentially to the same DIST pack.
- The MACC pack that terminates the MTBs must be in the same MSU/MMSU as the DIST pack that terminates the DPs.
- A minimum of one MTB assigned to the DCTU must terminate on the same MMSU service group shelf as the two MTBs assigned to the PGTC.
- For higher testing throughputs (PST), PGTC test ports must be assigned to each MMSU service group shelf where a DCTU port used for testing Universal SLC-96 remote terminals terminates.
- The Metallic Test Buses, Distribute Points, PGTC frame and trunk numbers must be defined on the PGTC form for offices equipped with a PGTC.

SEC. 2T: INTERFACE FOR DID PBX CHANNEL UNITS ON INTEGRATED SLC CARRIER SYSTEM

1. GENERAL

This feature is available in 5E6 and later Software Releases and allows Integrated SLC carrier systems to terminate PBX DID (Direct Inward Dialing) facilities on SLC remote terminals. A DID facility is a one-way trunk with loop reverse-battery signaling supporting either dial tone or dual tone multifrequency outpulsing.

This feature also provides fraud control capabilities. These include blocking the forward talk path until answer supervision is returned to the switch by the PBX, and generating AMA "study" records of calls over DID facilities when answer supervision is not returned within a specified time limit. These fraud control capabilities (path blocking and AMA recording) are applicable to all PBX DID configurations supported by the 5ESS switch.

2. TRANSLATION REQUIREMENTS

SLCCU (5107 Record)

This record is used to define

an integrated SLEN (SLC-96 Line Equipment Number). For DID facilities, the SLEN defined on this form is assigned to the trunk on the TRUNK form (5204 Record). The channel unit in the Remote Terminal that is terminating the DID facility must be defined on the SLCCU form as "DID" or "DIDDPT".

TRUNK (5204 Record)

Assign a SLEN on this record if the trunk is a DID facility terminating on an integrated SLC-96 remote terminal. The channel unit in the Remote Terminal that is terminating the DID facility must be defined on the SLCCU form (5107 Record) as "DID" or "DIDDPT".

AMACT (5506 Record)

The DIDSTUDY call type has been added to this form to allow an AMA study record to be generated as a means of fraud control for the call on the DID facility. The study is generated after a specified time interval has elapsed; this interval is defined on the OFCOPT form (5629 Record).

OFCOPT form (5629 Record)

The DID TIMEOUT field has been added to determine the amount of time in minutes that a DID facility will be terminated without receiving answer supervision from the PBX. When this time elapses, an AMA DID study record will be generated.

SEC. 2U: BASIC RATE INTERFACE DIAL UP TEST LINE BASIC RATE INTERFACE VERIFICATION

1. FEATURE DESCRIPTION

1.1 Overview

Custom BRITL (BRI Dial Up Test Line) is available with 5E5 and later Software Releases. This feature allows the operating company to test a DSL (Digital Subscriber Line) from the CPE end of a custom DSL. The Custom BRITL feature provides the operating company the ability to provide a telephone number which may be used to gain access to a test facility from a CPE which has circuit-switched voice service. Once access is gained from the CPE, the field craft may run the following tests:

- Verify the LCEN (Line Card Equipment Number)
- Verify the Primary TN of the DSL.
- Run Bit Error Rate Tests on a selected B-Channel.

For 5E6 and later, the Custom BRITL feature is expanded to allow for a billed Custom BRITL call. If the end user subscribes to this feature, the bill is based on the duration of the call. The nonbilled call is available for the craft as a maintenance tool; no billing record is generated.

The tester will be allowed to run the following tests:

- Verify features that are assigned to Feature Buttons.
- Verify TNs which are associated to a Call Appearance.

For 5E7 and later, as an alternative to assigning the Custom BRITL access codes on digit analysis forms, the billed and nonbilled codes may be assigned on the LINE form. This offers the switch owner greater flexibility in the assignment of Custom BRITL test lines.

For 5E8 and later, the Custom BRITL feature has been expanded to allow access to both billed and nonbilled Custom BRITL from an IDCU (Integrated Digital Carrier Unit) DSL. With the exception of testing terminations to BRITL CUs, the tester will be allowed to run all previous tests. Additionally, the tester may run the following test:

- Verify the IDCU Line Equipment Number.

For 5E10 and later, the tester may run the following additional test:

- Verify the ISLU2 line equipment number

For 5E10 and later, the BRIV (Basic Rate Interface Verification) feature provides the capability to identify the office equipment connected to a standard ISDN BRI access line right from the customer premises. The BRIV feature is accessed by dialing an access code from an ISDN terminal connected to a standard ISDN BRI access line provisioned for Circuit Switched access, either voice or data. For more information on NI-3 BRIV see Division 2, Section 1AM on National ISDN features.

1.2 Service Restrictions

In order to use Custom BRITL from a CPE, the CPE must be bound to a user profile, which is allowed to originate voice calls. Originations from Default Service are allowed on both multipoint, single point, and Standard DSLs. Circuit Switched Data and Packet Switched Data calls are not allowed to use Custom BRITL.

In order to use BRIV from a standard CPE, the standard ISDN BRI access line connected to the CPE must be provisioned for Circuit Switched access, either voice or data.

1.3 Sample Procedure for Custom BRITL

The following procedure provides an operational test of a DSL by making a voice origination, verifying the LCEN (5E5 and later) or IDCU Line Equipment Number (5E8 and later) or the ISLU2 Line Equipment Number (5E10 and later), verifying the Call Appearances and the Feature Buttons, and invoking digital tests on the B-Channels.

- At the CPE, go off-hook and dial the Custom BRITL access code. A secondary dial tone will be heard and a message will be seen on the CPE display indicating a successful origination to the BRI Test Line. From this point on, a second dial tone will indicate that the Custom BRITL keypad commands may be entered. See Figure 1 for the keypad command sequences.
- Verify LCEN (5E5 and later) or IDCU Line Equipment Number (5E8 and later) - enter *3# on the keypad. The equipment number will be displayed on the CPE.
- Verify Primary TN - enter *4# on the keypad. The Primary TN or the Multiline Hunt Group and member number will be displayed on the CPE.
- Test Call Appearances and Feature Buttons - press the CA or FB. The TN or Feature associated with the button will be displayed on the CPE.

Note: Depending on the CPE, the display for the Call Appearances may be abbreviated.

- If necessary, set the default digital test parameters. See Figure 1 for the keypad command sequences.
- Test Channel B1 - enter *111#. The test results will be displayed on the CPE when the test is complete. If the test fails, try using another loopback termination (e.g., CPE, NT1, BRITE CU, or line termination).
- Test Channel B2 - enter *112#. The test results will be displayed on the CPE when the test is complete. If the test fails, try using another loopback termination (e.g., CPE, NT1, BRITE CU, or line termination).
- Terminate the BRI Test Line call by going on-hook.

Note: The user must go off-hook before a non-BRITL origination (e.g., use of a Feature Button or Call Appearance) can be made.

1.4 BRI Test Line Call Treatments

The following treatments may be heard during a Custom BRITL call:

- Continuous Dial Tone - Waiting for new command from CPE.

- One Burst of High Tone - Test has succeeded.
- Two Bursts of Low Tone - Test has failed.
- Ringing - Digital Test is waiting for test equipment.
- Busy - Digital Test has aborted.
- Silence - Test is still running.
- Reorder - A test call using the billing Custom BRITL access code from a CPE which has BRITL ALW equal to "N" on the DSLUSR form.

1.5 Sample Procedure for BRIV

From CSV line on the customer premise enter a 3-digit or 7-digit access code on the key pad of the Standard CPE. If the access code is successful, the user will hear an audible ring tone for 2 seconds for a voice call. The CPE then displays "connected" indicating a successful connection to the BRIV feature. The word "connected" is displayed for 1 second, and then the office equipment number is displayed for 60 seconds or until the user drops the call.

2. TRANSLATION ASSIGNMENTS

For 5E5 and later, the feature may be assigned by entering the LDIT form with the following field values.

LDIT Form (5303-3 Record)	
Field	Value
LDIT	The LDIT that the ISDN lines are using.
INCOMING DIGITS	A three- or seven-digit access code used to gain access to the Custom BRITL feature from the CPE.
CALL TYPE	"BRITL" is used for non-billed BRITL calls; for 5E6 and later, "BBRITL" may be used for billed CustomBRITL calls.
TYPE OF CI CALL	"NONCI"
NBR OF DIGITS	3 or 7, depending on the size of the access code.

For 5E6 and later, the Custom BRITL feature may be assigned in the Office Dialing Plan and/or the Individualized Dialing Plan. The following forms may be entered to access the Custom BRITL feature.

PDIT Form (5303-2 Record)	
Field	Value
PDIT	The PDIT that the ISDN lines are using.
DIGITS TO INTERPRET	The Custom BRITL access code.
CALL TYPE	"FEATURE"
TYPE OF CI CALL	"NONCI"
FEATURE	"/"
ACTION	"BTLUSE" for non-billed BRITL calls; "BBTLUSE" for billed Custom BRITL calls.
PREFIX	"NONE"

IDPDCA Form (5601-1 Record)	
Field	Value
IDP GROUP NAME	The IDP group of the ISDN lines.
INCOMING DIGITS	The Custom BRITL access code.
DIALING STATE	"NORMAL"
ACTION	"BTLUSE" for non-billed BRITL calls; "BBTLUSE" for billed Custom BRITL calls.
FEATURE	"/"

For 5E6 and later, a DSL circuit-switched voice user may subscribe to billed Custom BRITL. The BRITL ALW field on the subscriber's DSLUSR form must be "Y". If the user places a test call to a billing Custom BRITL number, and the BRITL ALW field is not "Y", the caller receives a reorder tone to signal that the call is rejected. If BRITL ALW is "Y", the billed Custom BRITL call proceeds and a billing record is produced after the test call is completed.

DSLUSR Form (5908 Record)	
Field	Value
BRITL ALW	"Y" must be entered for billed Custom BRITL access only.

For 5E7 and later, the Custom BRITL feature may be assigned on the LINE form.

LINE Form (5109 Record)	
Field	Value
TN	7-digit Telephone Number, the Custom BRITL access code
PTY	"I" (Individual)
RAX	Rate Area. See the note for LCC.
LCC	Line Class Code. The LCC and RAX on this form must be defined on an LCC form where Service Class and Terminating Treatment are "TEST".
RTI	0
TEST CODE	"BRITL" for non-billed BRITL calls; "BBRITL" for billed Custom BRITL calls.

3. REFERENCES

235-190-105. *5ESS Switch ISDN Feature Description.*

KEYPAD SEQUENCE	ACTION	SOFTWARE RELEASE
*111#	Run BER Test on Channel B1 with current parameters	5E5 and later
*112#	Run BER Test on Channel B2 with current parameters	5E5 and later
*120#	Display current Test Termination	5E5 and later
*121#	Set test termination to CPE default setting	5E5 and later
*122#	Set test termination to NT1	5E5 and later
*123#	Set test termination to line termination	5E5 and later
*1241#	Set test termination to BRITE CU1	5E6 and later
*1242#	Set test termination to BRITE CU2	5E6 and later
*1243#	Set test termination to BRITE CU3	5E6 and later
*1244#	Set test termination to BRITE CU4	5E6 and later
*1245#	Set test termination to BRITE CU5	5E6 and later
*1246#	Set test termination to BRITE CU6	5E6 and later
*130#	Display current test duration	5E5 and later
*131#	Set test duration to 20 seconds default setting	5E5 and later
*132#	Set test duration to 2 seconds	5E5 and later
*133#	Set test duration to 20 minutes	5E5 and later
*140#	Display current test data rate	5E5 and later
*141#	Set current test data rate to 64k Clear	5E5 and later
*142#	Set current test data rate to 64k Restricted	5E5 and later
*143#	Set current test data rate to 56k Clear default setting	5E7 and later
*2#	Send alerting signal to CPE	5E5 and later
*3#	Print LCEN on CPE display	5E5 and later
	Print IDCEN Line Equipment Number on CPE display	5E8 and later
	Print ISLU2 Line Equipment Number	5E10 and later
*4#	Print Primary TN/MLHG on CPE display	5E5 and later
*0#	Repeat previous message (display/tone)	5E5 and later

Figure 1 BRITL KEYPAD COMMAND SEQUENCES

SEC. 2V: IMPROVED DLC OPERATIONAL STATUS INDICATIONS

1. BACKGROUND

When the lines on ISLC (Integrated Subscriber Loop Carrier) systems are tested by a non-integrated MLT (Mechanized Loop Test System) via the "No Test Trunk" interface, indications of "test pair busy" and "carrier alarm" are needed to achieve a desired high testability index.

The MLT system when testing ISLC configurations, receives an "overflow" signal from the switch when a Test Pair Busy or Carrier Alarm condition exists. The "overflow" signal is translated to a trouble identification code of B0. This is the same trouble identification code that is used when the switch cannot setup a test because of a routing failure or because of a lack of switch resources or because internal switch test paths are not available. Prior to this feature the signal from the switch and the resulting code B0 did not provide a sufficiently detailed and useful description of the trouble on the line.

2. FEATURE DESCRIPTION

The Improved DLC (Digital Loop Carrier) Operational Status Indications Feature (99-5E-2678) is available with the 5E8 and later software release.

The Improved DLC (Digital Loop Carrier) Operational Status Indications Feature sends the "intercept" signal for "DN is ISLC with Carrier Alarm" and "DN is ISLC with Test Pair Busy" instead of the "overflow" signal when MLT responds with the "open sleeve" signal. The feature provides one of two new responses to the "open sleeve" in order to provide and identify the "DN is ISLC with Carrier Alarm" and "DN is ISLC with Test Pair Busy" status on top of the existing "DN is on Intercept status". This feature separates the 500 ohm ring ground from the 480Hz tone, which currently are sent together (the intercept signal), and allow the feature to provide the 500 ohm ring ground signal without the 480Hz tone (indicates Carrier Alarm status) and the 480Hz tone without the 500 ohm ring ground signal (indicates Test Pair is Busy status).

3. FEATURE ASSIGNMENT

The provisioning of Improved DLC Operational Status Indications is done on the TKGRP form (5202 Record RC view 5.1). With the TRK CLASS field set to "TSTK" and the TRK DIR field set to "INCOM", set the MLT ISLC OPT field to "Y". See Figure 1 for feature assignment form flow for Improved DLC Operational Status Indications.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP form (5202 Record) - The 5202 Records is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

For 5E8 and later the MLT ISLC OPT field was added to support the Improved DLC Operational Status Indications feature.

5. GLOSSARY

DLC Digital Loop Carrier

DN	Directory Number
ISLC	Integrated Subscriber Loop Carrier
MLT	Mechanized Loop Test (System)
MTP	Metallic Test Pair
RT	Remote Terminal
TBCU	Test Bus Control Unit

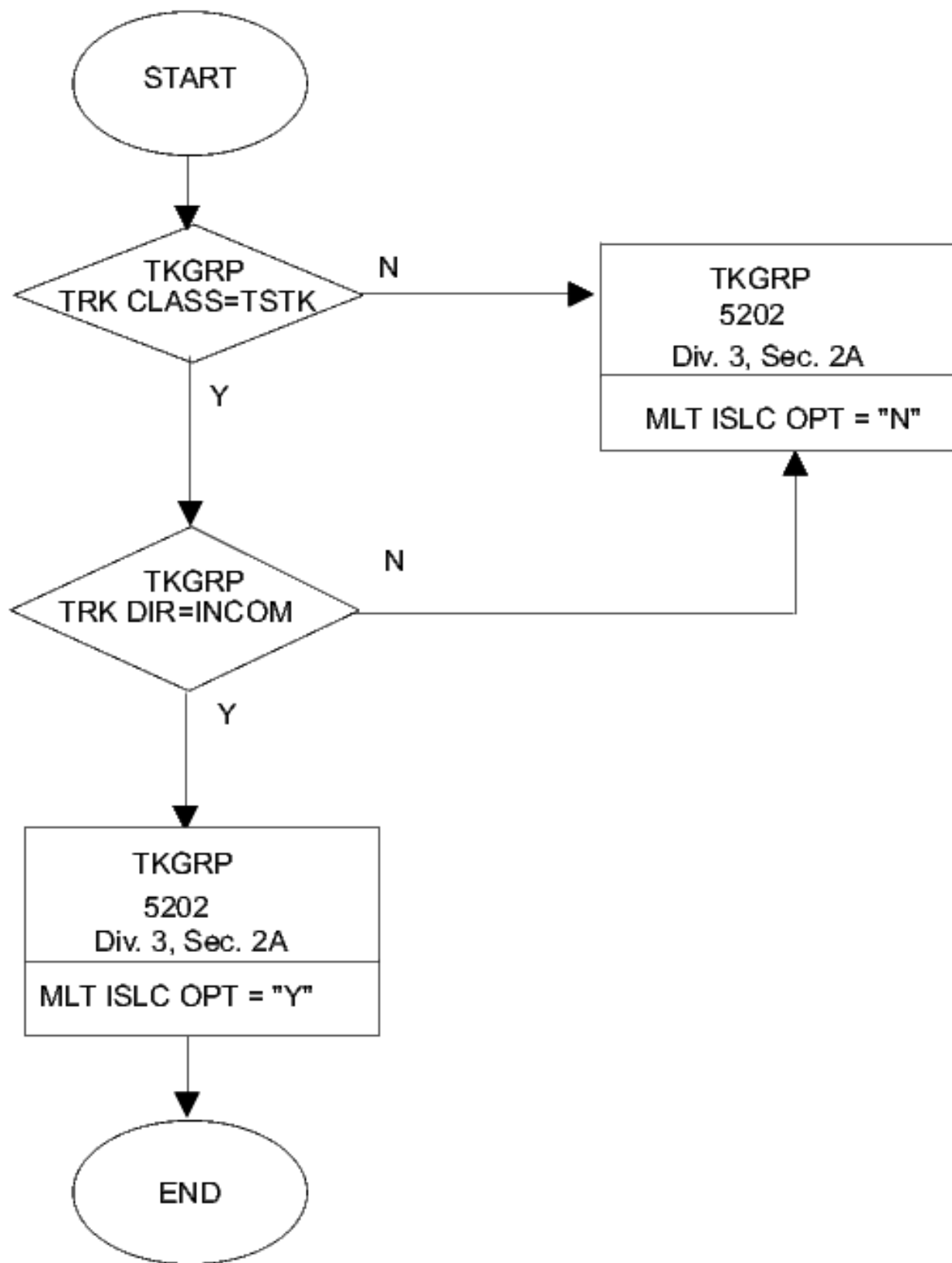


Figure 1 FORM FLOW FOR ASSIGNING IMPROVED DLC OPERATIONAL STATUS INDICATIONS

SEC. 2W: AUTOMATIC POWER RECOVERY

1. FEATURE DESCRIPTION

The feature number for the APR (Automatic Power Recovery) feature is 99-5E-2404. This feature is available with the 5E10 and later Software Releases for the SM, SM-2000, CDX (Compact Digital Exchange), and VCDX (Very Compact Digital Exchange) switches. This feature controls the application and removal of power. It is designed to increase the efficiency of sustaining call processing functions during a power outage which can occur when commercial AC (Alternating Current) power is not present, an office battery is in deep discharge, and/or when backup (diesel) power is not available to sustain call processing functions. It allows the recovery of the switch without depending on SCC (Switching Control Center) action or travel to the site before recovery can be initiated.

With APR, the switch recovers automatically from an extended AC power outage, for a short duration outage, or for transient power losses, possibly due to technician errors. Once system power is restored, manual on-site intervention is not required to physically charge capacitors, enable power start circuit packs, start TASTECH converters, or to re-initialize software. In addition, no pre-charging of GPDF (Global Power Distribution Frame) load fuse positions is required.

Full recovery for all switch hardware (AM, CM, and SM core, both host and remote peripherals is provided. However, APR for Line Units 1 and 2 is not supported because power startup for these units requires the technician to manually remove fuses to prevent circuit pack damage. In addition, APR is not applicable for the ISLU (Integrated Service Line Unit) and the PH1 (Protocol Handler 1).

Once power is restored, any other hardware entities (e.g., Common Network Interface) may need manual intervention for complete restoration to a call-processing-capable state.

To implement APR, the EXPANDED CMP/APR field on the EQCORE form (5701 Record) must be defined and the APR field on the ECDOPT form (5706 Record) must be set to "Y". In addition, the following circuit packs had CLI changes.

Circuit Pack	Unit	ODA Form	Field Name
TN831C/ TN832C	LU3	EQLUP	GDX ACCESS CKT
TN833C	ISTF	EQISTF	CLI
	RAF	EQRA	CLI
	MCTU2	EQIM	LDSU
TN1058C	LU3	EQLUP	LU GRID
TN1077E	MCTU2	EQIM	DLI
TN1082B	PSUI	EQPSU	SG0,1 CLI
SN516B	RCU	EQRCLK	CLOCK CLI
SN730	DLTU-R	EQDUP	CLI
	DLTU2	EQDUP	CLI
UN192B	PSUI	EQPSU	SHLF CLI
UN516B	MCTU2	EQIM	IMPU

Note that the following equipment supports APR, but no APR CLI is required for these units:

- SM-2000/SMPU4/TSIU4/DSU3
- MCTU3
- PSU2

Refer to Division 8, Section 1 for CLI (Change Level Indicator) information.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	N/A
EQCORE	5701	8	3	17.1
Equipment Assignment	N/A	8	1	N/A

ECDOPT form (5706 Record) - This form is used to translate all options in the AM for initial offices. The APR field is added to specify (Yes, No) the availability of APR.

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments in a 5ESS Switch office. The EXPANDED CMP field was modified to include APR (i.e., EXPANDED CMP/APR).

Equipment Assignment - This TG-5 section provides CLI value information for all affected forms. CLI values for the APR circuit packs were added.

SEC. 2X: TTF REQUIREMENTS TABLE

1. GENERAL

The following table can be used to calculate the limits on LTPs (Logical Test Ports) that can be added per Test Trunk type per SM according to their existing hardware equipage. This table provides guidelines for engineering TTFs (Transmission Test Facilities).

TTF Requirements Table		
TG-5 Section	Trunk Class	MAXLTPS Calculation
Div. 2, Sec. 2D	LTPICTC	MAXLTPS <= (# of txcvr + # of gtxcvr + (3 x ttfproc) + # of ttffresp)
Div. 2, Sec. 2F		
Div. 2, Sec. 2C	LTPOGTC	MAXLTPS <= (# of txcvr + # of gtxcvr + (2 x ttfproc) + # of ttffresp)
Div. 2, Sec. 2G	LTPOTOTF	MAXLTPS <= (# of gtxcvr + # of ttfdptc)
Div. 2, Sec. 2H	LTPWSTTF	MAXLTPS <= (2 x # of txcvr) + (3 x ttfproc) + # of ttffresp)
Div. 2, Sec. 2I	LTPROTL	MAXLTPS <= (# of gtxcvr + # of ttfdptc)
Div. 2, Sec. 2L	LTPDGTTF	MAXLTPS <= (# of tgen + # of txcvr + # of gtxcvr + ttfggen + (2 x # of ttffresp))
Div. 2, Sec. 2L	LTPS96TF	MAXLTPS <= (# of gtxcvr + # of ttfdptc)
Div. 2, Sec. 2P	LTPELSTF	MAXLTPS <= (# of gtxcvr + # of ttfdptc)
TTF Per SM Equipage (GDSU)		
ttfproc	Processor (Interface Brd) (1)	
ttfggen	Tone Generator (1)	
ttffresp	Tone Responder (1-3)	
ttfdptc	Port-to-Carot Tone Detector	
GDSF Per SM Equipage		
tgen	GDSF Tone Generator (24 max)	
txcvr	GDSF Tone Transceiver (12 max)	
gtxcvr	Guard-Data-Guard Tone Transceiver (6 max)	

Figure 1 TTF REQUIREMENTS TABLE

SEC. 2Y: ASP TIMEOUT ALARM

1. FEATURE DESCRIPTION

The ASP Timeout Alarm feature is available with the 5E15 Feature Release 3 and later Software Releases. The feature number is 99-5E-7172.

This feature provides a major alarm as an indication for when a timeout indicator exceeds a particular threshold previously set by the switch owner. The alarm serves as an identification of conditions that may require corrective action for potential service-affecting problems. The ASP Timeout Alarm feature allows the switch owner the ability to set thresholds in accordance with changing traffic conditions.

The major alarm generated is audible and visible on the 118 MCC (Master Control Center) page and recorded in ROP (Read Only Printer). The craft sees an indication on the 118 MCC page and hears an audible alarm as well as ROP indication for the alarm.

2. FEATURE ASSIGNMENT

To use this feature, the TIME INTERVAL and ALARM THRESHOLD fields must be set on the ASPOPT form (5670 Record). The alarm on the MCC and ROP appears when the percentage of ASP timeout queries is exceeded in a given time interval entered on the ASPOPT form. (See Division 4, Section 31G.)

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPOPT	5670	4	31G	8.49

ASPOPT form (5670 Record) - This form is used to define ASP office parameters for a switch. For 5E15 and later, added the ASP TIMEOUT ALARM field group heading and the associated TIME INTERVAL and ALARM THRESHOLD fields.

SEC. 2Z: DELETE CONSTRUCTED FEATURES VIA AUDIT TOOL

1. FEATURE DESCRIPTION

The Delete Constructed Features via Audit Tool feature is available with the 5E14 and later Software Releases. The feature number is 99-5E-7712.

Starting from the 5E13 generic "use_count" is no longer updated for information for BRCS (Business and Residential Custom Services) constructed features. Also the Recent Change Capacity Improvement feature (99-5E-4539) released in the mentioned generic, removed delete options from RCV (Recent Change/Verify) BRCS views, thus eliminating any possibility of deleting constructed features. This feature (99-5E-7712) is being implemented to allow the deletion of constructed features. The primary function of the tool is to check whether or not a BRCS constructed feature is being used and then delete it if requested. Craftshell input/output messages are provided for the BRCS feature audit.

The audit generates a report of the usage of selected features. It checks the usage of BRCS constructed features by MFTYPE. The MFTYPEs supported are listed below. The output file provides the information indicating whether or not a BRCS constructed feature is being used and also which TNs (Telephone Numbers) are using it. If the feature has not been currently assigned to any TN, the corresponding tuples in base relations can be removed. It also allows the user to delete constructed feature definitions that are no longer assigned to any subscriber lines or used in other related relations.

The feature types that will be audited are:

Individualized Dialing Plan, IDP

Call Waiting, CWT

Call Forwarding, CFW

Terminal Group, TGR

Time of day, TOD

Multiway, MWY

Pick Up Originating, PUO

Pick Up Terminating, PUT

Automatic Route Selection, ARS

Private Facilities, PFA

Distinctive Ringing, DR

Multiline Hunt Group, MLHG

Auto-Call-Back Calling, ACBC

Modular Queuing, QU

Precedence And Preemption, PP

Account Code, ACCT

Message Detail Recording, MDR
Authorization Code, ATH
LASS Automatic Callback, AC
LASS Automatic Recall, AR
Customer Originated Trace, COT
Automatic Customer Station Rearrangement, ACSR
Electronic Directory Service, EDS
Message Desk Service, MDS
Display Features, DISP
Line Identification Features, LID
ISDN Intercom, ICM
Attendant Control, ACTR
ID after IDP/SC split, ID
SC after IDP/SC split, SC
LASS Selective Call Acceptance, SCA
LASS Selective Call Forwarding, SCF
LASS Selective Call Rejection, SCR
LASS Selective Distinctive Alert, SDA
CPN Features, CPI
Home Intercom Single Line Variety, HI
Redirecting Number Delivery, RND
Bulk Calling Line Identification, BCLID
Advanced Service Interface, ASI
Advanced Services Platform Originating, ASPO
Advanced Services Platform Terminating, ASPT
Advanced Services Platform Non-Call, ASPN

2. FEATURE ASSIGNMENT

This is a Recent Change only feature. There is no ODA impact.

SEC. 2AA: MOBILE TO LAND TEST CALL ON SELECTED TRUNKS

1. BACKGROUND

Before this feature, a test call originating from the suspect trunk and terminating to an adjacent switching office could be placed, but audible detection of echo canceller failure requires some delay in the call path. A call path with only the suspect trunk will not suitably reproduce the call path delay inherent in an end-to-end mobile-to-landline call path.

2. FEATURE DESCRIPTION

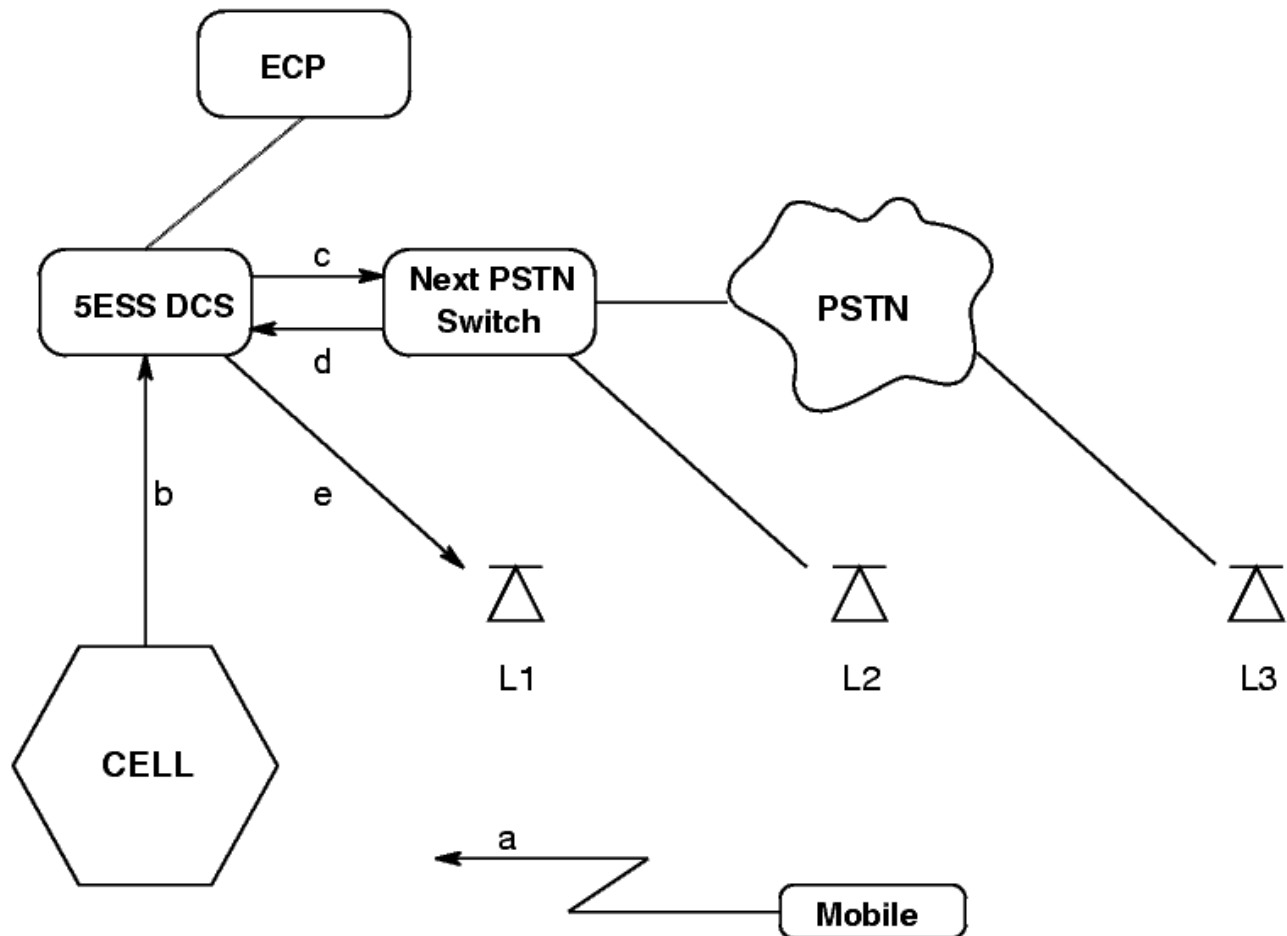
The Mobile to Land Test Call on Selected Trunks feature (99-5E-7995) is available with the 5E15 Feature Release 3 and later software releases. This feature provides wireless service providers with an audible means to verify customer complaints of poor transmission such as echo, static, warble, etc., on calls that complete over a particular trunk from the DCS (Digital Cellular Switch) to the PSTN (Public Switched Telephone Network). It provides wireless service providers with the capability to place a call over a specific trunk and talk over that connection to see if the conditions reported by a subscriber are also experienced by wireless service provider personnel over the part of the network that the wireless service provider has some control and maintenance responsibilities.

Specifically, this feature allows a mobile user to dial a service provider selectable Feature/Service Code, a called number, a trunk group number, a member number, and a route list selector number, all in a ""-delimited string of dialed digits, and the ECP will recognize the type of call, parse the delimited digit string, and cause the called number to be signaled out over the specified trunk from the DCS to PSTN. The trunk used on a given call from the DCS to the PSTN currently can be identified using the ECP (Executive Cellular Processor) AMA (Automatic Message Accounting) record made for the complaining subscriber's completed call.

3. TRANSLATION REQUIREMENTS

Figure 1 illustrates scenarios with three possible locations for the technician at the landline side of the test call. The connection that the mobile technician will specify for the test-call is labeled "c". The most probable scenario would utilize L1 where the technician on the landline side of the call is connected directly off the DCS in the wireless service provider's MSC (Mobile Switching Center). In this situation, it is necessary that a trunk connection (labeled "d") exist between the the PSTN switch and the MSC. This could be either a two-way trunk trunk group in which the suspect member resides or an entirely different trunk group. The airpath (labeled "a") and the cell-site connection (labeled "b") may not be exactly the same as the complainant's call.

This feature is independent of the type of air interface. It applies to both ISUP (ISDN User's Part) and MF (Multi Frequency) trunks outgoing from the DCS.

Figure 1**Figure 1 TEST CALL SCENARIO**

SEC. 2AC: PRESERVE THE SETTINGS OF TRAFFIC MEASUREMENTS REPORTS

1. FEATURE DESCRIPTION

The Preserve the Settings of Traffic Measurements Reports feature is made available with the 5E16(1) FR 2 (Feature Release 2) Software Release, and is associated with feature number 99-5E-7971.

This Feature allows the customer to save measurement settings prior to a retrofit, restore the settings upon completion of retrofit, and resume measurement collection activity on the same reports and components as were active before the retrofit.

Data to be restored after the retrofit include (if applicable):

- Collection/Print status of TRFC15 (15 minute traffic report) report

- TRFC30 (30 minute traffic report) Sections allowed for collection

- TRFC30 Sections allowed for Print

- TRFC30 Sections allowed for TRFCH (Traffic channel (APX))

- All Components of TRFC30 Sections allowed for collection via RC/V (Recent Change/Verify) or MML (Man-Machine Language) command

- All Components of TRFC30 Sections allowed for print on the ROP

- TRFC30 Interval (30 or 60 minute interval)

- Collection/Print status of Hourly Traffic Separation Report and 24 Hour Traffic Separation Report

- Collection/Print status of Hourly Plant Report, 24 Hour Plant Report and Monthly Plant Report

New MML commands are introduced to initiate the saving of settings of the various reports, sections, and components associated with the measurements, and restore the saved settings upon completion of the retrofit. To acquire valid traffic measurement data after retrofit and restore the saved data, a complete interval after the restore is required.

New MML commands associated with this feature:

- BKUP:TRFM[,UCL]

- RST:TRFM[,NOCHG]

2. FEATURE ASSIGNMENT

This feature has no ODA impact and no provisioning is needed.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

MEASRET	N/A	3	5BR	N/A

MEASRET form (Record) - This form is used to retrofit the TRFMSET Relation. This is a new form that supports this feature.

SEC. 2AD: AUTOMATIC PROGRESSION TESTING (APT) ENHANCEMENTS

1. FEATURE DESCRIPTION

The APT (Automatic Progression Testing) Enhancements feature is made available with the 5E16(2) Software Release, and is associated with feature number 99-5E-8150.

This feature enhances the APT base capability to accommodate 256K trunk offices, by increasing the number of simultaneous tests that can be initiated by APT, without changing the maximum duration of the schedule (8 hours per day) and the office cycle time (complete within a month). The 256K trunk offices are grown to capacity using the capability related to the 256K DS0 Trunk Scaling feature. For more information on this feature see, Division 2, Section 4B990. Also for information on the base APT feature see, Division 2, Section 2B.

After the deployment of the 256K DS0 Trunk Scaling feature, customers are able to be equipped with 256,000 trunks in an office. This enhancement feature speeds up APT testing capabilities for 256K trunk offices.

The enhancement feature covers the following:

- Increases the number of the TM (Terminal Maintenance) processes that can be run concurrently to test trunks using APT.

- New testing algorithms which manage testing of trunk groups, from office levels and DS1 (Digital Signal Level 1) facility levels.

- The previous APT testing mode for digital trunks is preserved, and defined as one of the new testing algorithms, "Sequential".

- The previous APT testing mode for analog trunks is preserved. The new office and DS1 test algorithms are not applicable.

- The previous input/output user interfaces for APT are preserved.

2. FEATURE ASSIGNMENT

This feature can be activated on the OFCOPT form (5509 Record), and RC/V (Recent Change/Verify) view 8.1, by setting the ALGORITHM field to a value other than "SEQN" (Sequential). The number of concurrent APT processes run during an APT session can be changed from the PROCS NBR field.

For trunks on a particular digital trunk unit, it is possible to use an APT algorithm different from that being set for the office (i.e., value of the ALGORITHM field on RC/V view 8.1) as follows:

- for the DLTU/DLTU2 (Digital Line and Trunk Unit), go to the EQDUP form (5730 Record), RC/V view 20.4, and set the ALG FAC 0 field and/or the ALG FAC 1 (the latter only for DLTU2 unit) field to a required value.

- for the DNU-S (Digital Networking Unit - SONET (Synchronous Optical Network)), go to the EQVT form (5858 Record), RC/V view 20.24, and set the ALGORITHM field to a required value.

- for the PLTU (PCT (Peripheral Control and Timing) Line and Trunk Unit.) go to the EQPCTT form (5871 Record), RC/V view 20.27, and set the APT ALG (ODA), or ALGORITHM (RC) field to a required value.

These fields are different for ODA and RC because of the differences in the screen layout of the two.

for the OIU (Optical Interface Unit), go to the EQLVC form (5764 Record), RC/V view 20.31, and set the ALGORITHM field to a required value.

This feature can be deactivated on the OFCOPT form, RC/V view 8.1, by setting the ALGORITHM field to "SEQN" (Sequential), and the PROCS NBR field to 2. Then the APT algorithm set for a specific digital trunk unit on the EQDUP, EQVT, EQPCTT, or EQLVC forms, RC/V views 20.4, 20.24, 20.27 or 20.31, respectively, has no impact on the way the trunks are tested until the APT algorithm for that office is changed to a value other than "SEQN" (this means that the APT Enhancements feature is active).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDUP	5730	8	17	20.4
EQLVC	5764	8	89	20.31
EQPCTT	5871	8	75	20.27
EQVT	5858	8	60	20.24
OFCOPT	5509	3	51	8.1

EQDUP form (5730 Record) - This form is used to define equipment location information for the Digital Line/Trunk Units. Added the ALG FAC 0 and ALG FAC 1 fields and associated data rules.

EQLVC form (5764 Record) - This form is used to insert, review, update, and delete LVCs (Low Level Virtual Containers) and their associated container information. Added the ALGORITHM field and associated data rule.

EQPCTT form (5871 Record) - This form is used to support the MSM (Multi Service Module) on PLTU (PCT Line and Trunk (virtual)) Unit. For more information on this feature see Division 2, Section 7AP. Added the APT ALG field and associated data rule.

EQVT form (5858 Record) - This form is used for the equipage of the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S - feature number (99-5E-1427). For more information on DNU-S, see Division 2, Section 9C. Added the ALGORITHM field and associated data rule.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. Added the ALGORITHM and PROCS NBR fields and associated data rule.

SEC. 2AE: ENHANCED TLP FOR E-BUS CABLES

1. BACKGROUND

Traditionally cables are not placed upon a TLP (Trouble Location Procedure). The complicated nature of the E-Bus requires cable information be made available explicitly. The alternative methods (such as searching through installation documentation) are too laborious and error prone. This feature remedies this situation.

2. FEATURE DESCRIPTION

The Enhanced TLP for E-Bus Cables feature is being deployed in the 5E15 FR 5 (Feature Release 5) Software Release. The feature number for this feature is 99-5E-7979.

This feature provides the capability of including E-Bus cables on a TLP ROP (Read Only Printer) message. A TLP is produced when a diagnostic detects a faulty condition. The TLP is used by the technician to locate/replace the faulty hardware.

This feature creates a TLP which lists E-Bus cables associated with suspect faulty equipment. It is an enhancement to the CM2 TMS (Communication Module 2 Time-Multiplexed Switch) diagnostic.

3. FEATURE ASSIGNMENT

The feature has no ODA impact, therefore no provisioning is needed.

SEC. 2AF: TLP BASED UPON HISTORICAL ROP

1. FEATURE DESCRIPTION

The TLP (Trouble Location Procedure) Based upon Historical ROP (Read Only Printer) for E-Bus Cables feature is being deployed in the 5E15 FR 5 (Feature Release 5) Software Release. The feature number for this feature is 99-5E-8008.

This feature provides the capability of including E-Bus cables on a TLP ROP (Read Only Printer) message. A TLP is produced when a diagnostic detects a faulty condition. The TLP is used by the technician to locate/replace the faulty hardware.

This feature creates a TLP which lists E-Bus cables associated with suspect faulty equipment. It is an enhancement to the CM2 TMS (Communication Module 2 Time-Multiplexed Switch) diagnostic.

2. FEATURE ASSIGNMENT

The feature has no ODA impact, therefore no provisioning is needed.

SEC. 2AG: OUTPUT MESSAGES FOR METALLIC PATH SETUP FAILURES

1. BACKGROUND

Output Messages for Metallic Path Setup Failures is a new feature that replaces all of the metallic blockage and failure PTRACEs with a new output message. This new output message is more user friendly and gives the service providers the information they need to be able to resolve the problem. The printing of the new output message is controlled by new options on the ALW:DEBUG and INH:DEBUG input messages. PTRACEs need not be turned on to get the new output message so that the noise from the ROP (Receive/Read Only Printer) is less when investigating metallic problems.

2. FEATURE DESCRIPTION

The Output Messages for Metallic Path Setup Failures feature (99-5E-4718) is being deployed as a 5E12 and 5E13 Software Update and for the BMI (Beginning Managed Introduction) of the 5E14 Software Release.

This feature replaces the metallic PTRACEs with an output message which reports failures in the setup of metallic paths for metallic testing of trunks or lines. This information is available for all metallic testing whether initiated from an OS (Operations Support), like IMLT (Integrated Mechanized Loop Testing), or switch based TLWS (Trunk and Line Work Station), like SLIM (Subscriber Line and Instrument Measurement).

When the metallic path setup does not succeed, an output message indicates the cause and provides information about the metallic path being setup at the place the failure occurred. The printing of the new output message is controlled by the ALW:DEBUG input message. There are two types of the new output message REPT METALLIC, blockage and failure. An input message is provided to enable or disable the printing of the new output message. This is used to determine if only blockage problems, only failure problems, or all metallic problems should be printed. The ALW:DEBUG input message gives the flexibility of enabling the printing of none, both, just blockages, or just failures. A blockage is when a resource needed to setup the metallic path is unavailable and a failure is when the metallic path setup is not successful for another reason. When a metallic path is requested from any source that uses MSU (Metallic Service Unit) metallic resources and the request fails, an output message is printed if it is allowed, to help isolate the cause of the metallic path setup problem. There is also a new input message OP:DEBUG to show which flags are set.

SEC. 2AH: TST PSLNK ENHANCEMENT

1. FEATURE DESCRIPTION

The TST PSLNK feature (99-5E-8477) is being made available with the 5E17(1) FR 3 and later Software Releases.

This feature provides a new delay option to the existing `tst:pslnk` command that indicates when ATM (Asynchronous Transfer Mode) delay information should be output. The delay is reported in micro seconds and includes the PHA (Protocol Handler for ATM) processing and scheduling overhead as well as the ATM delay time that was measured during the completion of the test.

SEC. 2AI: HUNG LTP TRUNKS

1. FEATURE DESCRIPTION

The Hung LTP (Local Test Port) Trunks feature (99-5E-8461) is being made available with the 5E16(2) FR 4 and later Software Releases.

This feature provides an audit that can tear down LTP trunks that become hung and unavailable for use, even though the hardware is in-service with no switch indication of an OSS (Operations Support System), any other user, or any problem conditions.

SEC. 3: OPERATOR SERVICES POSITION SYSTEM FEATURES

SEC. 3A: OPERATOR SERVICES POSITION SYSTEM (OSPS)

1. INTRODUCTION

OSPS (Operator Services Position System) is a feature of the 5ESS Switch that is provided with 5E3 and later Software Releases. It facilitates the integration of operator/attendant services on a 5ESS Switch. An OSPS can be used to provide DA (Directory Assistance) service (i.e., 411), ACD/MIS (Automatic Call Distributor/Management Information System) telemarketing services such as order processing and TA (Toll and Assistance) service to customers for completion of toll calls such as collect, calling card, person-to-person, bill to third number and rate requests.

Division 2 Section 3 is intended to serve as a guide to populating the ODA input forms required for operator services. It is subdivided into sections as described below.

Section 3a, OPERATOR SERVICES POSITION SYSTEM, explains the fundamental concepts of OSPS which pertain to all offices providing operator services. Such key concepts as serving teams, call types, ACD, etc., are explained. This should be read first before proceeding on to the section describing the particular feature of interest.

Section 3b, OSPS DIRECTORY ASSISTANCE, provides descriptive information pertaining specifically to the OSPS DA feature, which is available in 5E3 and later Software Releases. A high level functional overview is given, followed by a summary of the required ODA input forms.

Section 3c, LISTING SERVICES, describes the Listing Services features for 5E6 and later Software Releases.

Section 3d, ACD/MIS TELEMARKETING SERVICES, describes the telemarketing services from a functional perspective. These services are available in 5E4(2) and later Software Releases.

Section 3e, TOLL AND ASSISTANCE, describes the OSPS TA services both functionally and from an ODA input form standpoint. This is the largest and most complex section since there are a large number of features provided by Toll and Assistance. The OSPS concepts described earlier are expanded upon, and an overall "road map" to all of the ODA input forms pertinent to Toll and Assistance is provided to facilitate the use of these features. The Toll and Assistance features are available in 5E4(2) and later Software Releases, unless otherwise noted.

2. TRANSLATION REQUIREMENTS FOR ALL OSPS OFFICES

This section provides information which is relevant to all three of the major operator services - Directory Assistance, Telemarketing Services and Toll and Assistance.

TERMINOLOGY

The term "operator" is used frequently in this section. For ACD/MIS service, the generally accepted term is "agent". For the sake of simplicity, the term "operator" will apply to both operators and agents in this section. The term "position" refers to both the functional entity and physical equipment associated with a single operator's work station. In terms of terminal equipment, this could be a BST (Basic Services Terminal), a VDT (Video Display Terminal) or an APT (Agent Position Terminal).

3. CALL PROCESSING

Incoming calls to a 5ESS Switch are terminated on switching modules. When a call requiring OSPS services is detected, the switching module sends a message identifying the CALL TYPE to the administrative module. The administrative module then associates a CALL TYPE identifier to a serving team designated to handle

that specific CALL TYPE.

The ACD in the administrative module attempts to identify an idle operator position on the serving team by searching the data provided to the administrative module.

When an idle operator position is identified, the administrative module instructs the applicable switching module processor to seize the operator position. The operator at the position is alerted to the seizure by an audible tone, and call information is displayed on either the BST for directory assistance or on the VDT for Toll and Assistance.

For ACD/MIS teleservices applications, incoming calls are controlled by an ACD/MIS. Calls are routed to available agents on a serving team designated to handle specific types of calls. Management information for call centers serviced by a 5ESS Switch is provided through a comprehensive set of graphic and text reports.

4. OSPS SERVING TEAMS

A serving team is a collection of operators who share equally in providing service to a common collection of CALL TYPES. A maximum of 128 serving teams can be identified in the database. Each serving team must be assigned a number from 1 through 128. It is not necessary to assign serving team numbers sequentially.

When a serving team is assigned a number in the database, the OSPS administrator must define the capabilities and permissions of the serving team or accept system default values. The capabilities and permissions defined for the team apply to members assigned to the team. However, specific capabilities and permissions among team members may vary.

Serving team members are defined in the database using operator ID numbers. These ID numbers are operator login assignments. For OSPS DA and ACD/MIS applications, these IDs are 4-digit numbers, from 0000 through 8999. For OSPS TA applications, the IDs can include alpha characters as well as numeric characters. A typical ID for an OSPS TA operator might be "100A". Note that operator ID "100A" is not the same operator ID as "100a". Operator IDs 9000 through 9999 are reserved and, therefore, cannot be assigned.

RELATIONSHIP OF SERVING TEAM to CALL TYPES AND QUEUES

Incoming OSPS traffic is identified in the 5ESS Switch equipped with OSPS through trunk group, previous system action and digit analysis processes. Administrators of an OSPS define CALL TYPE data, including call identification screening information, into the database. This information is used by the 5ESS Switch in digit analysis processes to route incoming OSPS calls into call queues. These terms identify the smallest group of traffic that may be independently routed and share a common speed-of-answer service objective.

When a call queue is being defined in the database, there is a requirement that a principal serving team be assigned responsibility for handling calls in that queue. A serving team can be assigned responsibility for more than one queue, but a queue cannot be shared between or among principal serving teams (except with the 5E5 Software Release where Intraflow allows call queues to be shared between or among serving teams). The OSPS can accept 128 call-type definitions. Therefore, the OSPS is capable of handling 128 call queues.

For every call queue, queue parameters are required. Some parameters have default values that are automatically entered into the database if none are specified; others have no default values generated by the system and require an input from the administrator. For example, a queue requires a value for the maximum number of calls allowed in the queue. If the administrator does not enter a value, the default value entered by the system is "30" and the database will accept the queue definition.

For a different example, queues also require routing index values to route to the 13A recorded announcement machine. If the administrator does not enter a value, or enters an invalid value, there is no default generated by the system. The database will not accept the queue definition.

5. AUTOMATIC CALL DISTRIBUTOR (ACD)

The nucleus of an OSPS is the ACD (Automatic Call Distributor). The ACD assigns incoming calls to a CALL TYPE. Incoming calls that require operator assistance are placed in a queue for that CALL TYPE. Each queue is served by a team of operators. An operator is assigned to a serving team upon logging in at a position.

The ACD then distributes the incoming calls to serving teams designated by OSPS administration to handle specific CALL TYPES. A serving team consists of a group of operators trained in processing specific CALL TYPES.

When a specific call reaches the front of a queue, the ACD seizes the next available position in the team assigned to that queue. If the appropriate call queue is empty when a call arrives, then the ACD immediately seizes the position at the front of the idle-operator queue (usually the operator who has been idle the longest). The operator at the position is alerted to the seizure by an audible tone, and the call information is displayed at the position.

The ACD ODA forms allow the 5ESS Switch administrators to separate incoming operator assistance traffic into distinct CALL TYPE queues that can be handled by distinct teams of operators, allowing flexibility in assigning calls to serving teams. The sections that follow describe how a call is assigned to an OSPS ACD queue, how that queue is assigned to an OSPS serving team, and how an operator is assigned to an OSPS serving team. The sections apply to 5E3 and later Software Releases, except where noted otherwise.

ODA Forms

The following forms are used to populate ACD:

- ACDPOL form (5412-B/C/E/F Records) (5E5 and later Software Releases)
- ACDCTP form (5412-A/D Records)
- DAS form (5300-1 Record)
- INDIT form (5309 Record)
- LDIT form (5300-3 Record)
- OSPSCT form (5404 Record)
- OSPSOA form (5403 Record)
- OSPSOP form (5401 Record)
- OSPSOPT form (5424 Record)
- RTIDX form (5303 Record)
- STINFO form (5402 Record)
- TKGRP form (5202 Record)

Translation Requirements

CALL TYPE determination is used to assign a request for operator assistance to an ACD CALL TYPE queue in order to handle an incoming OSPS call. The ACD will also attempt to find an idle Interflow position if Interflow is activated for the serving team assigned to the CALL TYPE. For more information on the Interflow feature, refer to Sections 3b through 3d for the application of interest (DA, ACD/MIS, TA). Although the ODA forms for ACD CALL TYPE queues, serving teams and operator logins are common for all three OSPS applications (DA, ACD/MIS, TA), the CALL TYPE determination method is not. Directory Assistance and Telemarketing services calls use one method of determination, while TA calls use a different method.

DA and ACD/MIS

Directory Assistance and ACD/MIS calls arrive on Multi-Frequency, Dial Pulse, Touch-Tone, Common Channel Signaling, 3CL and Seizure Only trunk groups. These trunk groups may also (and usually will) carry non-OSPS traffic. Call type determination is based on the incoming trunk group and/or the dialed digits received on the trunk. POTS trunk origination call processing proceeds through digit analysis, at which time the switch checks to see if the call is destined for an OSPS operator, assuming the OSPS DA field on the OSPSOPT form is set to "Y". The standard digit analysis data is used, starting with the DAS found on the TKGRP form (5202 Record), using that key as a key to the DAS form (5300-1 Record) to find correct digit interpreters. The INDIT form (5309 Record) and LDIT form (5300-3 Record) would be populated as for POTS calls to the directory number assigned to the CALL TYPE queue.

ORAR form (5405 Record) - This form is the first OSPS form used by the switch to determine if the call is an OSPS call. The keys are the SCREEN INDEX for the trunk group from the TKGRP form, the CODE INDEX found in digit analysis from the INDIT or LDIT forms and the PREFIX INDEX from digit analysis. These are determined by the switch exactly as they are for trunk POTS calls. If an entry is not found with these key values, the call is not considered an OSPS call and normal trunk call processing proceeds. If an entry is found, this is an OSPS call and further OSPS database queries will be required, using the CALL ID and OPER NOC IDX from this form to determine the CALL TYPE queue. If the CALL ID is zero, the OPER NOC IDX must be non-zero and will be used as one of the keys to the OCTA form (5406 Record). If the CALL ID is non-zero, the OPER NOC IDX must be zero and the OPCTO form (5407 Record) will be used next.

The OPER NOC IDX is non-zero when the local part of the dialed digits is used to determine the CALL TYPE queue without incurring the additional memory overhead of translating all the incoming digits. For example, assume that the digit sequence '555-1212' is to be assigned to one CALL TYPE queue. Digit analysis forms could be populated to translate all 7 digits to a code index. Each translated digit causes 10 tuples to be populated in the appropriate digit analysis base relation. Therefore, $7 \times 10 = 70$ tuples would have to be populated by ODA or RC if all 7 digits were to be translated. Using the OPER NOC IDX link to the OCTA form, the digit analysis forms could be populated to translate the first 3 digits to a code index. The ORAR form with this code index would have a non-zero OPER NOC IDX which is then used as a partial key to the OCTA form. The other part of the key would be the local digits (i.e., the last 4 of the dialed digits), which are '1212' in this case. This would require $3 \times 10 = 30$ base digit analysis tuples and one OCTA form and would use less memory than the first method.

OCTA form (5406 Record) - As stated in the above section, the OCTA form is used when the local part of the dialed digits are to be used to assign a call to a CALL TYPE queue. The keys are the OPER NOC IDX from the ORAR form above and the LOCDN, which is made up of the last 4 incoming digits. The non-key attribute is the CALL ID, which is used as a key to the OPCTO form.

OPCTO form (5407 Record) - This form uses the dialed digits as they have been broken down by the above forms (into the CALL ID) and the incoming trunk group to assign the call to a CALL TYPE queue. The key to this form is the CALL ID, which comes from either the ORAR or OCTA form, and the incoming trunk group

number, TGN. Based on that, the call's CALL TYPE queue and the Basic Services Terminal (BST) display index are determined. The call processing software first tries to find an entry with the CALL ID determined from the previous steps and the call's incoming trunk group. If an entry exists with these keys, the CALL TYPE and DISPLAY INDEX attributes from that record are used. If an entry does not exist with these keys, the call processing, Recent Change and ODA require that a record with the wild card value exist for each CALL ID that has been assigned. The CALL TYPE value found will be the key to the OSPSCT form (5404 Record).

Toll and Assistance

Toll and Assistance calls generally arrive on ISP (Intermediate Switch Point) and CAMA trunk groups. They can also be on some other type of inward trunk from another operator.

NOTE: Additional information on ISP and CAMA calls is provided in Section 3e, OSPS TOLL AND ASSISTANCE.

Call type determination is done based upon how the call arrived at the OSPS, the way that the call was dialed, whether it is a coin call, the carrier of the call and the sending OSPS ID (for Interflowed calls). The ACDCTP form is used to select a CALL TYPE queue based on the details of call arrival. For a detailed discussion of call type determination in 5E5 and later Software Releases, refer to the ACD Expanded CALL TYPE Determination section.

It is assumed that the OSPS TA field on the OSPSOPT form has been set to "Y", indicating that this office has the OSPS Toll and Assistance feature.

ACDCTP form (5E4 Software Release)

In the 5E4(2) Software Release, there are four pieces of information used in choosing a call queue. The ORIGIN CALL field specifies how the call arrived at the OSPS. A call can come in over an ISP trunk, a system CAMA trunk or a transfer CAMA trunk. Alternatively, an inward call from another operator can arrive over some other type of inward trunk. CALL CLASS indicates whether this is the first time that the call has come to an operator, or if this is a recall of a previously handled call. The PREFIX is set according to the dialed prefix and the CARRIER according to the carrier handling the call. The most common call served is one over an ISP trunk. For these to be handled by an operator, there needs to be entries with an ORIGIN CALL of "ISP". The PREFIX would take on values over those handled, such as 0M (for zero minus), 1 and 0. If international calls are allowed, then 01 and 011 would have to be included. For the initial seizure, the CALL CLASS would have a value of "INT", and the CARRIER would be either "LEC" or "IC", depending upon which carrier ISP had selected. On an error condition, the CARRIER would be unknown.

To handle recalls of these ISP calls, there must be entries that assign a CALL TYPE for the CALL CLASS of "RECB" and "RECFB" rather than "INT". The ORIGIN CALL would still be "ISP", and the PREFIX would be the same as for the initial seizure. The CARRIER would be the carrier type used to route to the forward number when the call was floated.

Another type of recall is the recall of an operator-initiated call. There should not be an entry in the ACDCTP form for an ORIGIN CALL of "OPI" and a CALL CLASS of "INT", since an operator-initiated call does not have to pick an operator to handle it. When a recall occurs, there needs to be an entry for the ORIGIN CALL of "OPI", a PREFIX of "NULLP", the CARRIER of "LEC" and "IC" and the CALL CLASS of "RECB" and "RECFB".

CAMA and inward calls require specific entries in the ACDCTP form. See the descriptions of CAMA and inward calls in Section 3d, OSPS TOLL AND ASSISTANCE, for a discussion of what is needed for these types of calls. Note that for CAMA calls, a PREFIX of "NULLP" and a CARRIER of "DC" are used since a prefix and a carrier do not make sense for these types of calls. This is also the case for initial seizures of

inward calls.

After a call has reached an operator and has been identified as a SOST (Special Operator Services Treatment) call, there will be a recall later to handle the charges. To find an operator for this, there needs to be an entry for ORIGIN CALL of "RES", CALL CLASS of "RECFB", PREFIX as originally dialed and CARRIER as the one that handled the call.

For coin calls, there are coin recalls and coin notify CALL CLASSES to handle. When this occurs, the ORIGIN CALL is "ISP", the PREFIX is as dialed and the CARRIER is the one that handled the call.

Just as for Directory Assistance calls, the CALL TYPE determined is used as the call queue is used to determine the serving team to handle the call and is ultimately used to select an operator for this call.

ACDCTP form (5E5 and later Software Releases)

- The CALL ORIGIN field specifies how the call arrived at the OSPA. A call can come in over an ISP trunk ("ISP"), a system CAMA trunk ("SYS") or a transfer CAMA trunk ("XFER"). Alternately, an inward call from another operator can arrive over some other type of inward trunk ("INW"). It can also be an operator-initiated (delayed) call ("OPI") or a residual call ("RES"). It can also be a Directory Assistance to VDT call ("DA2VDT") or Non-ISP call ("NIT").
- The PREFIX is set according to the dialed prefix, and the CARRIER according to the carrier handling the call.
- The COIN field indicates whether the call is a coin call or not.
- The OSPA ID field indicates the 4-digit identifier of the OSPA which interflowed the calls to this switch. For a noninterflow call, the OSPA ID is 0. For an Interflow call, the OSPA ID can be the sending office ID. This is the value which the sending office would enter for its OSPA ID on the OSPASCT form.
- Further call determination can be done based on the incoming trunk group and/or the destination index as determined from digit analysis. Refer to the ACD ECTD (Expanded CALL TYPE Determination) section for more information on this type of CALL TYPE determination.

The most common call served is one over an ISP trunk. For these to be handled by an operator, "ISP" must be entered in the CALL ORIGIN field on the ACDCTP form. The PREFIX field would have an entry of the prefix that was originally dialed on the call - such as "0M" (for zero minus), "1" or "0". If international calls are allowed, then "01" and "011" would be allowed. The entry in the CARRIER field would be either "LEC" or "IC", depending upon which carrier ISP had selected. For conditions such as a non-conforming end office, the CARRIER could be "UNKWN". The CARRIER is the carrier type used by the operator to route to the forward number. The COIN indicator is used to determine queues for coin calls. The OSPA ID allows interflowed calls to be distributed according to the identity of the sending switch.

Recall queues are assigned based on the queue that handled the call originally. Operator-initiated and residual recall must go through CALL TYPE determination because of the way that these calls were handled on the initial call. They need entries in the ACDCTP form because the initial call did not receive a call queue which would normally be used as a key to the OSPASCT form to retrieve the recall call queue.

For CAMA calls, a PREFIX of "NULLP" and a CARRIER of "DC" are used.

For coin calls, a CALL ORIGIN of "ISP", a PREFIX as dialed, and the CARRIER that handled the call are used.

Just as for Directory Assistance calls, the CALL TYPE determined is used as the call queue, is used to determine the serving team to handle the call, and is ultimately used to select an operator for this call.

ODA Forms Applicable to DA, ACD/MIS, and TA Calls

OSPSCT form (5404 Record)

Each CALL TYPE defined for the switch must have an OSPS Call Type (OSPSCT) Record submitted. The switch can have a maximum of 128 CALL TYPE queues. The key field is the CALL TYPE, which is also the queue number. The queue number is the result of CALL TYPE determination, or is entered by the operator in the case of conferences and transfers. The OPER TYPE field indicates whether the queue is to be used for calls bound for BSTs or VDTs. The RECALL CALL TYPE field is the call queue for two- and one-party recall. The SERV TEAM indicates the queue's principal serving team. More than one queue may have the same serving team, but a queue can have only one principal serving team.

The SERV OBJ field enables the administrator to specify the desired service objective (i.e., answer delay) for this CALL TYPE queue. It is when the queue's serving team handles more than one queue. When an operator becomes available on a team that serves more than one queue, the ACD calculates a 'delay ratio' for the call at the head of each queue. The 'delay ratio' is the time that the call has been waiting divided by the SERV OBJ of the queue. The ACD then chooses the call with the highest delay ratio as the next to be served by the available operator. Delay ratio queuing balances the distribution of calls from the queues so that each queue is served equally, relative to its service objective. Because the service objective is used in calculating the delay ratio, a relative priority scheme can be established among the team's queues by assigning lower service objectives to the queues that should be served faster.

The MAX CALLS field contains the maximum number of calls that can be in the CALL TYPE queue awaiting an operator. If a call arrives and there already are MAX CALLS in the queue, the call will not be allowed to queue. The treatment applied to the call depends on the application. In some cases, the call will be routed to the announcement listed under the field 3RD ANNC RTI. In others, reorder may occur.

The CALL WAITING ON and CALL WAITING OFF fields are thresholds used by the ACD to determine when to turn the call waiting indicator on and off for this queue. The call waiting indicator appears on the operator's BST or VDT and on various OSPS Administrative Processor (OAP) displays. The ACD periodically determines the service being provided to each queue and then calculates the expected delay that calls arriving in the next period will experience. If the expected delay is greater than the CALL WAITING ON threshold (i.e., the queue is in the call waiting state), the indicator will be turned on for all positions logged into that queue's principal team. Note that since a serving team can be a principal team for multiple queues, the call waiting indicator for the team will be turned on if any of the queues for which that team is the principal team are in the call waiting state.

If the expected delay is less than the CALL WAITING OFF threshold, the indicator will be turned off for all positions logged into that queue's principal team. No change is made to the indicator if it is already on or off.

The four RTI fields are route indexes that must appear in the RTIDX form. The RTIDX must lead to a TKGRP form that has a 13A announcement machine trunk group. The CLOSE DOWN RTI field gives the 13A announcement route index to be used when the queue is closed (as indicated by "N" entered in the CALL TYPE OPEN field, e.g., when a business office closes for the night).

The other RTI fields are used with the DELAY fields. When a call arrives and must be queued, the 'expected' delay for that queue is calculated based on the queue's current service level. The expected delay is compared to each of the delay attributes. If the expected delay is greater than the entry in the 1ST ANNC DELAY field, but less than that in the 2ND ANNC DELAY field, then the queued call will be routed to the 13A announcement indicated by the 1ST ANNC RTI, provided the application allows delay announcements. The

2ND ANNC DELAY and 2ND ANNC RTI are used in an analogous way. If the expected delay exceeds the entry in the 3RD ANNC DELAY, the call will be routed to the 3RD ANNC RTI (again dependent on the application) and will not be queued. The determination of delay treatment while awaiting an operator is based on the expected delay at the time the operator is requested, not on the actual time that a call has waited once queued.

With 5E5 and later Software Releases, the COIN RECALL field has been added and contains the queue to be routed to for a coin one- or two-party recall. The COIN NOTIFY field has also been added and is used to define the queue to be given the call when a recall is done during the notify period of a coin call. The CALL TYPE NAME field is used by the OAP as a heading on the 15-minute reports.

With 5E5 and later Software Releases, the INTRAFLOW ALW field has been added and is used to determine if this queue is allowing calls for this queue to be intraflowed to supporting serving teams. Up to eight supporting serving teams can be defined in the SUP TEAM 1 through SUP TEAM 8 fields. The DELAY THRS 1 through DELAY THRS 8 fields define the time in seconds that the queued call must be delayed before that serving team is allowed to receive the call for processing. Each DELAY THRS value must be greater than or equal to the previous DELAY THRS value (i.e., DELAY THRS3 must be greater than or equal to DELAY THRS2).

A serving team that has Interflow or rerouting activated is not eligible to receive intraflowed traffic. A queue whose principal team is being interflowed, or interflowed via rerouting may be intraflowed to a supporting team whose delay outflow threshold is zero. If an Interflow channel is not found and no supporting team server is found, the call will fail because queuing is not allowed for teams which are interflowed or rerouted. Refer to the Intraflow description later in this section for additional information on the Intraflow feature.

STINFO form (5402 Record)

Each serving team defined for the switch must have a STINFO form submitted. The switch can have a maximum of 128 serving teams. The SERVING TEAM field is the key for this record, and is the number of the operator serving team. The SERVICE ATTN CALL TYPE field is the number of the queue (identified in the OSPSCT form) that will be used when the operator depresses the Service Assistant (SA) key on their VDT. The EXTERNAL DIALING PERM field is used for DA and Commercial ACD serving teams to indicate the external (non-OSPS) dialing permission for this team: unrestricted, restricted or denied. This scenario uses the following sequence on the BST. When an operator has restricted permission, the number dialed is looked up in the RESXDL form with the DIALING PERM INDEX values as its key. The RESXDL form contains the numbers that teams with this DIALING PERM INDEX are restricted to dialing. If the number is found in that restricted dialing table or the operator has unrestricted dialing permission, the SCREEN INDEX and the DIG ANALYSIS SEL are used by regular trunk digit analysis to route the call. External dialing for DA serving teams uses CARRIER DIAL PERM and CARRIER ID fields analogously to their use for POTS calls.

The EMRG CONF ALLOW field indicates whether a conference should automatically be established to the queue listed in the EMRG CONF CALL TYPE field when an operator on this team depresses the EMERG key on the operator's BST. If "Y" is entered in the EMRG CONF ALLOW field, then the EMRG CONF CALL TYPE must contain the number of a queue that exists in the OSPSCT form.

The DAS/C AVAILABLE field indicates whether the serving team communicates with a Directory Assistance System/Computer. A "Y" should be entered in this field only when a DA team uses a DAS/C, in which case "CCI" or "IBM" must be entered in the DASC VENDOR field on the OPARM form.

Operators have the ability to transfer, conference, and handoff incoming calls. The TRANSFER ALLOWED, CONF TRANS ALLOWED, and HANDOFF ALLOWED fields are used to set the transfer, conference and handoff permissions for all operators that belong to the particular serving team. If "Y" is entered in the TRANSFER ALLOWED field, then an operator can transfer a calling party to another call queue. If "Y" is

entered in the CONF TRANS ALLOWED field, then an operator can conference with, or transfer a call to a specific operator ID or position number. If "Y" is entered in the HANDOFF ALLOWED field, then an operator can hand a call off to another operator. The difference between the transfer and the handoff function is:

- **Transfer:** The operator transfers the back party to another call queue (or to a specific operator if the CONF TRANS ALLOWED field is "Y") without establishing a conference with the new operator.
- **Handoff:** The operator hands off the back party to another call queue (or to a specific operator if the CONF TRANS ALLOWED field is "Y") by releasing from the call after establishing a conference with the new operator.

The secondary digit analysis selector, SEC DIG ANALYSIS SEL, is used in place of the DIG ANALYSIS SEL field when the operator makes a call using the 'DIAL #0 <digits> ENTER' key sequence on the BST to dial an Operator Special Dialed Code.

With 5E5 and later Software Releases, the NON ISP AND TA field has been added and indicates whether the serving team may handle non-ISP and TA calls. The NON ISP ONLY field indicates whether only NON ISP calls are handled by this serving team. These fields were added because a serving team with an OPER TYPE of "TA" can serve ISP and non-ISP calls simultaneously or serve ISP or non-ISP calls exclusively.

Also new for 5E5 and later Software Releases, the INTRAFLOW ALW field indicates whether this serving team is accepting calls from supporting queues (i.e., will it allow calls to be intraflowed to it). The PCT INTRAFLOW is the percentage of active operators of this serving team that can process intraflowed calls at any time. The OPER TYPE field indicates whether this team is used by operators at BSTs or VDTs. Refer to the Intraflow description later in this section for more information on the Intraflow feature.

OSP SOA form (5403 Record)

Each OSPS operator login identification must have an OSP SOA form. The OPERATOR ID field is the operator's login identification which is entered at the beginning of a work session at the BST or VDT. The SERVING TEAM field identifies the serving team to which the operator is assigned. The EXTERNAL DIALING PERM field indicates whether the operator has restricted, unrestricted or no permission to dial external to OSPS. If the operator is restricted, then the DIALING INDEX from the operator team's STINFO form is used as the key to the table of numbers found in the RESXDL form to which the operator is restricted. The EXTERNAL DIAL PERM and DIALING INDEX fields only apply to DA and ACD/MIS operators.

When the operator has a calling party and another operator in a conference, the operator may hand off the call to the other operator if "Y" is entered in the HANDOFF ALLOWED field. An operator may transfer a calling party to another call queue if the "Y" is entered in the TRANSFER ALLOWED field. An operator may conference with or transfer a call to a specific operator identification or position number if "Y" is entered in the CONF TRANS ALLOWED field. The operator is allowed to monitor other operators if "Y" is entered in the MON PERM field (and if the operator is logged in at a position that is designated as a monitoring position on the OSP SOP form).

Each operator login is restricted to using either a BST or a VDT as indicated in the OPER TYPE field.

The following list describes the ODA forms used to direct calls arriving on trunk group 308 with the digits 5551212 to call type queue 104 and serving team 6 (see Figure 4):

- **TKGRP form (5202 Record)** - The call arrives on the two-way (trk dir=twoway) trunk group 308 (tgn=308) which is assigned screening index 11 (scr=11) and digit analysis selector 2 (das=2). The screening index is used for routing and charging in normal POTS call processing.

- **DAS form (5300-1 Record)** - Digit analysis selector 2 does not use the preliminary digit translator (pdit=0), but uses the incoming trunk digit translator 1 (inc dit=1) and the local digit translator 1 (ldit=1). Incoming trunk digit analysis is performed first and specifies whether local digit translation should follow, in which case the local digit translator will be used.
- **INDIT form (5309 Record)** - The incoming trunk digit translator 1 (inc dit=1) will translate the incoming digits 555 (inc digs=555), without resorting to the local digit translator (ldit=n), to code index 10 (cdi=10). The translation process will expect 7 digits (nde=7) and will delete 3 digits (ndd=3), thereby leaving only the '1212' left after digit analysis.
- **ORAR form (5405 Record)** - OSPA call identification uses the screening index 11 (scr=11), that was initially looked up by trunk group view 5.1, the code index 10 (cdi=10), that was determined by digit analysis in view 9.5, and no prefix (pfx=none), because none was found by digit analysis, to get call type id 0 and operator noc index 1 (oper noc idx=1). Because operator noc index is non-zero, view 21.25 must be checked next to use the digits remaining after digit analysis.
- **OCTA form (5406 Record)** - Operator noc idx 1 (oper noc idx=1) and local digits 1212 (locdn=1212) give preliminary call type id 4 (call type id 4).
- **OPCTO form (5407 Record)** - Preliminary call type id 4 (call type id 4) on originating trunk group 308 (tk group=308) uses call type queue 104 (call type=104) and BST seizure display index 104 (dispx=104).
- **OSPSCT form (5404 Record)** - OSPA call type queue 104 (call type=104) is finally served by serving team 6 (serv tm=6).

Other Details

Particular entries on the ACDCTP form are needed to handle CAMA calls and DARK calls. See the descriptions of CAMA and DARK calls in Section 3b, OSPA TOLL AND ASSISTANCE, for a discussion of what is needed for these types of calls.

6. INTRAFLOW

The OSPA Intraflow feature is available with 5E5 and later Software Releases. Intraflow allows an ACD/OSPA administrator to assign for each call queue, a single principal serving team and up to eight supporting serving teams which may handle calls from the call queue when all of the operators on the principal serving team are busy.

Each serving team has a threshold indicating the maximum percentage of the team that can simultaneously handle calls from its supporting queues. A queue 'Intraflows' traffic from its principal serving team to a supporting team when the delay of the oldest call on queue exceeds the delay outflow threshold for the supporting team. The supporting serving team will accept the call as long as doing so would not violate the team's supporting queue call percentage threshold.

A member of a serving team can serve its supporting queues, subject to the existing Delay Ratio Queuing strategy, only when there are no other available serving team members on its team and there are no calls in any of its principal queues. The same team threshold and outflow thresholds are checked before a member of a serving team can accept a call from one of its supporting queues.

ODA Forms

- OSPA OPT form (5424 Record)

- STINFO form (5402 Record)
- OSPSCT form (5404 Record)

Translation Requirements

OSPSOPT form (5424 Record)

One field has been added to the OPSOPT form for this feature. The field INTRAFLOW ALW, under the heading FEATURE ACTIVATION, must be set to "Y") to enable this feature.

Intraflow, however, must also be individually activated or deactivated for each call type and serving team on the STINFO forms and OSPSCT forms, respectively, before the feature is used.

STINFO form (5402 Record)

Two fields have been added to this form - INTRAFLOW ALW and PCT INTRAFLOW. If INTRAFLOW ALW is set to "Y", then the SERVING TEAM keying this form will handle intraflowed calls. The PCT INTRAFLOW entry determines what percentage of the team will handle these intraflowed calls. If "30" is entered here, then no more than 30% of the team members can accept intraflowed calls at any one time. If "0" is entered in the PCT INTRAFLOW field, then INTRAFLOW ALW will automatically be set to "N".

OSPSCT form (5404 Record)

The field INTRAFLOW ALW has been added to this form along with SUPPORT TEAM LIST. The INTRAFLOW ALW entry must be "Y" if a call to the OSPS CALL TYPE (queue) is allowed to be intraflowed to a serving team. The principal team is defined in the SERVING TEAM field and up to 8 supporting teams can be entered in the SUPPORT TEAM LIST. If INTRAFLOW ALW is set to "Y", there must be at least one entry in the SUPPORT TEAM LIST.

The SUPPORT TEAM LIST consists of two fields - SUP TEAM and DELAY THRSH. Each supporting team entered here must have an associated delay 'outflow threshold' (in seconds) entered. The supporting team will receive intraflowed calls only when this threshold value has been exceeded. The first entry in the SUPPORT TEAM LIST field is the first supporting team number which will accept an intraflowed call after its DELAY THRSH time has been exceeded. Each succeeding SUP TEAM listed must have its associated DELAY THRSH value set to a number greater than or equal to the preceding one.

Intraflow Call Scenario: Call Looking for a Server

When the ACD receives a request for an operator and no position is available on the serving team designated to handle this call, the original call is queued.

If the INTRAFLOW ALW field on the OPSOPT (5424 Record) is "Y" and the CALL TYPE has INTRAFLOW ALW set to "Y" on the OSPSCT form, then an attempt is made to identify a supporting serving team. The teams TEAM1 through TEAM8 and the thresholds THRSH1 through THRSH8 and the thresholds THRSH1 through THRSH8 from the OSPSCT form are used in the search for a supporting serving team to handle an intraflowed call.

The delay on the oldest call in the queue is compared to the delay (THRSH1) for the first supporting serving team (TEAM1). If the delay on the waiting call is greater than THRSH1 for supporting serving team TEAM1, and if TEAM1 has INTRAFLOW ALW set to "Y" on the associated STINFO form, then PCT INTRAFLOW is checked on the STINFO form for the TEAM1 to make sure the supporting serving team is not handling more than that percent of calls as a supporting serving team. If this succeeds, the ACD then tries to get a position

from that supporting serving team, TEAM1. If anything fails, including finding a position, the next supporting serving team, TEAM2, is checked in the same manner using its threshold (THRSH2). This continues until a position is found, the delay for the next supporting serving team cannot be exceeded, or there are no more supporting serving teams to try.

Intraflow Call Scenario: Server Looking for a Call

When a position becomes available, the principal CALL TYPE queues are searched for a call that this operator can handle. If no call is found in any of the principal call queues, INTRAFLOW ALW on the OSPSOPT and STINFO forms are set to "Y", the serving team that this operator belongs to has not exceeded its PCT INTRAFLOW on the STINFO form (i.e., the number of intraflowed calls being handled by operators in this serving team is not a percentage greater than PCT INTRAFLOW), and the system is not in overload, all supporting call queues are searched for a call to handle. If a call is on a supporting call queue with INTRAFLOW ALW set to "Y", the operator's serving team is searched for among the list of supporting serving teams for that CALL TYPE queue. If the team is found among the supporting teams for that queue, the delay of the oldest call queued is compared to the matching threshold. If the threshold is exceeded, the call has its delay ratio calculated as is done for calls found on principal call queues. Then when all supporting queues are searched, the call meeting the above mentioned conditions with the highest delay ratio is given to the operator to handle.

Intraflow Call Processing Example

The following example illustrates the use of the Intraflow feature. It must be kept in mind that supporting teams are searched in the order that they are listed on the OSPSCT form until either the call's queue does not exceed a delay outflow threshold, the call checks all of its supporting teams without success or the call is assigned to a serving team.

For example, assume the following when a call arrives for CALL TYPE "1".

- CALL TYPE "1" has the following populations:
 - Principal serving team (SERVING TEAM) equals "2".
 - Supporting serving teams (SUP TEAM 1 and SUP TEAM 2) equal "3" and "4", respectively.
 - Delay outflow thresholds (DELAY THRSH 1 and DELAY THRSH 2) equal "5" and "15", respectively.
- CALL TYPE 1 has two calls on queue, and there are no available servers on principal SERVING TEAM 2.
- The call at the head of CALL TYPE queue 1 has waited 17 seconds.
- Supporting serving team 3 (SUP TEAM 1) has an Intraflow percentage value of 50% (PCT INTRAFLOW on the STINFO form equals 50), i.e., only half of its members can take intraflowed calls. It has four agents (operators) logged in; two are already busy with intraflowed calls and two are idle.
- Supporting serving team 4 (SUP TEAM 2) has an intraflowed percentage of 75% (PCT INTRAFLOW is 75). It has ten agents logged in; only one is busy with an intraflowed call.

The new call is queued at the end because other calls are already queued (all of the principal team operators are busy). The ACD (Automatic Call Distributor) checks the call at the head of the queue, and finds that it has waited longer than the delay outflow threshold for its first supporting serving team 3 (SUP TEAM 1). The call cannot be intraflowed to team 3 because doing so would cause more than 50% of the agents on the team

to be simultaneously handling calls from supporting queues. The ACD checks the next supporting team - team 4 (SUP TEAM 2). The call has also waited longer than its delay outflow of 15 seconds. The call can then be intraflowed to team 4 because team 4 will still have only 20% of its agents handling calls from its supporting queues (which is much less than its team percentage threshold of 75%).

7. ENGINEERING ASSIGNMENTS

An OSPS can be operated with a 5ESS Switch dedicated solely to OSPS services such as OSPS TA, or can be integrated into a gateway or network switching system. As a feature of a 5ESS Switch, OSPS relies on the services, features, functions and facilities already available from the switch in such areas as administration, billing, maintenance, support systems, power, etc.

A PSM (Position Switching Module) is the only hardware physically located at the 5ESS Switch that is dedicated to the OSPS. A PSM is an ISDN (Integrated Services Digital Network) switching module loaded with OSPS integrated software. The PSM supports operator positions and OSPS-specific data links and service circuits. Lines are usually not connected directly to a PSM, although they can be in lightly loaded PSMs. A PSM does the following:

- Receives digital signals from DSL (Digital Subscriber Lines)
- Does many of the call processing functions in the 5ESS Switch such as recognizing requests for service and digit reception
- Supports the AM in completing intermodule calls (between two SMs)
- Switches time slots between interface units within the PSM or to the time multiplexed switch via the network control and timing links
- Provides service circuits such as ringing circuits, tone generators, tone decoders, conference circuits, recorded announcements or test facilities
- Provides signaling used in the monitoring and charging of telephone calls

Depending on the distance from a PSM to either an OSC (Operator Services Center) or ACD/MIS call center, a PSM must contain either an ISLU (Integrated Services Line Unit) or a DLTU-RH (Digital Line Trunk Unit - RISLU Host). An ISLU can be located up to a maximum of 1 kilometer (approximately 5/8ths of a mile) from the 5ESS Switch.

If that distance limit is exceeded, then a Remote ISLU (RISLU) is used. A RISLU is an ISLU which has been remoted from the switch over digital carrier facilities. A DLTU-RH terminates digital carrier facilities that connect the RISLU to the PSM. Otherwise, an ISLU terminates the DSLs from a co-located OSC (or ACD/MIS call center) when digital carrier facilities are not required.

If a PSM is co-located with an OSC (or ACD/MIS call center), the PSM can be equipped with an ISLU to interface with DSLs which meet the ISDN T-interface standards. These DSLs carry three channels of information in a "2B+D" format. The term "2B+D" means the line can carry two "B-channels" (64 kb/s each) and one "D-channel" (16 kb/s).

The DSLs give the switch the capability to function in an ISDN environment. Also, DSLs are used to connect OSPS peripheral equipment to a 5ESS Switch.

If a PSM is not co-located with an OSC (or ACD/MIS call center), transmission facilities must be used to connect the PSM to the RISLU. The DLTU is the interface between the PSM and digital carrier lines and

trunks. The DLTU converts the digital signals used by the carriers to the digital signal format used internally by the switch.

The PSM service units provide services such as tone generation, tone decoding, testing and conferencing. The following is a list of the PSM service units and a brief description of the function of each unit.

- Local Digital Services Unit: The LDSU provides high usage functions such as tone generation and tone decoding. This unit is required in every PSM.
- Digital Service Unit 2 Recorded Announcement Facility: The DSU2-RAF independently plays back the pre-recorded, variable length, variable content announcements. The DSU2-RAF provides 32 simultaneous, independently phased announcement channels. The DSU2-RAF DTA (Dial Through Announcement) generates announcements on an output port with the simultaneous decoding of signals on an input port. The announcement is disabled when the first digit signal is decoded. The DSU2-RAF COIN provides coin announcements and decodes dual frequency coin deposit tones. The announcements are provided on an output port, and the coin tones are decoded on an input port. Announcements are aborted upon decoding the first signal from a deposited coin. Note that all three of the DSU2-RAFs can be equipped in either PSMs or non-PSMs, as long as they are "LOADED" SMs (i.e., the CONFIGURATION field on the EQIM form is set to "LOADED").
- Global Digital Service Unit: The GDSU provides conference circuits and transmission test functions. Each 5ESS Switch contains at least one GDSU. This unit is an engineered quantity since the GDSU functions can be shared by multiple PSMs.

The interface units in a PSM provide the interface point between the 5ESS Switch and the digital lines or digital carriers served by the switch. The following is a list of the interface units, along with a brief description of their functions:

- Integrated Services Line Unit: The ISLU connects to DSLs (Digital Subscriber Lines). The DSLs connect operator positions to the 5ESS Switch via 4-wire digital lines connected to the ISLU. The ISLU provides an interface that conforms to the CCITT standard for ISDN. This BRI (Basic Rate Interface) permits voice and data to be multiplexed into a 2B + D format appropriate for a DSL that operates at 192Kb/s. The T-type line cards are used to connect to the DSLs. The DSLs cannot be longer than 1 kilometer (0.62 mile). Since transmission facilities are not needed for a co-located PSM/OSC arrangement, a DLTU is not required. An RISLU can be installed at remote locations. The ISLU provides similar functions whether mounted in a PSM or RISLU cabinet.
- Digital Line Trunk Unit (Host and Remote): The DLTU connects to digital carrier facilities used for the communication links to a RISLU. Two types of DLTUs are equipped: the DLTU-H and the DLTU-R. The DLTU-H is used in the PSM for communication links while the DLTU-R is used in the RISLU cabinet located in an OSC to provide a communication link to the switch.
- Digital Line Trunk Unit: The DLTU connects to digital carrier facilities used for digital trunks or Interflow links to another OSPS. The DLTU provides a PRI (Primary Rate Interface) where voice and data are multiplexed into a 23 B + D format using X.25 protocol for an OSPS EDSL (Extended Digital Subscriber Line) operating at 1.544 Mb/s. This DLTU is equipped with ten DFIs (Digital Facility Interfaces) with each DFI terminating one T1 line.

A PSM is equipped with a PSU (Packet Switch Unit) for the switching and processing of packet data used by OSPS. The PSU is applicable for use in an ISDN environment.

8. RISLU PORT ASSIGNMENTS

The SM (Switching Module) is equipped to allow an SM to handle more than 60 OSPSPorts. These OSPS ports can be divided between one or more RISLUs. With ACD/MIS applications, a customer may request more than 60 ports. These OSPS ports can be divided between one or more RISLUs. With ACD/MIS applications, a customer may request more than 60 positions on a single RISLU. To achieve this and to maximize T1 facility usage, a change was required to modify the path hunt algorithm to preassign the time slots through the RISLU. The time slots are chosen based on the LC (Line Card) and the LGC (Line Group Controller) that the OSPS position is wired in. The OSPS DSL assignment should follow these recommendations in order to maximize T1 usage and ensure no position is blocked from initializing.

RISLU Port Assignment Recommendations

LGCs will be logically divided into four SLGCs (Sub Line Group Controllers) each containing up to four OSPS ports. The SLGCs should be grown in order. This means that the first four operator positions should be installed in LC slots 16, 18, 20, and 22 of LGC 0, SLGC 0 (see Figure 5). The next four operator positions should be installed in LC slots 16, 18, 20 and 22 of LGC 1, SLGC 1. This should be done on all sixteen LGCs before a fifth LC slot is equipped on any other LGC. Additional growth should start at LGC 0, SLG 16 and equip LC slots 8, 10, 12, and 14, SLG 16. This routine should be followed for each of the operator positions in the order of SLGC numbers until the desired number of operator positions are equipped (see Figures 1 through 3 and Figure 5).

OSPS ports which are connected to the RISLU are divided into two groups. These groups are Class-1 DSLs and Class-2 DSLs. Class-1 DSLs are devices which use a B-channel or a B-channel and D-channel time slot (e.g., BST, VDT, AMLB SRA or AUTOQUOTE Z-card). Class-2 DSLs are devices which use a D-channel time slot only (e.g., OAP, DAS/C, ACC, RTRS, HOBIS/HOBIC, AUTOQUOTE T-card). Certain SLGCs are not allowed to have more than three Class-1 DSLs assigned to them, the remaining slot is reserved for a Class-2 DSL. Figure 1 shows the number of Class-1 DSL's which can be terminated on each SLGC.

Assignment Rules

The number of active facilities will determine which SLGCs should be used (see Figure 2).

Each SLGC should be assigned as many DSLs as allowed before equipping the next SLGC to ensure that facility time slots will not be wasted. Time slots allocated for (but not occupied by) a Class-1 DSL can be used to terminate Class-2 DSLs, but Class-1 DSLs cannot be used in places allocated for a Class-2 DSL.

The Maximum number of SLGCs that can be equipped in a single RISLU is 60. The Limit is determined from a maximum of 12 transmission facilities per RISLU and 5 SLGCs per facility ($5 \times 12 = 60$).

Most SLGCs can have up to four Class-1 DSLs connected to them, the remaining will only have three Class-1 and one Class-2 DSLs (see Figure 1 to determine which SLGCs these are).

By using Figures 1 and 2, you can determine the number of Class-1 and Class-2 DSLs which can be equipped for each facility.

In 5E3, the first four operator positions on an LGC were assigned to LC slots 16, 18, 20 and 22. By conforming to these standards, no hardware configurations changes will be necessary when updating from 5E3 to 5E4(2) and later Software Releases unless operator positions 59 and 60 are equipped. In 5E3, operator positions 59 and 60 are located in LGCs 5 and 7, respectively, but in 5E4(2) (and later) they should be in SLGC 16 which is located in LGC 0. If positions 59 and 60 are used in 5E3 they must be moved to SLG 16 when updating to 5E4(2). See Figure 5.

To avoid simultaneous multiple link failures, observe the following rules in assigning data links for which the possibility for such occurrence should be minimized.

- Terminate them on separate LGCs, not just separate SLGCs.
- If possible, the selected LGCs should be at least five LGCs apart (e.g., LGC 0 and LGC 5).

9. TRANSLATION REQUIREMENTS FOR POSITION DSLs

A DSL must be defined for each operator position. The OSPSDSL form (5411 Record) is used to assign Line Card Equipment Numbers associated with operator positions to Integrated Services Channel Numbers. DSLs for Directory Assistance BSTs (Basic Services Terminals) must be assigned a SERVICE CLASS of "DAOPER". DSLs for Toll and Assistance VDTs (Video Display Terminals) must be assigned a SERVICE CLASS of "TAOPER". DSLs for agent position terminals used in telemarketing applications must be assigned a SERVICE CLASS of "DAOPER".

Position DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

The following fields are not used for position DSLs and should be left blank: DSL NAME ID, DSL NAME RL, MATE LCEN, SCR IDX and DAS.

**Maximum Number of Class-1 and Class-2 DSLs per Sub-Line Group Controllers
for a 24-Channel Transmission Facility**

SLG #	Max. Class-1 DSLs	Class-2 DSLs
0	3	1
1	4	0
2	4	0
3	4	0
4	3	1
5	3	1
6	4	0
7	3	1
8	4	0
9	4	0
10	3	1
11	4	0
12	4	0
13	3	1
14	4	0
15	4	0
16	4	0
17	3	1
18	4	0
19	3	1
20	4	0
21	4	0
22	3	1
23	4	0
24	3	1
25	4	0
26	3	1
27	4	0
28	4	0
29	3	1
30	4	0
31	3	1

Subtotals	115	13
SLG #	Max. Class-1 DSLs	Class-2 DLSs
32	4	0
33	4	0
34	3	1
35	4	0
36	4	0
37	3	1
38	4	0
39	3	1
40	4	0
41	3	1
42	4	0
43	4	0
44	3	1
45	4	0
46	3	1
47	3	1
48	4	0
49	4	0
50	3	1
51	4	0
52	3	1
53	4	0
54	4	0
55	4	0
56	4	0
57	3	1
58	4	0
59	3	1
..	..	..
..	..	..
..	..	..
..	..	..
Subtotals	101	11

Grand Total Class-1 = 216*

Grand Total Class-2 = 24

*This is the physical limitation for the maximum number of OSPS positions on an RISLU

Other limitations such as engineering rules and specific applications may limit this number.

Figure 1 LINE GROUP CONTROLLER ASSIGNMENT TO SUB-LINE GROUPS

Number of Active Facilities	Usable SLGs
	FROM - TO
1	0 - 4
2	0 - 9
3	0 - 14
4	0 - 19
5	0 - 24
6	0 - 29
7	0 - 34
8	0 - 39
9	0 - 44
10	0 - 49
11	0 - 54
12	0 - 59

Figure 2 USABLE SUB-LINE GROUPS

The table below defines all of the SLGs that are provided for an OSPS equipped (R)ISLU

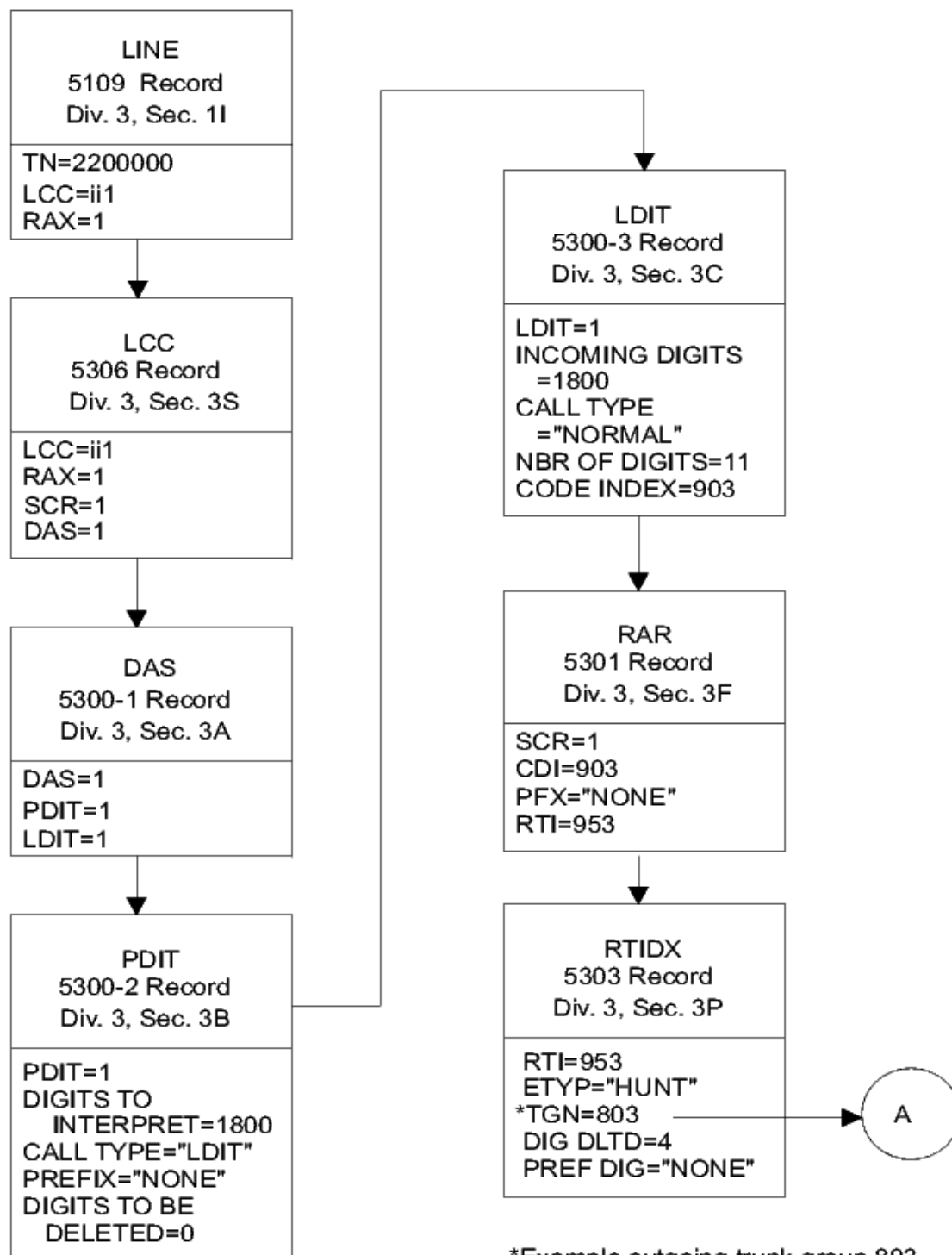
SLG	LGC	LINE CARDS
0	0	16,18,20,22
1	1	16,18,20,22
2	2	16,18,20,22
3	3	16,18,20,22
4	4	16,18,20,22
5	5	16,18,20,22
6	6	16,18,20,22
7	7	16,18,20,22
8	8	16,18,20,22
9	9	16,18,20,22
10	10	16,18,20,22
11	11	16,18,20,22
12	12	16,18,20,22
13	13	16,18,20,22
14	14	16,18,20,22
15	15	16,18,20,22
16	0	8,10,12,14
17	1	8,10,12,14
18	2	8,10,12,14
19	3	8,10,12,14
20	4	8,10,12,14
21	5	8,10,12,14
22	6	8,10,12,14
23	7	8,10,12,14
24	8	8,10,12,14
25	9	8,10,12,14
26	10	8,10,12,14
27	11	8,10,12,14
28	12	8,10,12,14
29	13	8,10,12,14
30	14	8,10,12,14
31	15	8,10,12,14
32	0	24,26,28,30
SLG	LGC	LINE CARDS
33	1	24,26,28,30
34	2	24,26,28,30
35	3	24,26,28,30
36	4	24,26,28,30
37	5	24,26,28,30
38	6	24,26,28,30
39	7	24,26,28,30
40	8	24,26,28,30
41	9	24,26,28,30
42	10	24,26,28,30
43	11	24,26,28,30
44	12	24,26,28,30
45	13	24,26,28,30
46	14	24,26,28,30
47	15	24,26,28,30
48	0	0,2,4,6
49	1	0,2,4,6
50	2	0,2,4,6
51	3	0,2,4,6
52	4	0,2,4,6
53	5	0,2,4,6
54	6	0,2,4,6
55	7	0,2,4,6
56	8	0,2,4,6
57	9	0,2,4,6
58	10	0,2,4,6
59	11	0,2,4,6
60	12	0,2,4,6
61	13	0,2,4,6
62	14	0,2,4,6

63	15	0,2,4,6

Figure 3 SLGs PROVIDED FOR AN OSPS-EQUIPPED (R)ISLU

(Example - Dial 1 800 555-1212 to access ACD queue 104)

LINE TO TRUNK



*Example outgoing trunk group 803
looped to incoming trunk group 308.
Digits outputted are KP5551212ST.

Figure 4 ODA FORMS FOR LINE ORIGINATION TO ACD QUEUE

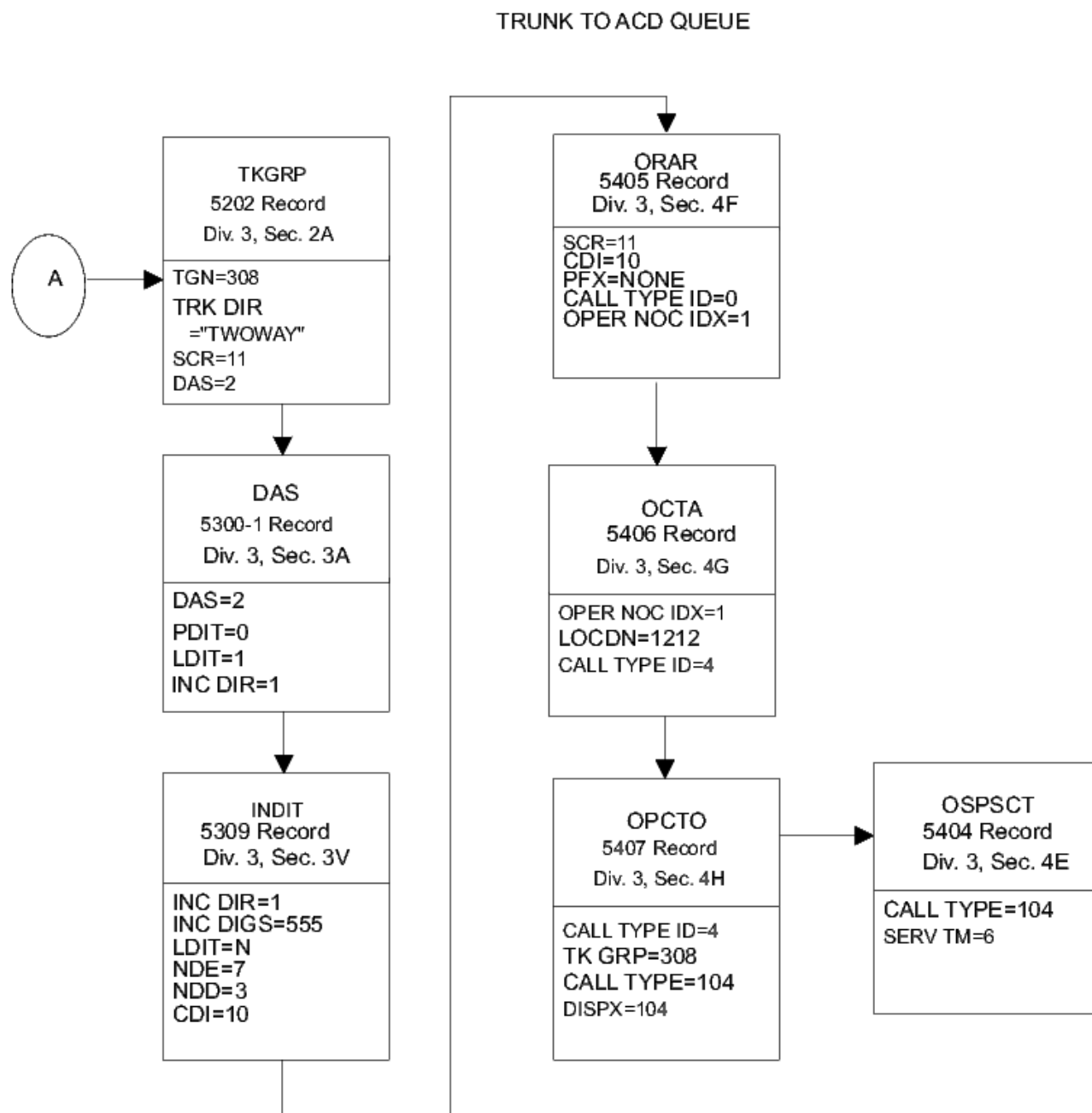


Figure 5 ODA FORMS FOR LINE ORIGINATION TO ACD QUEUE

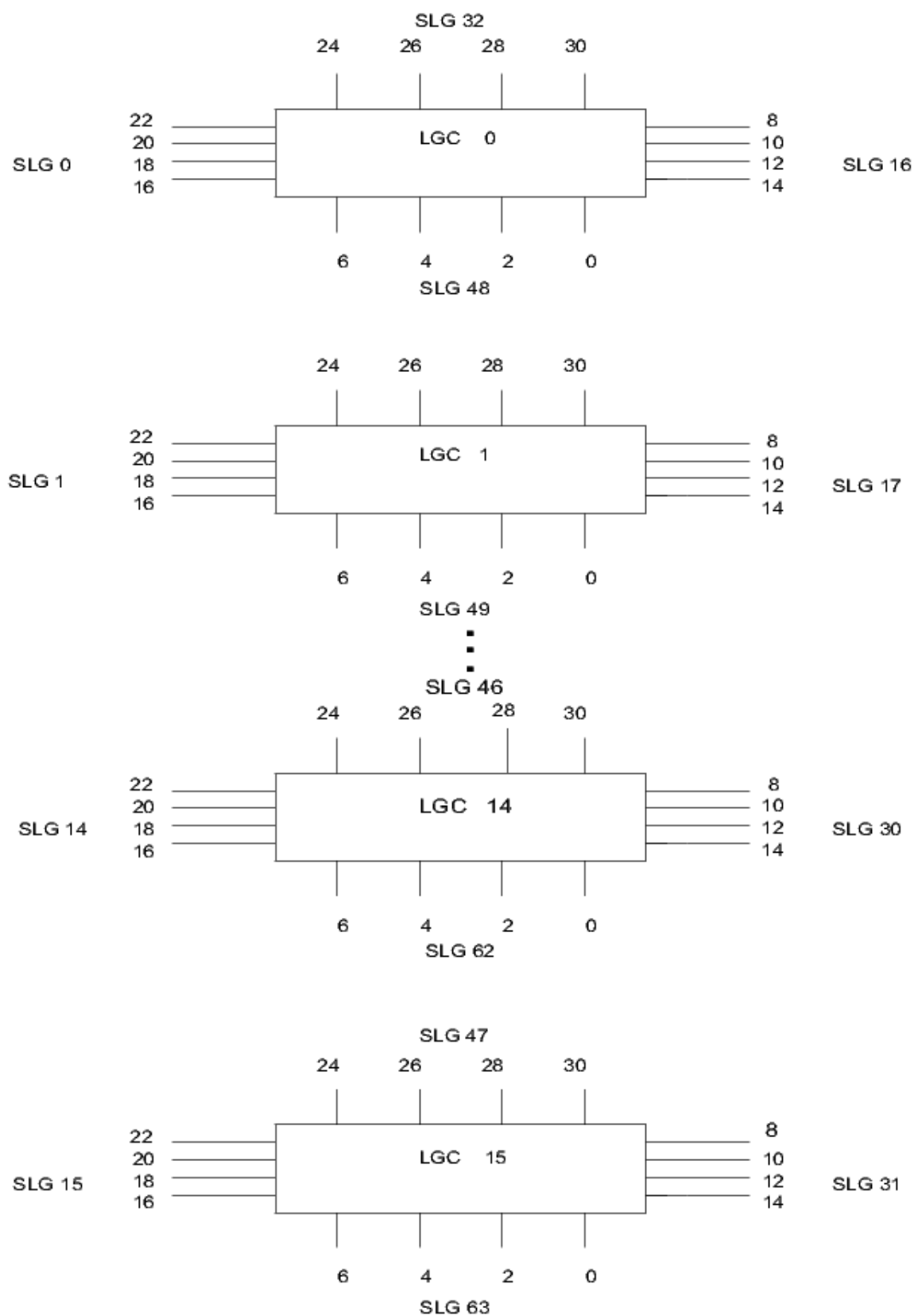


Figure 6 LINE GROUP CONTROLLER ASSIGNMENT TO SUB-LINE GROUPS

SEC. 3B: OSPS DIRECTORY ASSISTANCE

1. FUNCTIONAL DESCRIPTION

The Directory Assistance feature of OSPS gives operators at operator positions the ability to provide number services to their customers. Examples are 411 and 555-1212. This feature is provided by building incrementally on the 5ESS Switch with ISDN and RISLU features. It uses the base architecture of the 5ESS Switch as the foundation of its structure. A 5ESS Switch configured to provide Operator Services is called an OSPS.

Each OSPS can consist of a maximum of 32 OSC (Operator Services Centers) and 8 FMC (Force Management Centers). An OSC is a physical location comprised of operator positions, service assistant positions, service management terminals and supporting hardware. An FMC is similar to an OSC, but serves to coordinate the OSCs in providing an acceptable grade of service.

1.1 Operator Call Processing

Operators are assigned to serving teams upon login. The ACD (Automatic Call Distribution) function partitions incoming calls into CALL TYPES, enabling the staffed operators to specialize by CALL TYPES and maximize operator efficiency.

The following activities typify an OSPS directory assistance call:

- The operator receives an incoming call on the BST (Basic Services Terminal).
- The operator uses a vendor-supplied DAS/C (Directory Assistance Computer) to search for a directory number.
- The operator instructs OSPS to provide a recorded announcement.
- The operator releases the call during the announcement.
- The customer can recall the operator (by staying off hook).

Directory assistance operators receive calls on a BST (Basic Services Terminal). The BST has a standard 12-key key pad, 20 function buttons, a 20-character display and operator headset jacks. Information about the incoming call is provided on the display. Keys and buttons are provided on the BST for control of the position.

OSPS operators are able to perform a variety of functions such as accessing operators in distant manual offices, as well as operators in serving teams within the same OSPS. Operators are able to place a call into the switched network, and activate/deactivate their position. Operators can hold calls at their position while consulting with another operator or supervisor, or make other calls.

Each OSPS operator position is identified by the combination of an absolute position number and a relative position number. The absolute number (1 through 1023) identifies the position as an OSPS terminal. The relative position number is used to correlate an operator position to a specific OSC. The absolute number and relative position number (used in combination to define an operator position D-port assignment and a position number in an OSC) must be recorded in the database to provide a "position to port" map for OSC operators and administrators.

An operator is assigned to one of a possible 128 serving teams when logged on at a position and the members of a serving team can be distributed among any or all OSCs.

Calls are entered into queues if no operator is available. An indication is given to all members of a serving team whenever the waiting time of a call exceeds a preset threshold, and customer announcements and audible ring are provided. Call origin information (trunk group, dialing sequence, etc.) is automatically indicated to the operator upon position seizure.

Several administrative features are available with OSPS, including monitoring, where OSPS managers may bridge onto a call in progress. Calls can be monitored from these positions in either an undetected or a detected mode.

1.2 Operator Services Center

An OSC (Operator Services Center) is an administrative grouping of operators typically reporting to a "manager of operator services". The operators may work in one or more rooms, or multiple OSCs may be defined within one physical room.

OSC offices are equipped with operator positions (BSTs), an OPC (Operator Position Controller), a processing unit, an OAP (OSPS Administrative Processor), a system console, administrative printers and interface circuitry required to allow communications between OSC entities and a 5ESS Switch PSM.

OSPS measurements are periodically provided by 15- and 30-minute traffic reports and 24-hour division of revenue and plant reports. A 15-minute OSPS traffic report and a 24-hour operator report are printed on an administrative printer at an OSC. In addition to the OSPS traffic and operator reports, OSC administrators have access to various status and performance displays. The displays are available at OSPS administrative terminals via the OAP "ospsadm" and "ospscmd" logins.

1.3 Force Management Center

One or more FMC (Force Management Centers) are associated with a 5ESS Switch with the OSPSDA feature. A single 5ESS Switch can support up to 8 FMCs. An FMC does not handle calls, but coordinates the OSCs in providing an acceptable grade of service.

An FMC is a physical location comprised of an OAP and system console, and may also contain an operator trouble report printer, administrative terminals and printers, and a security terminal and printer. The FMC offices are not equipped with operator positions. The FMC communicates with the OSPS through the OPC in one or more OSCs. The FMC collects and analyzes data, such as traffic (call) measurements, serving team and individual operator performance and operator trouble reports. The FMC can send force administration data to the OSPS (through the OPC) to change traffic flow, operator assignments and other parameters.

The OSPS 15-minute traffic report provides performance statistics for the last 15 minutes. The report includes switch-wide totals on a call-queue basis, office totals on an FMC ID number basis and processor occupancy on a PSM basis. The statistics include position seizures, various call completions, abandons, average answer delays, average call handling times, overflows, operator occupancy, call handling volume, etc.

The 24-hour operator report provides a summary of the performance statistics for the last 24 hours. The report includes operator call-handling statistics per operator, per serving team, per group manager and per FMC.

The OAP, which must be an AT&T 3B2 computer, is the nucleus of the FMC. The OAP has an internal operating system and application software that permit the FMC to operate independently from the OSPS, except for communication through the OPC. Ports on the OAP provide communication with terminals, printers and remote systems. These peripherals permit independent administration of the OAP and display of

reports. The reports include OAP performance, OSPS traffic measurements and operator trouble.

1.3.1 OSC/FMC DATABASE OVERVIEW

The database must contain administrative parameters for each OSC/FMC defined in the database. When an OSC/FMC is defined in the database, office administrators must specify these parameters or accept system default values. The OSPS office administrative parameters include the following:

- Display permissions for administrative terminals
- Print permissions for OSPS traffic and operator performance reports
- Transfer permissions for OSC/FMC data
- Residency maps for OSPS serving team members

1.4 Interflow

The Interflow feature is available with 5E5 and later Software Releases. The OSPS Interflow feature allows for immediate, scheduled or permanent close down of one, some or all operator serving teams at an OSPS. Call traffic requiring operator assistance that is otherwise handled by the closed serving teams is subsequently interflowed to another OSPS. This section describes the Interflow feature as it applies to DA (Directory Assistance) calls.

For the OSPS DA application, Interflow is accomplished via rerouting the calls over analog or digital facilities to other operator switches for operator services and call handling. In the course of rerouting the call, data can be populated such that the dialed digits received are outpulsed, different digits than those received are outpulsed or some digits are outpulsed in the case where no digits were received. An operator switch that receives a rerouted call has no indication that the call has been rerouted, therefore, caution should be taken when populating the data such that rerouted calls do not end up back at the switch that initiated the reroute.

1.5 Interflow Activation/Deactivation

Interflow activation and deactivation allows a user to turn Interflow "on" or "off" on an immediate or scheduled basis. Activation and deactivation of Interflow may be accomplished via Recent Change only, that is to say, Interflow cannot be activated or deactivated via ODA.

Interflow is activated and deactivated to a receiving OSPS Interflow switch on a serving team basis. That is, a user turns Interflow "on" or "off" for a serving team. A serving team may be activated to Interflow to only one receiving OSPS switch at a time, but multiple serving teams may be activated to the same receiving OSPS switch. When a serving team is activated for Interflow, all calls that would otherwise be handled by an operator on that serving team are interflowed.

If the activated serving team handles DA, ACD/MIS or Non-ISP to VDT calls then the calls will be interflowed via rerouting the calls through the network to another operator switch. If the activated serving team handles T&A call traffic, then the calls will be interflowed via the OSPS EDSL to the receiving OSPS switch. If the case exists where a serving team handles both T&A and Non-ISP to VDT calls, then the T&A calls will be interflowed via the OSPS EDSL and the Non-ISP to VDT calls will be interflowed via rerouting calls out over trunks to the network.

1.6 Translation Requirements

|

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

Since activation and deactivation of Interflow can be accomplished only via Recent Change Views 21.7, 21.8 and 21.16, there are no ODA input forms to activate or deactivate Interflow. The following sections describe how to activate and deactivate Interflow via Recent Change.

1.6.1 Scheduled Interflow Activation/Deactivation

The Q DRN TIME parameter on the OSPSOPT form is used only when Interflow has been scheduled for activation. Interflow can be scheduled for activation on quarter hour boundaries via Recent Change Views 21.16 and 21.8. Q DRN TIME specifies the number of minutes prior to the scheduled quarter hour when Interflow activations are to occur. For example, if Interflow is scheduled to be activated at 8:15 AM and Q DRN TIME is set to 3 (minutes), then the activation will actually occur at 8:12 AM. This parameter was defined because once Interflow is activated for a serving team, all newly arriving calls will be interflowed and calls that were queued will not be interflowed and, therefore, must be served on the initial OSPS switch. If an administrator wishes to not have any operators handling calls at or near to the scheduled quarter hour, then Q DRN TIME should be set to nonzero. If Q DRN TIME is set to zero, then operators must stay logged in past the scheduled quarter so that the calls that were queued at the time of activation will be served.

The OSPS ID field on the OSPSOPT form identifies the originating OSPS switch. These OSPS IDs should be selected such that OSPS switches within the same Interflow network are unique. The OSPS ID is used when reporting the occurrence of Interflow activations and deactivations at the OAP (OSPS Administrative Processors) at both the originating and receiving Interflow switches. These reports always indicate the OSPS ID of the switch which initiated the activation or deactivation.

RC Views 21.16, OSPS Automatic Reconfiguration Time and 21.8, OSPS Scheduled Interflow Activation and Deactivation, are used to schedule Interflow activations and deactivations. RC View 21.16 defines an auto-reconfiguration pattern in terms of a PAT ID and the time that the pattern should take effect. Patterns may be scheduled to take effect either on an hour boundary or 15, 30 or 45 minute quarter hour boundary for a given forcing day.

Activation/deactivation data is entered into the pattern with RC View 21.8. This view is constructed such that the user specifies for a particular Interflow receiving switch (i.e., the DEST ID field) which serving teams should be activated or deactivated. The OSPS ID of the receiving OSPS should be entered in the DEST ID field.

If Interflow is to be activated for a serving team, an "A" is entered on the field corresponding to the serving team number. Conversely, a "D" is entered if Interflow is to be deactivated for a serving team. A serving team's scheduled status may be deleted by updating an "A" or "D" to " ". A blank entry indicates that the associated serving team is neither activated or deactivated by this pattern when this pattern takes effect.

1.6.2 Immediate Interflow Activation/Deactivation

As for scheduled activations and deactivations, the OSPS ID field on the OSPSOPT form identifies the originating OSPS switch. It is used when reporting the occurrence of Interflow activations and deactivations at the OSPS Administrative Processors at both the originating and receiving Interflow switches.

RC View 21.7, OSPS Immediate Interflow Activation and Deactivation, is used to immediately (manually) activate/deactivate Interflow. This view is constructed such that serving teams can be activated or deactivated for a particular receiving Interflow OSPS switch as specified by the DEST ID field. The OSPS ID of the

receiving OSPS should be entered in the DEST ID field. An "A" should be entered for each serving team that is to be activated and a "D" for those that are to be deactivated. The Interflow activations and deactivations take place immediately upon completion of the RC UPDATE operation.

1.7 ACD for Interflow Calls

Interflow for Directory Assistance, ACD/MIS and Non-ISP to VDT calls is accomplished by rerouting the calls back into the telephone network. This section describes the ACD operation for DA calls.

1.8 Translation Requirements

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
INFLDEST	5448	3	4AW	21.27
RAR	5301	3	3F	10.10

The INFLDEST form allows for assigning a new code index (OUTGO CDI field) to an incoming OSPS call that is to be interflowed via reroute through the network. After the ACD determines that a DA call must be interflowed, a new code index must be determined and used to route the call back into the network. Determination of a new code index is based on the code index derived from digit analysis on the incoming call, the incoming trunk group number and the ID of the receiving operator switch. Each of these are used to match on the respective INC CDI, TGN and DEST ID fields in the INFLDEST form. The OUTGO CDI entered on the INFLDEST form must exist in the RAR form. The DEST ID field on the INFLDEST form is also used in reporting Interflow activations and deactivations at the OAPs.

1.8.1 Interaction with Intraflow

A serving team that has Interflow activated is not eligible to receive intraflowed traffic. A queue whose principal team is being interflowed may be intraflowed to a supporting team whose delay outflow threshold is zero. If an Interflow channel is not found and no supporting team server is found, the call will fail because queuing is not allowed for teams which are interflowed.

1.9 Intraflow

The OSPS Intraflow feature is available with 5E5 and later Software Releases. Intraflow allows an ACD/OSPS administrator to assign for each call queue, a single principal serving team and up to eight supporting serving teams which may handle calls from the call queue when all of the operators on the principal serving team are busy.

2. SYSTEM CONFIGURATION

Adding a fully equipped Directory Assistance feature to the 5ESS Switch involves using one or more ISDN switching modules as PSM (Position Switching Modules) and then adding the following for each PSM:

- An OPC (Operator Position Controller), which consists of a RISLU (Remote Integrated Services Line Unit) and associated interface hardware
- BST (Basic Services Terminal(s))
- Data links to the DAS/C (Directory Assistance System/Computer) via STA (Synchronous Terminal Adapters)
- An OAP (OSPS Administrative Processor) and associated ATA (Asynchronous Terminal Adapters)

- An ACC (Alarm Conversion Circuit) and associated ATA

The PSM resides in the host 5ESS Switch. The OPC, BST(s), DAS/C equipment, OAP, ACC and associated ATA/STA reside in an OSC (Operator Services Center) or FMC.

2.1 Position Switching Module

The ISDN switch module is the building block for OSPS. By adding the OSPS software and hardware, the ISDN SM is converted into a PSM (Position Switching Module) for OSPS. This can include the DSU2-RAF (Digital Services Unit 2 - Recorded Announcement Facility). The DSU2-RAF minimizes the time an operator spends handling a call by automatically relaying announcements to the user.

2.2 Operator Position Controller

An OPC is the main equipment required to support directory assistance operator positions and the OAP at an OSC. The main function of the OPC is to interface voice/data channels that serve operator positions to a 5ESS Switch. It does this through the use of the RISLU.

2.2.1 OPC - RISLU

The RISLU is a switching module peripheral unit that supports analog and digital line terminations in the 5ESS Switch, but is located on the customer premises away from the 5ESS Switch. The RISLU serves as the interface between the 5ESS Switch and the OSC, allowing operators to be remoted as far as 1000 miles away from the 5ESS Switch. The RISLU provides the multiplexing of up to 18 positions onto each DS1 facility. The RISLU is connected to the PSM via digital carrier facilities.

2.2.2 OPC - DSL

A DSL is the transmission channel connecting an OPC with a BST, OAP, DAS/C or ACC. The DSL application for OSPS provides a T-type interface with a T-type line card in the RISLU. This 4-wire interface, operating at 192kb/s, conforms to CCITT requirements. The use of T-type line cards restricts the distance from a RISLU to a terminal to 1 km (0.62 mile).

Two types of DSLs are used in the OSPS application. A class 1 DSL uses either a 1B or a 1B + D configuration. A class 2 DSL requires only a D-channel. Operator positions (BSTs) require a class 1 DSL with a 1B + D configuration, while the OAP, DAS/C and ACC require a class 2 DSL. Refer to the Translations Requirements for OSPS DSLs section below for data population information.

2.3 Alarm Conversion Circuit

The ACC (Alarm Conversion Circuit) monitors and operates building alarms for OSPS.

2.4 Terminal Adapters

A STA (Synchronous Terminal Adapter) is used to interface with external databases (via the DAS/C). The STA converts the ISDN data format that comes out of the RISLU into a format compatible with the external data base software. The ATA (Asynchronous Terminal Adapter) provides the same function as the STA for asynchronous applications.

2.5 Basic Services Terminal

The BST provides voice and call information to the directory assistance operator and is used by the operator to control the call. There can be as many as 60 BSTs for each PSM.

2.6 Directory Assistance System/Computer

The DAS/C (Directory Assistance System/Computer) is a vendor supplied system that contains the database of directory assistance listings. The DAS/C is connected to the OPC by data links that go through an STA. The STA provides 9600 baud, synchronous data communications to the DAS/C. Once the number is found in the DAS/C computer, the operator instructs the OSPS (through a key sequence on the BST) to provide an automatic announcement of the directory number to the customer. The operator is then released from the call while the announcement is being played, and is ready to receive another call.

2.7 Operator Administrative Processor

The OSPS Administrative Processor is an AT&T 3B2 computer that processes measurement and administrative data. The OAP supports administrative terminals, which allow access to OSPS-related, office-dependent data. It also supports administrative printers which print traffic and operator performance reports. The OAP is connected to the OPC by an ATA, which provides asynchronous data communications to the 3B2 computer.

2.8 OSPS Announcements

Directory assistance announcements are provided by the DSU2-RAF hardware in which DA announcement firmware has been loaded.

The following sections will cover the hardware and ODA input forms needed to configure an OSPS office with the ability to provide DA announcements.

2.8.1 OSPS Announcement Hardware

DA announcements are provided by the DSU2-RAF hardware, which consists of the DSU2-RAF circuit board (TN833) and the associated DSU2-RAF Memory board (TN1053). The DA announcements are stored on the memory board. The announcements are accessed through predefined trunk groups and associated trunk group members. DA calls that require an announcement are routed to the trunk group associated with the type of announcement needed.

Data for OSPS announcements are divided into three general categories: Announcement Data, RAF Hardware Equipage Data and Routing - Trunking Data. The following sections will describe how data should be populated in each of these areas for DA offices.

2.8.2 Announcement Data

Announcement Data uses six ODA forms which are listed below. All six forms must be populated for DA offices.

2.9 Translation Requirements

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNAPL	5529	3	5AC	8.64
ANNDBG	5532	3	5AF	8.60
ANNHD	5531	3	5AE	8.61
ANNTR	5533	3	5AG	8.62

OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

The ANNAPL form allows an office to define the SMs requiring DA announcements. SMs in this list must contain RAF hardware and equipage data for DA. They must also be "LOADED" SMs (i.e., the CONFIGURATION field on the EQIM form is set to "LOADED").

The ANNHD form defines header identification numbers that map to a set of phrase IDs. The phrase IDs are defined on the PHRASE form.

The ANNDG form defines digit inflection numbers that map to digit inflection schemes. The inflection schemes consist of phrase IDs and inflection commands. The phrase IDs are defined on the PHRASE form.

The ANNTR form defines trailer identification numbers that map to a set of phrase IDs. The phrase IDs are defined on the PHRASE form.

Note that ODA will automatically populate a default set of ANNHD, ANNDG, ANNTR and PHRASE forms for OSPS if the ANNAPL form is populated with OSPS application data.

The OSPSOPT form defines the following DA announcement options.

- OSPS RAF - enter "Y" when the DSU2-RAF provides DA announcements. The default is "Y".
- DABRAND - enter "Y" if a branding phrase should be given on DA announcements. The default is "Y".

2.10 RAF Hardware Equipage Data

The Equipage Data is populated on two ODA forms which are listed below. Both forms must be populated for DA offices.

2.11 Translation Requirements

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQRA	5821	8	35	19.10
EQRAP	5822	8	36	20.10
				20.22

The EQRA form defines the physical location where the DSU2-RAF hardware is located along with the type application (DA) that will be downloaded by the SM. EQRAP defines the application along with the associated micro-code.

2.12 RAF Routing and Trunking Data

Routing and Trunking Data consist of four ODA forms which are listed below. All the forms must be populated for DA offices.

2.13 Translation Requirements

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FIXRT	5301-1,3	3	3G	10.1
RTIDX	5303,3	3	3P	10.2

TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

The FIXRT form uses the FIXED ROUTE TYPE of "OSPSDA" to obtain a fixed route index. The route index is defined on the RTIDX form, which in turn contains the trunk group number needed to access DA announcements.

2.14 Translation Requirements For OSPS DSLs

OSPS requires DSL (Digital Subscriber Lines) for multiple features. Two types of DSLs are used in the OSPS application. A class 1 DSL uses either a 1B or a 1B + D configuration. A class 2 DSL requires only a D-channel. Operator positions (BSTs) require a class 1 DSL with a 1B + D configuration, while the OAP and DAS/C require a class 2 DSL. Each type is described below.

2.14.1 OPERATOR POSITION DSL

The OSPSDSL form (5411 Record) is used to assign Line Card Equipment Numbers associated with operator positions to Integrated Services Channel Numbers. DSLs for Directory Assistance Basic Services Terminals must be assigned a SERVICE CLASS of "DAOPER".

Position DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

The following fields are not used for operator position DSLs and should be left blank: DSL NAME ID, DSL NAME RL, MATE LCEN, SCR IDX and DAS.

2.14.2 OAP DSL

The OAP provides a force management interface to the OSPS. The OAP is connected to OSPS via a DSL. The OSPSDSL form is used to assign Line Card Equipment Numbers associated with the OAP to an Integrated Services Channel Number. An OAP DSL must be assigned a SERVICE CLASS of OAP. Typically an OAP DSL is assigned per Operator Service Center with a maximum of 32 OAP DSLs per switch. There may be only one OAP DSL assigned per OAP. There is a maximum of 32 OSCs per switch.

OAP DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

The following fields are not used for OAP DSLs and should be left blank: DSL NAME ID, DSL NAME RL, MATE LCEN, SCR IDX and DAS.

2.14.3 DASC DSL

OSPS interfaces via DSLs to an external Directory Assistance Service Computer as part of the DA automated announcement feature. The DASC provides the directory listings. The following ODA forms are used to define a DASC DSL.

- 5411 - OSPSDSL
- 5424 - OSPSOPTS

2.14.4 OSPSDSL form (5411 Record)

Typically, two DSLs are defined between the OSPS and DASC for each Switching Module that supports DA

operator positions. There may only be two DSLs defined per SM, thus the SM portion of the LCEN may be the same for only two DASC DSLs. Each DASC DSL must have a SERVICE CLASS equal to "DASC".

The DSL NAME ID and DSL NAME RL fields are used to define the external names used to reference the DSLs. If a maintenance message pertaining to a DASC DSL is printed on the ROP, these two fields are used to identify the DSL.

When two DASC DSLs are assigned to the same SM, they must have the same DSL NAME ID. In the case where only one DASC DSL is defined for a particular SM, the DSL NAME RL field must be an even number, e.g., 2. In the case where two DASC DSLs are defined for a particular SM, the DSL NAME RL values must be consecutive, with the even DSL NAME RL value equal to the odd value minus one, e.g., 2 and 3 or 4 and 5. For additional information on DASC DSLs and the use of the DSL NAME ID and DSL NAME RL fields, please refer to Division 3, Section 4L.

DASC DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

2.14.5 OSPSOPT form (5424 Record)

The DASC VENDOR option on the OSPSOPT form must be set to indicate the vendor of the DASC.

2.15 Translation Requirements Summary

In summary, the following ODA forms are used for the OSPS Directory Assistance feature.

ANNDG form (5532 Record)

The Announcement Digit Inflection Scheme form contains inflection commands and phrase identifications that comprise digit strings.

ANNHD form (5531 Record)

The Announcement Header Phrase List form contains phrases that identify announcement headers.

ANNTR form (5533 Record)

The Announcement Trailer Phrase List form contains phrases that comprise announcement trailers.

DAS form (5300-1 Record)

The DAS form is used to define DAS values which are assigned on the STINFO form.

EQIM form (5700-1/2 Record)

Switching module entries on the ANNHD form, ANNDG form and ANNTR form must be defined on the EQIM form.

FIXRT form (5301-1 Record)

The FIXRT form is used to define routing and charging treatment of fixed route types.

ICF form (5305 Record)

The ICF form is used to define the carriers which are assigned on the STINFO form.

INDIT form (5309 Record)

ISDNOPT form (5941 Record)

Any OSPS office type entered on the OPARM form must be designated on the ISDNOPT form in the OSPS INSTALLED field.

ISLULC form (5942 Record)

Any line card equipment number (LCEN) entered on the OPARM form, OSPSOP form or OSPSDSL form must be specified on the ISLULC form. On the ISLULC form, the equipment status must be "O" (Operational).

LDIT form (5300-3 Record)**OBSTS form (5408 Record)**

The OSPS Basic Services Terminal Seizure form provides information for OSPS BST displays. Display contents, starting positions and lengths are defined.

OCTA form (5406 Record)

The OSPS CALL TYPE Assignment form assigns OSPS CALL TYPES from OSPS normalized office code and local digits-dialed combinations.

OPARM form (5400-1/2 Record)

The OSPS Operator Parameters form defines parameters of an OSPS office including type of equipment, displays and reports and the assignment of serving teams.

OPCTO form (5407 Record)

The OSPS CALL TYPE for Trunk Originations form determines OSPS call types and a BST display indexes for trunk origination from OSPS call identification/trunk group combination. Entries (other than 9999) in the TGN field of this form must be defined in the TKGRP form.

ORAR form (5405 Record)

The OSPS Rate and Route form identifies a call as an OSPS call by defining the routing and charging for each OSPS screening index/code index combination in a 5ESS Switch.

OSPSCT form (5404 Record)

The OSPS CALL TYPE Parameters form assigns CALL TYPE information such as "open for business" and serving teams to OSPS CALL TYPES through operator position to local port mapping. Each route index (1ST ANN RTI, 2ND ANN RTI, 3RD ANN RTI or CLOSE DOWN RTI) entered on this form must be defined on a RTIDX form.

OSPSDSL form (5411 Record)

The OSPS Digital Subscriber Line form assigns OSPS circuits to line card ports.

OSPSOA form (5403 Record)

The OSPS Operator Assignments form defines OSPS operator positions, assigns operators to serving teams and defines valid operator actions.

OSPSOP form (5401 Record)

The OSPS Operator Position form defines each operator position within an OSC, assigns RISLU (Remote Integrated Service Line Unit) ports and assigns operator positions.

OSPSOPT form (5424 Record)**OTRVLD form (5410 Record)**

The OSPS Operator Trouble Report form defines OSPS operator trouble report information.

PHRASE form (5534 Record)

The Announcement Phrase List form lists phrase identifications that comprise announcements.

RAR form (5301 Record)

The RAR form is used to define screening index values which are assigned on the STINFO form.

RESXDL form (5409 Record)

The OSPS Restricted External Dialing form defines restricted dialing sequences for an OSPS serving team's operators.

RTIDX form (5303 Record)

The RTIDX form is used to define route indices which are assigned on the OSPSCT form.

STINFO form (5402 Record)

The OSPS Serving Team Information form provides information about an OSPS serving team. Each digit analysis selector value and secondary digit analysis selector value entered on this form must be defined on the DAS form. Each screening index entered on this form must exist on the RAR form. Each carrier specified on this form be defined on an ICF form.

TKGRP form (5202-1/2 Record)

The TKGRP form is used to define the trunk groups which are assigned on an OPCTO form.

SEC. 3C: OSPS LISTING SERVICES

1. FUNCTIONAL DESCRIPTION

OSPS Listing Services is available with the 5E6 and later Software Releases. Listing Services allows OSPS operators to provide manual and semi-automated Listing Services or fully-automated Listing Services requiring no operator intervention. The OSPS Directory Assistance feature and the Listing Services feature can coexist on the same OSPS Position Switching Module. Figure 1 shows an ODA Walkthrough of the Listing Services Call.

1.1 Manual Listing Services

Manual Listing Services routes the call to an operator who can access the information requested by the caller. For example, this information could be in the form of paper listings or electronic databases. OSPS operator position terminals may identify the incoming service on the call processing displays with a unique name of up to 10 characters. In addition, the OSPS VDT (Video Display Terminal) and CST (Combined Services Terminal) have the capability to switch the display to a specific database session assigned to the service. Billing for Manual Listing Services is not provided by OSPS; therefore, either the subtending local office creates a billing record or an adjunct billing system is needed.

1.2 External Information System

Semi-automated Listing Services require a call processing interface with a system external to OSPS, an EIS (External Information System). The EIS may supply customized databases or other resources used in conjunction with the 5ESS Switching System features supported by OSPS. As with Directory Assistance, callers are routed to an operator who performs an EIS database search for the requested listing using an EIS-compatible database terminal. The operator then releases the caller to an ARU (Audio Response Unit) group specified by the EIS. When an available announcement unit is successfully selected from the ARU pool, the operator is dropped from the call to assist another caller. The current caller is provided his/her information by listening to the ARU announcement.

Fully-automated Listing Services require no operator assistance. The External Information System receives and provides service directives via the call processing interface and supplies various service resources as they are required to process the call. Information used to perform a listings search may be obtained from the digits dialed by the caller or other related 5ESS Switch office data. Some Listing Services may provide an announcement to prompt the caller to input information via the DTMF (Dual Tone Multifrequency) pad on their telephone.

The EIS works with the call processing software of OSPS to define Customized Listing Services and to supply service resources that are not considered part of a digital switching system (See Figure 2). The selected EIS must support a call processing interface developed jointly between OSPS and the EIS vendor so that control and status information can be shared between the two entities. This interface is implemented using EIS DSLs (Digital Subscriber Lines), more commonly referred to as CPDLs (Call Processing Data Links). When a call arrives at an operator position, a message is sent to the EIS, via a CPDL. The message contains the position seized and a call identifier (Call ID) used to create a new call record or to access an existing call record within the EIS. If the EIS also supports the database which supplies the up-to-date service information, then the EIS is required to update the associated database session of the selected operator with the appropriate display. Upon locating the information, the operator may verbally relate the data or, if an ARU group has been provided, the operator may transfer the caller to an announcement unit.

Announcement units may be provided by either OSPS or the EIS. The Listing Services feature supports both internal OSPS DSU2-RAF's, as well as EIS external ARU's which interface with OSPS using digital or analog

trunks.

OSPS supports up to sixteen External Information Systems. A single loaded SM can interface with a maximum of eight EISs via CPDLs, i.e., as many as sixteen CPDL's can terminate on a loaded SM.

If the number of data links required to support the Listing Services of an EIS during the busy hour is denoted by the letter N and the number of CPDLs allocated for spare CDPL capacity is specified by the letter K, then $N + K$ is the number of CPDLs assigned to support an EIS with spares assigned based upon the data link configuration and reliability desired for the Listing Services of the EIS. The sum, $N + K$, can range from 1 to 16. K can be zero. See Figure 2 for the basic system configuration for an EIS.

The capabilities provided by OSPS for the EIS interface must also be supported by the EIS vendor, i.e., not all EIS interface capabilities discussed in this section are supported by each EIS vendor that has developed an interface with OSPS.

1.3 Listing Services Call Processing

Figure 1 shows an ODA walk through of a Listing Services Call. The following scenario is a typical Listing Services Call.

1. Based upon the incoming trunk group and/or dialed digits, a call type is assigned.
2. The call type (CALL TYPE field on the OSPSCT form (5404 Record) RC 21.22) maps to a Service ID (SVC ID on the OSPSCT form) for Listing Services calls.
3. The initial action for a service may
 - route the caller to an operator,
 - route the caller directly to an announcement (no EIS interface is required)
 - establish an EIS interface or
 - request the initial action from the EIS
1. If the Service ID routes the caller to an operator, then the Service ID and serving team may specify the EIS assigned to the call and the OSPS VDT or CST database session to be selected. If an EIS-compatible terminal is being used with the BST-LS (Basic Services Terminal for Listing Services), the database session indicator is irrelevant.
2. Based upon the operator login, the operator has been assigned to a serving team which receives specific call types from the OSPS ACD (Automatic Call Distributor).
3. If the current service has been assigned an EIS, an available CPDL is chosen and a "position seizure" message is sent over the data link. The same CPDLs can be used for many Listing Services that are supported by an EIS.
4. The operator is presented with the appropriate database display, enters the search information given by the caller and locates the desired information.
5. If an ARU is provided to announce the information, the operator may press a "Release to Audio" key.
6. The EIS sends a "transfer request" message to OSPS. The destination and data given in the "transfer

request" message indicates the announcement group that is to be used.

7. OSPS then selects an idle announcement unit/trunk, the operator is released and a "port select" message is sent to the EIS to identify the ARU that has been selected.
8. After the caller hears the information that the caller has requested, the caller can terminate the call by hanging up or the caller can remain off hook after the announcement has completed to be returned to a "recall" operator.

The EIS normally determines the recall delay time (period between the end of the announcement and routing to an operator) and the number of recalls permitted for a service; however, OSPS recall data may be specified internally, if necessary.

Though Listing Services operators may receive Listing Services calls on an OSPS BST-LS, VDT or CST, calls at a OSPS VDT may be somewhat limited due to the need, of some EISs, for special hardware interfaces and terminal emulations not provided by the VDT.

1.4 Operator Services Center

The Operator Services Center is discussed in Division 2, Section 3B for Directory Assistance.

1.5 Force Management Center

The Force Management Center is discussed in Division 2, Section 3B for Directory Assistance.

1.6 Intraflow

The OSPS Intraflow feature is available with 5E5 and later Software Releases. Intraflow allows an ACD/OSPS administrator to assign a principal serving team for each call type and up to eight support teams which may handle calls when all of the operators of the principal serving team are busy.

Intraflow may be used for Listing Services to permit more efficient use of idle operator and EIS resources. For example, assume Service ID (SVC ID field on the OSPSCT form, 5404 Record) 411 is assigned to CALL TYPE 11 and the principal serving team uses EIS number 1 (EIS NBR field on the EISDATA form, 5462-1 Record). The first Intraflow support serving team may also be assigned EIS NBR 1; however, the second support team for CALL TYPE 11 may be assigned the physically different EIS NBR 2.

A second EIS may be required when a single External Information System cannot support the traffic volume generated by the OSPS. Other CALL TYPES with the entry of 411 may assign principal serving teams to EIS NBR 2, whereas, the supporting team(s) can be assigned to use EIS NBR 1.

OSPS data can assure any operator recall is handled by an operator who accesses the same EIS number which was used for the initial seizure, whether handled by the principal or a support serving team.

For additional information on Intraflow, see Division 2, Section 3B on Directory Assistance.

1.7 Interflow

Interflow Activation/Deactivation information is provided in Division 2, Section 3B on Directory Assistance.

2. SYSTEM CONFIGURATION

The system configuration for EIS is given below. See Figure 2 for Basic Configuration of an External

Information System. Adding a fully equipped Listing Services feature to the 5ESS Switch involves using one or more ISDN switching modules as PSM (Position Switching Modules) and then adding the following for each PSM:

- An OPC (Operator Position Controller), which consists of a RISLU (Remote Integrated Services Line Unit) or an ISLU (Intergated Services Line Unit) and associated interface hardware to a PSM.
- OSPS Terminal(s) BST-LS, VDT or CST
- CPDLs (Call Processing Data Links) to the External Information System via S-TA (Synchronous-Terminal Adapters)
- An OAP (OSPS Administrative Processor) and associated A-TA (Asynchronous-Terminal Adapters)
- A RAS (Remote Alarm System)
- EIS (External Information System) interfaced by analog, digital or packet switching trunk circuits and CPDLs (Call Processing Data Links).

The PSM resides in the host 5ESS Switch. The OPC, BST(s), EIS, OAP, the RAS and associated A-TA/S-TA and the EIS (5E6 and later Software Releases) reside in an OSC (Operator Services Center).

2.1 Position Switching Module

The ISDN switch module is the building block for OSPS. By adding the OSPS software and hardware, the ISDN SM is converted into a PSM (Position Switching Module) for OSPS. This can include the DSU2-RAF (Digital Services Unit 2 - Recorded Announcement Facility), however, it is not required. The DSU2-RAF minimizes the time an operator spends handling a call by automatically relaying announcements to the user.

2.2 Operator Position Controller

An OPC (Operator Position Controller) is the main equipment required to support Listing Services assistance, operator positions and the OAP at an OSC. The main function of the OPC is to interface voice/data channels that serve operator positions to a 5ESS Switch. It does this through the use of the RISLU or an ISLU.

2.3 OPC - RISLU/ISLU

The RISLU or ISLU is a switching module peripheral unit that supports analog and digital line terminations in the 5ESS Switch, but is located on the customer premises away from the 5ESS Switch. The RISLU serves as the interface between the 5ESS Switch and the OSC, allowing operators to be located as far as 1000 miles away from the 5ESS Switch. The RISLU provides the multiplexing of up to 18 positions onto each DS1 facility. The RISLU or ISLU is connected to the PSM via digital carrier facilities.

2.4 OPC - DSL

A DSL is the transmission channel connecting an OPC with a BST, OAP, EIS or RAS. The DSL application for OSPS provides a T-type interface with a T-type line card in the RISLU. This 4-wire interface, operating at 192 kb/s, conforms to CCITT requirements. The use of T-type line cards restricts the distance from a RISLU to a terminal to 1 km (0.62 mile).

Two types of DSLs are used in the OSPS application. A class 1 DSL uses either a 1B or a 1B + D configuration. A class 2 DSL requires only a D-channel. Operator positions (BSTs) require a class 1 DSL

with a 1B + D configuration, while the OAP, EIS and RAS require a class 2 DSL. The CPDL (Call Processing Data Links) are DSLs that allow the 5ESS Switch PSM and the EIS to exchange status and control messages.

2.5 Remote Alarm System

The RAS (Remote Alarm System) permits monitoring of up to 32 scan points from a remote OSPS OPC (Operator Position Controller). The RAS uses a 5ESS Switch RISLU for fire alarms, battery alarms and other miscellaneous site-related alarms required for system operation and support. A triggered alarm may be displayed at the site on an associated ASP (Alarm Status Panel) and a message is returned to the main OSPS location via one of two asynchronous data links and routed to the MCC (Master Control Console). The RAS is housed in the OSPS LAU (Link Adapter Unit) and is composed of two ACC's (Alarm Conversion Circuits) [TN1089], two Scan Applique Circuits (ASC's — 16 scan points each) [TN867] and two A-TA (Asynchronous Terminal Adapters) [TN1087].

2.6 Terminal Adapters

The OSPS Terminal Adapter [TN1087] provides the conversion of ISDN DSLs (Digital Subscriber Lines) into RS-232 compatible interfaces in one of two modes. The A-TA (Asynchronous Terminal Adaptor) terminates the physical ISDN T-interface, the layer 2 Q.921 LAPD protocol, the layer 3 X.25 protocol and supplies an asynchronous RS-232 DTE interface at a selectable baud rate. The S-TA (Synchronous Terminal Adapter) not only terminates the physical ISDN interface, but also provides conversion of the layer 2 Q.921 LAPD protocol to X.25 LAPB protocol rate via a synchronous RS-232 DTE interface; this mode requires the clock source from the RS-232 DCE interface of a modem.

The OSPS DII (Digital Intelligent Interface) unit, supports both the A-TA and S-TA functions among others. The DII provides the RS-232 synchronous interface with a choice of either the DTE or DCE configuration so that modem usage is not required for local terminations of a data link.

2.7 Basic Services Terminal for Listing Services

The BST-LS (Basic Services Terminal for Listing Services) is the same physical terminal as the earlier OSPS BST, now called the BST-DA; however, it has been updated with firmware to permit its use with the 5E6 Software Release OSPS OPT (Operator Position Terminal) port. Though the BST-DA still requires its special BST port, the OSPS BST-LS, VDT and CST (Combined Services Terminal) can be terminated in any OPT port of an OSPS. The naming convention of the BST-LS keys has been modified to be more consistent with those of the OSPS VDT and CST. The BST-LS continues to support a physical interface required by some EIS-compatible terminals.

2.8 Video Display Terminal

The OSPS VDT (Video Display Terminal) remains primarily a Toll and Assistance terminal; however, due to the new OPT port definition of the 5E6 Software Release, a VDT can also handle some Listing Services calls. Up to 15 databases can be defined for the VDT based upon the serving team associated with the current operator login. Two database sessions can be active simultaneously. Any type of Manual Listing Service can be provided at a VDT. Semi-automatic Listing Services require use of an interface with an External Information System and may require use of an EIS-compatible database terminal; however, EIS-compatible terminals that require special physical interfaces are not supported by the VDT. On the other hand, data accessed from a database supporting the OSPS AMLB terminal emulation may be displayed directly on the VDT.

2.9 Combined Services Terminal

The OSPS CST (Combined Services Terminal) is a PC-based operator terminal designed to support Toll and Assistance as well as Listing Services traffic. It is connected to OSPS via the OPT port. Up to 15 data bases can be defined for the CST based upon the serving team associated with the current operator login. A maximum of six of the databases can have sessions active simultaneously. The CST provides terminal emulations that allow it to interface with a variety of databases. The CST does not provide special physical interfaces required by some EIS-compatible Listing Services terminals.

2.10 Operator Administrative Processor

The OAP (OSPS Administrative Processor) is an AT&T 3B2 computer that processes measurement and administrative data. The OAP supports administrative terminals, which allow access to OSPS-related, office-dependent data. It also supports administrative printers which print traffic and operator performance reports. The OAP is connected to the OPC by an A-TA, which provides asynchronous data communications to the 3B2 computer.

2.11 External Audio Response Unit

The Switched Access External ARU (Audio Response Unit) provides the OSPS Listing Services with the ability to connect the calling party to automated announcements generated by a vendor-supplied ARU external to the 5ESS Switch. The ARU is connected to the 5ESS Switch SM via T1 digital trunks or analog trunks. The outgoing T1 trunks provide the ARU announcement of the information from the Listing Services database. The announcement trunks are controlled by on-hook, off-hook signaling.

3. TRANSLATION REQUIREMENTS

3.1 New and Changed Forms for EIS and External ARU

Figure 3 shows the form flow for cross checks for EIS translations. The following forms are new or have changes for the EIS/External ARU feature.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
EISDATA	5462-1	3	4BM	21.51
EISSM	5462-3	3	4BO	10.1
FIXRT	5301	3	3G	10.1
OPDBPARAM	5434	3	4AI	27.30
OPEISDB	5462-2	3	4BN	21.55
OPEXTDB	5435	3	4AJ	27.31
OSPST	5404	3	4E	21.22
OSPSDSL	5411	3	4L	21.30
SERVDATA	5466	3	4BS	21.54
SERVDEST	5467	3	4BT	21.53
TKGRP	5202	3	2a	5.1
TRUNK	5204	3	2C	5.5

3.2 External Information System Translations

See Figure 3 for EIS translation cross check form flows. The following are the translations for EIS.

EISDATA form (5462-1 Record) - For 5E6 and later Software Releases, the EISDATA form defines the operational parameters for a specific OSPS EIS. Each External Information System is assigned an EIS NBR, which identifies the EIS. An EIS NAME is also assigned to the EIS to permit a more convenient method of reference.

EIS VENDOR field indicates the EIS vendor that developed the EIS interface with OSPS.

The MSG SET field specifies the format of the external messages that are exchanged via the CPDLs (Call Processing Data Links).

The SWITCH ID field is used by some EISs to differentiate this switching system from other switching systems that may also interface with the EIS.

The MSG DELAY field indicates to call processing software the length of time to wait for an expected message response from the EIS; this period is definable in 50 millisecond segments, e.g., a value of 100 provides a 5-second wait interval.

The MAX CALLS field assigned to a CPDL assures that data links do not become overloaded, even if the number of in-service CPDLs drops below the minimum number required to support the current call load. Although some calls may require manual operator handling, those calls, which are allocated a CPDL, can be completed efficiently with little chance of interruption due to CPDL overload.

The MAX MSGS field is expressed in messages per second and is based upon the message throughput expected from the CPDLs associated with an EIS; this may be dependent upon the data link facility used, the data rate chosen, the OSPS Terminal Adapter selected and/or the EIS. The MAX MSGS parameter is used in the calculation of the "average usage" of a CPDL given in Section 124 of the 30-minute traffic report.

The cross checks for EISDATA form follow.

- A unique EIS NAME must be entered on each EISDATA form.
- Every EISDATA form requires a corresponding OSPSDSL form where the SERVICE CLASS is "EIS" and the DATA LINK GRP matches the EIS NBR on the EISDATA form. A corresponding EISSM form must exist for each OSPSDSL form, where SERVICE CLASS is "EIS".
- If an EIS NAME is entered on a OPEISDB form, it must match the EIS NAME on a corresponding EISDATA form.
- A corresponding EISDATA form must exist where EIS NAME matches EIS NAME on the SERVDEST form.

3.3 Service Identification Translations

SERVDATA form (5466 Record) - For 5E6 and later Software Releases, the SERVDATA form defines the EIS service parameters for the service ID (SVC ID) field.

The initial action of "route to operator" (enter "TOOPER" in the INITIAL ACTION field) normally provides the caller with an operator from the principal serving team of the current call type. Listing Services can make use of support serving teams when Intraflow is active. An entry of "TODEST" in the INITIAL ACTION field routes the caller to the service destination (SVC DEST) defined on this form. The service destination may be an external announcement unit which returns off hook, plays the announcement and returns on hook after receiving off hook supervision on the external ARU facility. This announcement unit is only controlled by trunk supervision and does not use the call processing interface associated with an EIS. The service destination may be an OSPS internal ARU (DSU2-RAF), in which case the INT ANNC TYPE field provided by this form specifies the phrase sequence to be given. "ASKEIS" entered in the INITIAL ACTION action field directs the OSPS to "ask the EIS" for the initial action. In this case, the PRE OPER EIS field on this form allows call processing to locate an SM with CPDLs (Call Processing Data Links) for that EIS; an EIS call processing interface is then established to send an initial "request action" message. The External Information

System then directs OSPS to route the caller to an operator or an announcement. Note that the EIS software must be capable of supporting a call processing interface prior to an operator being assigned to the call.

The OSPS SVC CODE field assigns the call processing interface protocol to be used by OSPS software for this service. The EIS APPL CODE (application code) is used by some EIS vendors to specify the application resources and processes needed by this particular service.

The NBR RECALLS field and RECALL DELAY field are included on this form in the event an EIS interface specification requires OSPS to provide this data. Typically, the External Information System controls these parameters and overrides this information.

Cross checks for SERVDATA follow.

- A corresponding EISDATA form must exist where EIS NAME matches EIS NAME on the SERVDEST form.
- When PRE OPER EIS is entered on the SERVDATA form, a corresponding EISSM form must exist where PRE OPER is "Y" and NAME matches PRE OPER EIS on the SERVDATA form.
- When SVC DEST is entered on the SERVDATA form, a corresponding SERVDEST form must exist where SVC DEST and EIS NAME on the SERVDEST form match SVC DEST and PRE OPER EIS on the SERVDATA form respectively.
 - When SVC DEST and INT ANNC TYPE are both entered on a SERVDATA form, RTE TYPE on the corresponding SERVDEST form must be "FIIA" or "RIIA". A corresponding SERVDEST form is where SVC DEST and EIS NAME fields on the SERVDEST form match SVC DEST and PRE OPER EIS fields on the SERVDATA form respectively. See Figure 5 for Cross Checks for RTE TYPE equal to "RIIA" or see Figure 6 for Cross Checks for RTE TYPE equal to "FIIA".
 - If SVC DEST is entered and INT ANNC TYPE is NOT entered on a SERVDATA form, then RTE TYPE field on the corresponding SERVDEST form must NOT be "FIIA" or "RIIA". A corresponding SERVDEST form is where SVC DEST and EIS NAME fields on the SERVDEST form match SVC DEST and PRE OPER EIS fields on the SERVDATA form respectively.
- When INT ANNC TYPE is entered on a SERVDATA form, a corresponding ANNHD form must exist where "OSPSDA" is entered in the APPLICATION field and the HEADER ID field on the ANNHD form matches INT ANNC TYPE on the SERVDATA form.
- A second OPEISDB form and a second OSPSCT form are required for a first OSPSCT form if LIST SVC RECALL is "Y" on the OSPSCT form and PRE OPER EIS, entered on the corresponding SERVDATA form, is different than the EIS NAME on the first OPEISDB form.
 - A corresponding SERVDATA form is found by matching SVC ID field with SVC ID field on the OSPSCT form.
 - The first OPEISDB form is found by matching SERVING TEAM and SVC ID with SERVING TEAM and SVC ID, respectively, on the first OSPSCT form.
 - The second OPEISDB form is found by matching SVC ID and EIS NAME with SVC ID and PRE OPER EIS, respectively, on the SERVDATA form.
 - The second OSPSCT form is found by matching SERVING TEAM and SVC ID with SERVING TEAM and SVC ID, respectively, on the second OPEISDB form.

3.4 Interconnect Carrier Translations

ICF form (5305 Record) - The ICF form is used to define the carriers which are assigned on the STINFO form.

3.5 Trunk Translations

The equipment forms for incoming trunks are the following:

3.5.1 EQDU form (5730 Record)

3.5.2 EQDUP form (5730 Record) RC View 20.4

3.5.3 EQTU form (5720 Record) RC View 19.2

In addition to the seizure-only trunks 5E4 and 5E5 Software Releases, Listing Services for the 5E6 Software Release supports FG-D, FG-C and ISP incoming trunk types. If a back number is required for the operator or the EIS, then ANI must be "Y" for these trunks on the TKGRP form.

The ODA forms for trunk translations are:

TKGRP form (5202 Record) - The TKGRP form defines the EIS trunk groups. For 5E6 and later Software Release, The trunk class field, TRKCLS, must equal "EISTRK", the trunk direction is outgoing, TRK DIR equals "OUT" and the LS DLY ANS field must be set to "Y".

The cross checks for TKGRP with TRKCLS of "EISTRK" for EIS trunks or a TRK DIR of "RAF" for internal announcement trunks are the following:

- A corresponding TKGRP form is required for each SERVDEST form with a RTE TYPE of "RIIA" or "FIIA", (route to an internal announcement).
- The TGN on the TKGRP form must match the TRUNK GROUP NUMBER on the corresponding RTIDX form whose ROUTE INDEX matches the RTE CODE on the SERVDEST form for RTE TYPE of "RIIA". If the RTE TYPE is "FIIA" then the ROUTE INDEX on the FIXRT form, where the FIXED ROUTE TYPE is "OSPSEIS", matches the ROUTE INDEX on the RTIDX form. Also the TRK DIR on the TKGRP form must be "RAF". See Figure 5 for the cross checks for a RTE TYPE of "RIIA" on the SERVDEST form and Figure 6 for the cross checks for a RTE TYPE of "FIIA".
- A corresponding TKGRP form is required for each SERVDEST form with a RTE TYPE of "RIXA" (route to an external announcement). See Figure 4 for the cross checks for RTE TYPE of "RIXA" on the SERVDEST form. The TGN on the TKGRP form must match the TRUNK GROUP NUMBER on the corresponding RTIDX form whose ROUTE INDEX matches the RTE CODE on the SERVDEST form. Also the TRKCLS on the TKGRP form must be "EISTRK".

TRUNK form (5204 Record) - The TRUNK form defines the specific trunk. For 5E6 and later Software Releases, the EIS trunk must be part of a trunk group where "EISTRK" is entered in TRKCLS on the TKGRP form.

EIS trunks cannot have an entry in OUT START DIAL on the TRUNK form. An EIS trunk has "EISTRK" entered in the TRKCLS field on the TKGRP form.

RTIDX form (5303 Record) - For 5E6 and later Software Releases, the RTIDX form has the following cross checks for EIS trunks.

- For every SERVDEST form with "RIIA", "FIIA" (route to an internal announcement) or "RIXA" (route to an external announcement) entered for RTE TYPE, there must exist a RTIDX form where ROUTE INDEX matches RTE CODE on the SERVDEST form for RTE TYPEs "RIIA" and "RIXA" or the ROUTE INDEX on the FIXRT form for RTE TYPE of "FIIA". The ROUTE TYPE on RTIDX form is "HUNT". See Figure 4 for cross checks for RTE TYPE equal "RIXA", Figure 5 for cross checks for RTE TYPE equal to "RIIA" and Figure 6 for cross checks for RTE TYPE equal to "FIIA".
- A second RTIDX form is required for each SERVDEST form with a RTE TYPE of "FIIA", "RIIA" or "RIXA". The ROUTE INDEX on the second RTIDX form must match the NEXT ROUTE on the first RTIDX form. The ROUTE INDEX on the first RTIDX form matches the RTE CODE on the SERVDEST form for RTE TYPEs of "RIIA" or "RIXA". The ROUTE INDEX on the first RTIDX form must equal the ROUTE INDEX on a FIXRT form, where FIXED ROUTE TYPE equals "OSPSEIS", for RTE TYPE of "FIIA". Also, the ROUTE TYPE on the second RTIDX form must be "HUNT" or "REORDER".
- When the RTE TYPE on the second RTIDX is "HUNT", a corresponding TKGRP form is required where TGN matches TRUNK GROUP NUMBER on the second RTIDX form.

FIXRT form (5301 Record) - For 5E6 and later Software Releases, "OSPSEIS" must be entered in the FIXED ROUTE TYPE if "FIIA" (fixed route to an internal announcement) is entered in the RTE TYPE field on the SERVDEST form.

The cross checks for FIXRT if the RTE TYPE on the SERVDEST form is "FIIA" follow.

- For every SERVDEST form with "FIIA" entered for RTE TYPE, there must exist a FIXRT form with "OSPSEIS" entered for FIXED ROUTE TYPE.
- A corresponding RTIDX form is required for each FIXRT form with a FIXED ROUTE TYPE of "OSPSEIS" where the ROUTE INDEX on the RTIDX form matches the ROUTE INDEX on the FIXRT form and the ROUTE TYPE on the RTIDX form is "HUNT".
- A corresponding TKGRP form is required for each FIXRT form with a FIXED ROUTE TYPE of "OSPSEIS". The TGN on the TKGRP form must match the TRUNK GROUP NUMBER on a RTIDX form where the ROUTE INDEX on the RTIDX form matches the ROUTE INDEX on the FIXRT form. Also the TRK DIR on the TKGRP form must be "RAF".
- A second RTIDX form is required for each FIXRT form with a FIXED ROUTE TYPE of "OSPSEIS". The ROUTE INDEX on the second RTIDX form must match NEXT ROUTE on the first RTIDX form where the ROUTE INDEX on the first RTIDX form matches the ROUTE INDEX on the FIXRT form. Also the ROUTE TYPE on the second RTIDX form must be "HUNT" or "REORDER".
- If the ROUTE TYPE on the second RTIDX form is "HUNT", a corresponding TKGRP form is required where TGN matches TRUNK GROUP NUMBER on the second RTIDX form and TRK DIR is "RAF".

3.6 Digit Analysis for Incoming Digits Translations

Listing Services has a call type assigned based upon the incoming trunk group and/or dialed digits. The ODA forms for digit analysis follow.

DAS form (5300 Record) - The DAS form is used to define DAS values which are assigned on the STINFO form. See Division 2 Section 3B on Directory Assistance for restrictions on using DAS field for OSPS DSLs on the OSPSDSL form (5411 Record).

3.6.1 SMLDIT form (5315 Record)

3.6.2 INDIT form (5309 Record)

3.6.3 LDIT form (5315 Record)

3.7 Call Type Determination Translations

RAR form (5301 Record) - The RAR form is used to define screening index values which are assigned on the STINFO form.

ORAR form (5405 Record) - The OSPS Rate and Route form identifies a call as an OSPS call by defining the routing and charging for each OSPS screening index/code index combination in a 5ESS Switch.

OCTA form (5406 Record) - The OSPS CALL TYPE Assignment form assigns OSPS CALL TYPES from OSPS normalized office code and local digits-dialed combinations.

OPCTO form (5407 Record) - The OPCTO (OSPS CALL TYPE for Trunk Originations) form determines OSPS call types and a BST display indexes for trunk origination from OSPS call identification/trunk group combination. Entries (other than 9999) in the TGN field of this form must be defined in the TKGRP form.

OBSTS form (5408 Record) - This form provides information for OSPS Basic Services Terminal displays.

OSPSCT form (5404 Record) - The OSPSCT form assigns the OSPS call type information. For 5E6 and later Software Releases, this form assigns the EIS service ID (SVC ID) to a serving team. It also provides the ability to assign the EIS recall call type (LIST SVC RECALL) based on the SERVING TEAM and the SVC ID.

The cross checks for EIS on OSPSCT form are as follows:

- A SVC ID entry on the OSPSCT form requires an OPEISDB form be entered for every SERVING TEAM and SUP TEAM entry, on the corresponding OSPSCT form. The SVC ID fields on the two forms must be equal and SERVING TEAM or SUP TEAM on the OSPSCT form must be equal to SERVING TEAM on the OPEISDB form.
- Each EIS NAME and SVC ID on a OPEISDB form may have only one OSPS CALL TYPE on a OSPSCT form used as the Listing Services Recall Call Type. If LIST SVC RECALL is "Y" on an OSPSCT form, OSPS CALL TYPE is used as the Listing Services Recall Call Type for the EIS NAME on the OPEISDB form pointed to by the SERVING TEAM and SVC ID on this OSPSCT form.
- Call types used as a recall type must have the same EIS name assigned to all serving teams for this call type. For each OSPSCT form where LIST SVC RECALL is "Y", a corresponding OPEISDB form must be submitted where SERVING TEAM and SVC ID match on the two forms. A corresponding OPEISDB form must also be submitted for each SUP TEAM entered on the OSPSCT form where the SERVING TEAM and SVC ID on the OPEISDB form matches SUP TEAM and SVC ID on the OSPSCT form. Also the EIS NAME must be the same on all corresponding OPEISDB forms.
- A second OPEISDB form and a second OSPSCT form are required for a first OSPSCT form where LIST SVC RECALL is "Y" and PRE OPER EIS, entered on the corresponding SERVDATA form, is different than the EIS NAME on the first OPEISDB form.

- A corresponding SERVDATA form is found by matching SVC ID with SVC ID on the first OSPSCT form.
- The first OPEISDB form is found by matching SERVING TEAM and SVC ID with SERVING TEAM and SVC ID, respectively, on the first OSPSCT form.
- The second OPEISDB form is found by matching SVC ID and EIS NAME with SVC ID and PRE OPER EIS, respectively, on the SERVDATA form.
- The second OSPSCT form is found by matching SERVING TEAM and SVC ID with SERVING TEAM and SVC ID, respectively, on the second OPEISDB form.

3.8 Call Processing Data Link Translations

The equipment forms for CPDLs (Call Processing Data Links) are the following:

3.8.1 EQIM form (5700 Record)

3.8.2 ISLUC form (5742 Record)

3.8.3 EQPSU form (5741 Record)

3.8.4 EQPSUPH form (5742 Record)

Call Processing Data Links permit OSPS and an EIS to coordinate their activities by exchanging control and status information. The ODA forms for CPDL translations follow.

OSPSSDSL form (5411 Record) - For 5E6 and later Software Releases the OSPSSDSL form defines EIS CPDL parameters. OSPSSDSL assigns external names to DSL instead of directory numbers. The external name of a CPDL consists of an identifier, the DATA LINK GRP (EIS number) and an EIS relative link number, the DATA LINK NBR. The DATA LINK NBR is relative to the External Information System; this allows the craft of OSPS and the EIS to refer to the CPDL using a common data link number. The SM LINK NBR is a recent change only data link number relative to the SM which is assigned internally by OSPS and used by call processing to make call handling more efficient.

For 5E6 and later Software Releases, the LVL2 PROF field is the level 2 profile type for the corresponding service class.

Cross checks for OSPSSDSL follow.

A maximum of sixteen links with SERVICE CLASS of "EIS" may be assigned to the same SM on OSPSSDSL forms.

An OSPSSDSL form submitted with a SERVICE CLASS of "EIS" must have a corresponding EISDATA form submitted where the EIS NBR on the EISDATA form matches the DATA LINK GRP on the OSPSSDSL form.

If the SERVICE CLASS is "EIS", a corresponding EISSM form must exist for each OSPSSDSL form. The SM field on the EISSM form must match the SM portion of the LCEN on the OSPSSDSL form.

EISSM form (5462-3 Record) - For 5E6 and later Software Releases, the EISSM form determines the minimum number of CPDL's terminating to an EIS that are required on each SM. Not all SM's must have the

same number of CPDL's to an EIS. This MIN LINKS number is used by maintenance software as the minimum number of CPDL's required to support EIS Listing Services at the busy hour and is often denoted by the number N. If a conditional removal request is made for a CPDL and removal of the data link would cause the number of in-service CPDL's associated with an EIS to drop below N, the conditional removal is disallowed. Unconditional removal of a CPDL, leaving less than N data links in service for the associated EIS, activates a major alarm.

The "pre-operator" service field (PRE OPER) may be used for EISs which support the establishment of a EIS call processing interface prior to an operator being assigned to the call. This field allows the OSPS administrator to chose which SM's are to be selected for these pre-operator services; this may be important as some SM's may support EIS Listing Services which require all the available CPDL resource during the busy hour, while other SM's are equipped with spare CPDL capacity.

Cross checks for EISSM follow.

A corresponding EQIM form is required for each EISSM form submitted. The SM number on the EQIM form must match the SM number on the EISSM form. Also, CONFIGURATION on the EQIM form must be 'LOADED'.

A corresponding EISSM form must exist for each OSPSDSL form, where SERVICE CLASS is "EIS". SM on the EISSM form must match the SM portion of the LCEN on the OSPSDSL form. In addition, an EISDATA form must be entered where EIS NBR on the EISDATA form matches DATA LINK GRP on the OSPSDSL form.

When PRE OPER EIS is entered on the SERVDATA form, a corresponding EISSM form must exist where PRE OPER is "Y" and NAME matches PRE OPER EIS on the SERVDATA form.

3.9 External ARU Trunk Translations

The equipment forms for external ARU trunks are the following:

3.9.1 EQDU

3.9.2 EQDUP

3.9.3 EQTU

The following ODA forms for external ARU trunks have been discussed under the paragraphs on "Trunk Translations" for EIS.

3.9.4 TKGRP

3.9.5 TRUNK

3.9.6 RTIDX

3.9.7 TRKCL

3.10 Internal Announcement Definition Translations

Internal Announcement Translations are discussed in Division 2, Section 3B in the paragraphs under "Announcement Data". The ODA forms needed for internal announcement definition translations follow.

3.10.1 ANNAPL form (5430 Record)

3.10.2 ANNDG form (5532 Record)

ANNHD form (5531 Record) - When INT ANNC TYPE is entered on a SERVDATA form for internal announcements for Listing Services, a corresponding ANNHD form must exist where APPLICATION is "OSPSPA" and HEADER ID matches INT ANNC TYPE on the SERVDATA form.

3.10.3 ANNTR form (5533 Record)

3.10.4 OSPSOPT form (5424 Record)

3.10.5 PHRASE form (5534 Record)

3.11 Internal ARU Trunk Translations

The equipment forms for internal ARU trunks are the following:

3.11.1 EQRA

3.11.2 EQRAP

The DSU2-RAFTs need not be on the same PSM as the BST-LS, which was a requirement for 5E4 Software Release Directory Assistance. Though the DSU2-RAFTs may be provisioned on a PSM, it is more efficient to grow the internal ARUs on some other "standard" SM in the office. The following ODA forms for internal ARU trunks are discussed under "Trunk Translations" for EIS.

3.11.3 TKGRP

3.11.4 TRUNK

3.11.5 RTIDX

FIXRT - For 5E6 and later Software Releases for Listing Services, the Fixed Route Type for internal announcement is "OSPSEIS" rather than "OSPSPA" in Software Releases prior to 5E6. The translations for FIXRT form are discussed under the heading "Trunk Translations".

3.11.6 TRKCL

3.12 Service Destination Translations

SERVDEST form (5467 Record) - For 5E6 and later Software Release, the SERVDEST form is used to translate a service destination to a 5ESS Switch routing type and possibly a RTE CODE. The service destination maybe provided by the Switch owner or the External Information Services vendor. Rather than have specific ranges assigned for a particular destination route type, any destination ID provided by an EIS vendor can be mapped into current or future destination route types. A destination ID of zero is not supported by OSPS.

See Figure 4 for cross checks for RTE TYPE equal to "RIXA", Figure 5 for cross checks for RTE TYPE equal to "RIIA" and Figure 6 for RTE TYPE equal to "FIIA". Cross checks for SERVDEST follow.

- When SVC DEST is entered on the SERVDATA form, a corresponding SERVDEST form must exist where SVC DEST and EIS NAME on the SERVDEST form match SERV DEST and PRE OPER EIS on the SERVDATA form respectively.
- When SVC DEST and INT ANNC TYPE are both entered on a SERVDATA form, RTE TYPE on the corresponding SERVDEST form must be "FIIA" (route to an internal announcement with a fixed route index) or "RIIA" (route to an internal announcement). A corresponding SERVDEST form is where SVC DEST and EIS NAME on the SERVDEST form match SVC DEST and PRE OPER EIS on the SERVDATA form respectively.
- Conversely, if SVC DEST is entered and INT ANNC TYPE is NOT entered on a SERVDATA form, RTE TYPE on the corresponding SERVDEST form must not be "FIIA" or "RIIA", i.e., it cannot route to an internal announcement.
- For every SERVDEST form with "FIIA" entered for RTE TYPE, there must exist a FIXRT form with "OSPSEIS" entered for FIXED ROUTE TYPE.
- For every SERVDEST form with "FIIA", "RIIA" or "RIXA" entered for RTE TYPE, there must exist a RTIDX form where ROUTE INDEX matches RTE CODE on the SERVDEST form for "RIIA" and "RIXA" or the ROUTE INDEX equals the ROUTE INDEX on the FIXRT form, where FIXED ROUTE TYPE is "OSPSEIS" for "FIIA". ROUTE TYPE on the RTIDX form is "HUNT".
- A second RTIDX form is required for each SERVDEST form with a RTE TYPE of "FIIA", "RIIA" or "RIXA". The ROUTE INDEX on the second RTIDX form must match the NEXT ROUTE on the first RTIDX form. The ROUTE INDEX on the first RTIDX form matches the RTE CODE on the SERVDEST form if RTE TYPE is "RIIA" or "RIXA". The ROUTE INDEX on the first RTIDX form is equal to the ROUTE INDEX on the FIXRT form, where FIXED ROUTE TYPE is "OSPSEIS", for RTE TYPE Of "FIIA". Also the ROUTE TYPE on the second RTIDX form must be "HUNT" or "REORDER". If "RIIA" or "FIIA" is entered for RTE TYPE and the RTE TYPE on the second RTIDX is "HUNT", a corresponding TKGRP form is required where TGN matches TRUNK GROUP NUMBER on the second RTIDX form and TRK DIR on the TKGRP form is "RAF". If "RIXA" is entered for the RTE TYPE and the RTE TYPE on the second RTIDX is "HUNT", then a corresponding TKGRP form is required where TGN matches TRUNK GROUP NUMBER on the second RTIDX form and TRKCLS is "EISTRK".
- A corresponding TKGRP form is required for each SERVDEST form with a RTE TYPE of "RIIA" or "FIIA". The TGN on the TKGRP form must match the TRUNK GROUP NUMBER on the corresponding RTIDX form whose ROUTE INDEX matches the RTE CODE on the SERVDEST form for RTE TYPE of "RIIA" or matches the ROUTE INDEX on the FIXED ROUTE form, where FIXED ROUTE TYPE is "OSPSEIS", for the RTE TYPE of "FIIA". Also the TRK DIR on the TKGRP form must be "RAF".
- A corresponding TKGRP form is required for each SERVDEST form with a RTE TYPE of "RIXA". The TGN on the TKGRP form must match the TRUNK GROUP NUMBER on the corresponding RTIDX form whose ROUTE INDEX matches the RTE CODE on the SERVDEST form. Also the TRKCLS on the TKGRP form must be "EISTRK".
- A corresponding EISDATA form must exist where EIS NAME matches EIS NAME on the SERVDEST form.

3.13 Serving Team Translations

The translations for serving teams are discussed in Division 2, Section 3B under the heading "Operator Call Processing".

The equipment forms for serving teams translations are the following:

OSPSDSL - See the paragraphs under "Call Processing Data Link Translations" for OSPSDSL translations.

The RESXDL form for restricted dialing is no longer applicable to Listing Services; Listing Services operator has unrestricted dialing. The ODA forms needed for serving team translations follow.

STINFO form (5402 Record) - The STINFO form provides information about the OSPS serving team.

OSPSOA form (5403 Record) - The OSPS Operator Assignments form defines OSPS operator positions, assigns operators to serving teams and defines valid operator actions.

3.14 Operator Trouble Report Translations

OTRVLD form (5410 Record) - The OTRVLD form defines the OSPS OTRs (Operator Trouble Reports) and the destination for the ORT.

3.15 Operator Service Position and Force Management Center Translations

OSC (Operator Service Center) and FMC (Force Management Center) are discussed in Division 2, Section 3B in the paragraphs under those headings.

The ODA forms needed for OSC and FMC translations follow.

OSPSDSL - See the paragraphs under "Call Processing Data Link Translations" for OSPSDSL translations.

ISDNOPT form (5941 Record) - Any OSPS office type entered on the OPARM form must be designated on the ISDNOPT form in the OSPS INSTALLED field.

OSPSOP form (5401 Record) - The OSPS Operator Position form defines each operator position within an OSC, assigns RISLU (Remote Integrated Service Line Unit) ports and assigns operator positions.

OPARM form (5400 Record) - The OSPS Operator Parameters form defines parameters of an OSPS office including type of equipment, displays and reports and the assignment of serving teams.

3.16 External Data Base Translations

The translations for the external database follow.

OPDBPARM form (5434 Record) - The OPDBPARM (OSPS External Data Base Parameter) form specifies the database and X.25 protocol parameters, from the perspective of the external database, that are required for an OSPS operator terminal to communicate with an external data base. It is keyed by the assigned external database number.

If DB NAME is entered on OPEXTDB form, it must match DB NAME on a corresponding OPDBPARM form.

OPEXTDB form (5435 Record) - The OPEXTDB (OSPS External Operator Data Base) form provides the database operator parameters such as the database login sequence, database terminal emulation type and an indicator that a database session should be established automatically upon login to the OSPS operator terminal. This information is based upon the OSPS terminal database key assignment, the OSC to which the terminal belongs and the serving team derived from the operator's OSPS terminal login.

OPEISDB form (5462-2 Record) - For 5E6 and later Software Release, the OPEISDB (OSPS Operator to

EIS and Data Base Mapping) form assigns, for a particular serving team and service ID, the database key of the OSPS operator's terminal and an EIS name. This allows the proper OSPS terminal database display and EIS interface to be provided when a Listing Services call is routed to an operator. (See Figure 3 for flow diagram of cross checks for EIS.)

- For each OPEISDB form with a TERM DB KEY entry there must exist one or more corresponding OPEXTDB forms where SERVING TEAM and TERM DB KEY match. Also DB NAME must be the same on all OPEXTDB forms associated with the same OPEISDB form.
- If DB NAME is entered on OPEXTDB form, it must match DB NAME on a corresponding OPDBPARM form.

3.17 Call Type Translations

OSPSCT form (5404 Record) - The OSPSCT form gives OSPS call type information. This form assigns the EIS service identification to a serving team via the SVC ID field. It also provides the ability to assign the Listing Service's recall call type (LIST SVC RECALL field) based on the SERVING TEAM and the SVC ID.

Cross checks for OSPSCT follow.

- An entry in SVC ID on the OSPSCT form requires an OPEISDB form be entered for every SERVING TEAM and SUP TEAM entry, on the corresponding OSPSCT form. The SVC ID fields on the two forms must be equal and SERVING TEAM or SUP TEAM on the OSPSCT form must be equal to SERVING TEAM on the OPEISDB form.
- Call types used as a recall type must have the same EIS name assigned to all serving teams for this call type. For each OSPSCT form where LIST SVC RECALL is "Y", a corresponding OPEISDB form must be submitted where SERVING TEAM and SVC ID match on the two forms. A corresponding OPEISDB form must also be submitted for each SUP TEAM entered on the OSPSCT form SERVING TEAM and SVC ID on the OPEISDB form matches SUP TEAM and SVC ID on the OSPSCT form. Also, the EIS NAME must be the same on all corresponding OPEISDB forms.
- Each EIS NAME and SVC ID on a OPEISDB form may have only one OSPS CALL TYPE on a OSPSCT form used as the Listing Services Recall Call Type. If LIST SVC RECALL is "Y" on an OSPSCT form, the OSPS CALL TYPE is used as the Listing Services Recall Call Type for the EIS NAME on the OPEISDB form pointed to by the SERVING TEAM and SVC ID on this OSPSCT form.
- A second OPEISDB form and a second OSPSCT form are required for a first OSPSCT form if LIST SVC RECALL is "Y" and PRE OPER EIS entered on the corresponding SERVDATA form, is different than the EIS NAME on the first OPEISDB form.
- A corresponding SERVDATA form is found by matching SVC ID with SVC ID on the first OSPSCT form.
 - The first OPEISDB form is found by matching SERVING TEAM and SVC ID with SERVING TEAM and SVC ID, respectively, on the first OSPSCT form.
 - The second OPEISDB form is found by matching SVC ID and EIS NAME with SVC ID and PRE OPER EIS, respectively, on the SERVDATA form.
 - The second OSPSCT form is found by matching SERVING TEAM and SVC ID with SERVING TEAM and SVC ID, respectively, on the second OPEISDB form.

3.18 Intraflow Translations and Interflow Translations

Intraflow and Interflow translations are discussed in Division 2, Section 3B.

4. LISTING SERVICES PRESENTATION PROTOCOL ENHANCEMENT

For 5E6(1), the LSPP (Listing Services Presentation Protocol) feature provided terminal emulation so that a CST (Combined Services Terminal) could be used with the CCI (Computer Consoles Incorporated) interface. The TERMINAL TYPE is defined on the OPEXTDB form. Whereas the Automated Multi-Leaf Bulletin (AMLB) TERMINAL TYPE is "BASIC", the TERMINAL TYPE for LSPP is "TEMPLATE". Enhancements had to be made to the LSPP software in the CST to meet the CCI requirements. This section describes the LSPP enhancements and the effect on OSPA Office Data.

The two changes to the enhancement are

1. The CST does not re-login to the CCI database as a result of a link failure.
2. If the TERMINAL TYPE is "TEMPLATE", two switched virtual circuits are mapped to each database. This provides for a dual path design, thereby increasing reliability. This enhancement requires that two Data Base Access (DBA) T1s be defined for each database — one for each switched virtual circuit.

4.1 Login Procedure Enhancement

CCI considers a terminal that is logged in to a database as logged in until such time that one of the following conditions occur:

1. A logoff message is received (logoff is accomplished by unplugging or by the depression of the DB LOGOFF key on the CST).
2. A new login message is received.
3. A time-out has occurred due to inactivity on the link.

Therefore, a CST remains logged in to a CCI database, from a CCI perspective, after communication has been re-established on a link that has been physically disconnected.

4.2 Dual Switched Virtual Calls Enhancement

The CCI requirement that two switched virtual calls be mapped to each database increased reliability should one of the links go down. With the use of dual switched virtual calls, data may be passed between OSPA and the database over either link. When data is received by OSPA over either of the two links, it is treated as data received from one database. OSPA attempts to send data to the database over the same logical channel as was used to receive data from the database. Additionally, if data is received from the database over one of the links and that link goes down, the other link will be used to pass data back to the database. When one of the links goes down and the other remains active, OSPA will periodically attempt to re-establish the switched virtual call for the downed link.

4.3 Enhanced LSPP Translations

New Or Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
OPDBPARM	5434	3	4AI	27.30
MLHG	5110	3	1J	3.5
XAT	5909-1/2	5	1J	23.40

OPDBPARM form (5434 Record) - The dual switched virtual call configuration requires two packet switched TNs (Telephone Numbers), two MLHGs (Multi-Line Hunt Groups), and two DBA T1s. The following solution is implemented for 5E6 and 5E7. When a session is established with a CCI database from a TEMPLATE type terminal, the packet switched telephone number obtained from the DB PKT TN field on OPDBPARM form is sent in the IMLOGIN message. This single packet TN is used to establish the two switched virtual calls. In addition to the packet switched TN on the OPDBPARM form, a second packet switched TN is used. The second packet TN should be the first packet TN plus one. The following table gives examples of the pairs of initial and second packet TN.

DB PACKET TN	SECOND PACKET TN
9990100	9990101
9990101	9990102
9990102	9990103
9990103	9990104
9990104	9990105
9990105	9990106
9990106	9990107
9990107	9990108
9990108	9990109
9990109	9990100

Notice that if the last digit of the first packet TN is 9, then the last digit of the second packet TN will be 0.

MLHG form (5110 Record) - Each of the two packet TNs need to be defined in the LISTED TN field on the MLHG form. Therefore, two Multi-Line Hunt Groups need to be defined — one for each packet TN. Each entry must be made in Office Record 5110 such that the value populated in the MLHG (Multiline Hunt Group Number) field is unique. This allows for the creation of two Multi-Line Hunt Groups. One entry should be made in the MLHG form such that the packet TN populated in the LISTED TN field is the same as the packet TN obtained from the DB PKT TN field from the OPDBPARM form. The other entry should be made such that the packet TN populated in the LISTED TN field is one greater than the packet TN identified in the DB PKT TN field of the OPDBPARM form described above.

XAT form (5909-1/2 Record) - Each Multi-Line Hunt Group will then map to a unique DBA T1 to provide access to the external database. Entries for the DBA T1s are made on the XAT form. The value populated in the PKT MLHG field is the same as the value obtained from the MLHG field on the MLHG form. The value populated in the PKT TN field should match at least the first three digits of the entry in the LISTED TN field on the MLHG form. However, the packet TN entries from the two Office Records cannot be identical. If more than one DBA T1 channel is to be associated with a Multi-Line Hunt Group, the values populated in the TERM NBR and PKT TN fields should be different while the value of the PKT MLHG field should remain the same.

5. INTERCEPT SERVICES USING AN EIS

This capability is available with 5E6(2) and later Software Releases. The Intercept Services are provided by the LECs (Local Exchange Companies) to end-users (both business and residential) whose numbers have been changed, disconnected, or are in trouble. These services are also utilized by the LECs when calling customers reach vacant numbers. The 5ESS Switch OSPS can communicate with EISs (External Information Systems), which provide database storage, retrieval, and external announcement recording and/or playback functions. The OSPS Intercept System provides LECs with customized announcements, intercept call completion, and intercept voice messaging.

5.1 Intercept Services Feature Assignment

The following forms are required to assign this feature.

The TKGRP form has a new class of service for incoming intercept trunks that was added because intercept traffic is routed to an OSPS intercept office over dedicated trunk facilities.

The OPRTK form specifies if the incoming trunk group supports answer supervision and if the calls arriving on the trunk group are eligible for call completion.

The AISCLS form determines the destination index to be used in intercept call type determination on the basis of the intercept class and called number information.

The ACDCTP form determines the call type. The new value for CALL ORIGIN is "AIS" for Intercept Services type calls.

The SERVDATA form defines a new treatment type to support routing of certain types of intercept calls to reorder at call origination. It indicates if call completion is supported for a particular service ID.

The OSPSOPT form defines the global parameters for the office. New parameters for interLATA intercept call completion, and for initial treatment type for intercept call originations with signaling irregularities or invalid intercept classes was added for Intercept Services.

5.2 ODA Forms

Figure 7 shows the form flow for Intercept Services Using An EIS.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	4M	26.10
ACDPOL	5412-B/C/E/F	3	4M	26.10
AISCLS	5469	3	4BV	21.57
OPRTK	5417	3	4R	26.26
OSPSCT	5404	3	4E	21.22
OSPSOPT	5424	3	4Y	8.9
SERVDATA	5466	3	4BS	21.54
TIMING	5520	3	5T	8.5
TKGRP	5202	3	2A	5.1

5.3 Translations For Intercept Services Using An EIS

AISCLS form (5469 Record) - This form is used to define the treatment for intercept calls. If the destination index is blank, the call will receive treatment according to the call origination data on the ACDCTP form (5412 Record) when "DEST" is entered in the SECOND LEVEL field, or on call origination and incoming trunk group when "TGRP" is entered in SECOND LEVEL on the ACDCTP form.

If the WITH ANI field or WITHOUT ANI field is entered, an ACDPOL form (5412 - B/C/E/F Record) must exist where TGRP/DEST is "DEST" and TGN/CDI field matches the WITH ANI or WITHOUT ANI on the AISCLS form. In addition, the PRE CALL ID value on the associated ACDPOL form must match the PRE CALL ID on the ACDCTP form that has "AIS" entered in the CALL ORIGIN field.

ACDCTP form (5412-A/D Record) - This form assigns call type information for the OSPS ACD. For an incoming intercept call, "AIS" should be entered in the CALL ORIGIN field.

If "AIS" is entered in the CALL ORIGIN field, the following cross checks are needed.

- If CALL ORIGIN is "AIS", then APOS CALL TYPE cannot be entered on the ACDPOL form.

- When CALL ORIGIN on the ACDCTP form is "AIS" and PRE CALL ID is entered, CALL ORIGIN must be the same on all ACDCTP forms with the same PRE CALL ID.
- An OSPSCT form is required for each ACDCTP form where OSPS CALL TYPE on the OSPSCT form matches CALL TYPE on the ACDCTP form. SVC ID must be entered on the OSPSCT form and OPER TYPE must be "TA" on that OSPSCT form. Conversely if "AIS" is not entered for CALL ORIGIN, SVC ID must not be entered on the OSPSCT form.
- For each list element on an ACDPOL form where CALL TYPE is entered, SVC ID must be entered on the associated OSPSCT form when CALL ORIGIN on the associated ACDCTP form is "AIS" or "LSTA". OSPS CALL TYPE on the associated OSPSCT form matches CALL TYPE on the ACDPOL form and PRE CALL ID on the associated ACDCTP form matches PRE CALL ID on the ACDPOL form. Conversely, if CALL ORIGIN on the associated ACDCTP form is not "AIS" or "LSTA", SVC ID must not be entered on the associated OSPSCT form.
- If "AIS" is entered in CALL ORIGIN field of the ACDCTP form then a SERVDATA form must be entered with an OSPS SVC CODE of "INCPT" or "IBMINCPT". The SVC ID on the OSPSCT form must be the same as the SVC ID of the SERVDATA form. (OSPS CALL TYPE on the OSPSCT form is matched with CALL TYPE of the ACDCTP form.) Conversely, if "AIS" is not entered, then "INCPT" and "IBMINCPT" cannot be entered as the OSPS SVC CODE.

SERVDATA form, 5466 Record - This form defines the EIS service parameters. For 5E6(2) Listing Services calls, the "REORDER" enumeration was added to the INITIAL ACTION field. The "SRVC1" enumeration was changed to "LS" and "IBMLS", "INCPT", and "IBMINCPT" enumerations were added to the OSPS SVC CODE field for Intercept Services and the IBM EIS interface.

If CALL ORIGIN on the ACDCTP form is "AIS", a SERVDATA form must be entered with OSPS SVC CODE of "INCPT" or "IBMINCPT". (SVC ID of the SERVDATA form is matched with SVC ID of the OSPSCT form to find the SERVDATA form. OSPS CALL TYPE of the OSPSCT form is matched with CALL TYPE of the ACDCTP form to find the OSPSCT form). Conversely if CALL ORIGIN is not "AIS", OSPS SVC CODE cannot be "INCPT" or "IBMINCPT".

OPRTK form (5417-1/2 Record) - This form stores the per trunk group data for the new intercept trunks. The TRKCLS and ANSWER SUPV fields are new for the Intercept Feature. LSTG SVC, TRAF and CALL COMPL are also used for Intercept Services.

OSPSCT form (5404 Record) - This form is used to define parameters, such as OSPS serving teams or delay announcements, for OSPS call types.

OSPSOPT form (5424 Record) - This form is used to define the office parameters for OSPS. For 5E6(2), Listing Services parameters LS FEATURE WORD, COIN PAID TRAF, and LS INTER CC were added. INTER CC, DEST IDX, and AIS DAS fields were added for Intercept Services.

TIMING form (5520 Record) - This form is used to define intervals for permanent signal, partial dial, and critical timing in a 5ESS Switch. For 5E6(2) and later, the "INAISTRK" enumeration was added to the SERVICE CLASS field for Intercept Services.

TKGRP form (5202 Record) - This form is used to define parameters for trunk groups. For 5E6(2) and later, the enumeration "INAISTRK" was added to the TRKCLS field for Intercept Services.

6. IBM EIS LISTING SERVICES INTERFACE

This capability is available with 5E6(2) and later Software Releases and supports the EIS (External Information System) interface for IBM (International Business Machines) Listing Services with Call Completion, IBM Intercept, an extension of the CCI (Computer Consoles Incorporated) Listing Services interface, and CCI Intercept.

The IBM Listing Services capability provides an interface to an IBM EIS and to an associated IBM external ARU (Audio Response Unit). (See Translation Requirements for EIS and ARU in this section.) This feature permits the calling party to be connected to automated listing services announcements provided by an IBM-supplied ARU. This allows the caller to hear announcements for Directory Assistance and other Listing Services that may be offered by IBM, such as customer name, address, and ZIP code.

All Listing Services calls by an EIS are to be billed either to "no charge" (billed at the local office) or "station paid" (paid by the calling number). Neither the CCI nor the IBM interface supports billing for the intercept service. With Call Completion enabled, either interface may continue "station paid" billing for call completion or may indicate alternate billing by entering the correct DTMF (Dual Tone Multifrequency - Touch Tone) digit during or after the listing announcement.

The IBM interface does not support Intercept Call Completion. The CCI interface does support Intercept Call Completion, but only when the listed party has indicated they will accept the call completion charges, i.e., auto collect.

6.1 IBM EIS Listing Services Feature Assignment

Figure 8 shows the form flow for IBM EIS LISTING SERVICES. The following forms are required to assign this feature.

The IBMRNGS form defines the range of operator positions that can interface with an IBM DAS (Directory Assistance System), and the ARU trunk members assigned to IBM DAS.

The EISDATA form defines the operational parameters for IBM as the EIS vendor.

The OSPSDSL form must have a SERVICE CLASS entry of "EIS".

The SERVDATA form OSPS SVC CODE must have an entry of "IMBINCP" for IBM Intercept.

6.2 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
IBMRNGS	5471-1	3	4BW	21.58
EISDATA	5462-1	3	4BM	21.51
SERVDATA	5466	3	4BS	21.54

6.3 IBM Listing Services Interface Translations

The following forms are required to provision the IBM Interface.

IBMRNGS form (5471-1 Record) - This form is used to define the global parameters for the IBM interface. MIN POSITION, MAX POSITION, and TGN LIST range allows the OSPS owner to obtain IBM Position IDs for each of the OSPS operator positions associated with the IBM DAS (Directory Assistance System) working in conjunction with an OSPS.

MIN POSITION assigns the lowest (minimum) operator position number served by the IBM DAS, and MAX POSITION assigns the range of sequential positions from the minimum position that may interface with the

IBM DAS. For example, when OSPS position numbers in the range of 500 to 1499 are planned to interface with an IBM DAS, MIN POSITION is set to 500 and MAX POSITION is set to 1499. Not all the positions within this range are required to interface with the IBM DAS. Only OSPS operator position ID's where "OPT" is entered in the POS TYPE field on the OSPSOP form (5401 Record) are converted to IBM Position ID. However, all current and future positions which provide services via the IBM DAS must fall within these bounds. If the MIN POSITION entry or MAX POSITION entry is changed later, all IBM Position IDs associated with ARU ports will need to be reassigned in the IBM DAS; therefore, room for operator position growth should be considered when assigning these values.

The IBM Position ID equals the POS NUM entry on the OSPSOP form. If the OSPS owner wishes to start the sequence at OSPS position number 1, the POS NUM value can be set to zero to make the OSPS position number and IBM Position ID equal; this only wastes the first IBM Position ID (ID = 0), as OSPS has no position number zero. Alternately, this parameter can be set to one, which makes the IBM Position ID one less than the corresponding OSPS position number.

MAX POSITION entry minus MIN POSITION entry must be less than 4097.

The sum of all the ports (MAX POSITION - MIN POSITION + sum of MAX MEMB entries + the number of MAX MEMB entries (1 through 8)) may not exceed 9000. This is an IBM system limit. Note that the 9000 range must be potentially shared with other switching systems that use a given IBM DAS.

• **WARNING:** When the total ports sum exceeds 4500, indicating that over half the available array in the IBM DAS has been allocated for this office alone, a reassessment may be required if other offices share an IBM DAS.

If MAX POSITION is not 0, then the sum of number of MAX MEMB entries in the TGN LIST must be greater than 0, i.e. one of the fields must have an entry.

The IBMRNGS form must be submitted when SERVICE CLASS on the OSPSDSL form is "EIS" and VENDOR on the EISDATA form is "IBM" (EIS NBR on the EISDATA form matches DATA LINK GRP on the OSPSDSL form).

Each DAS1 (DAS2, DAS3, DAS4) TGN, entered on the IBMRNGS form, must have a matching TGN on a TKGRP form. The TRKCLS on the corresponding TKGRP form must be either "EISTRK" or "RAFANNC".

If the TRKCLS is set to "RAFANNC", SVC GRP on the TKGRP form must be set to "DA".

If the TRKCLS is set to "EISTRK", no other DAS TGN value entered on the same row on the IBMRNGS form can have the same TGN. For example, the TGN value for DAS1 cannot be entered for DAS2, DAS3, or DAS4.

EISDATA form (5462-1 Record) - This form is used to define the operational parameters for IBM EIS and ARU. Enter "IBM" in the VENDOR field, and "SET2" in the MSGSET field that identifies the message sets supported by the IBM Interface.

If "IBM" is entered as VENDOR:

- DATA LINK NBR on the OSPSDSL form must be less than 255 and the SERVICE CLASS on the OSPSDSL form is "EIS" (EIS NBR on the EISDATA form matches DATA LINK GRP on the OSPSDSL form).
- OSPS SVC CODE on the SERVDATA form must be either "IBMLS" or "IBMINCPT" and PRE OPER EIS entered on the SERVDATA form matches EIS NAME on the EISDATA form.

SERVDATA form (5466 Record) - This form defines the EIS service parameters.

When OPER TYPE is "TA" on the OSPSCT form, OSPS SVC CODE of SERVDATA form must be "INCPT" or "IBMINCPT".

When CALL ORIGIN on the ACDCTP form is "AIS", a SERVDATA form must be entered with OSPS SVC CODE of "INCPT" or "IBMINCPT". The forms correspond if SVC ID of SERVDATA form matches SVC ID of OSPSCT and OSPS CALL TYPE of OSPSCT form matches CALL TYPE of ACDCTP form to find OSPSCT form. Conversely, if CALL ORIGIN on the ACDCTP form is not "AIS", OSPS SVC CODE field on the SERVDATA form cannot be "INCPT" or "IBMINCPT".

OSPSDSL form (5411 Record) - This form assigns OSPS circuits to line card ports. The SERVICE CLASS must be "EIS" for any EIS.

7. RECOGNITION OF CUSTOMER PROVIDED TERMINAL

7.1 Feature Description

For 5E9(1) and later, the Recognition of Customer Provided Terminal feature gives the OSPS the ability to recognize and differentiate between workstations and operator terminals provided by DAS (Directory Assistance System) providers. The 5ESS Switch recognizes that a CPT (Customer Provided Terminal) is being used and insures the correct interface to the CPT.

The following summarizes the characteristics of a CPT:

- has the same physical and electrical interface to the 5ESS Switch as a VDT or CST, although the PC used is not supplied by AT&T OSPS.
- is maintained and administered from the 5ESS Switch like a VDT or CST.
- offers Listing Services capabilities with IBM or VDR on a single terminal, using the CPDL (Call Processing Datalink) interface specification for call control and the IBM POS or VDR IOC software to provide database access. (This is unlike a BST (Basic Services Terminal) arrangement which has a separate vendor supplied terminal.)
- offers the same TA call handling capabilities as a VDT or CST.
- supports Combined Service applications at a single operator position.
- supports MDBA capabilities handling up to 6 active database sessions to any combination of either AMLB (Automated Multi-leaf Bulletin) and IBM DAS type databases or AMLB and VDR DAS type databases.
- introduces OSPS software operating in the Microsoft Windows environment.

7.2 Feature Assignment

Figure 10 shows the form flow for Recognition of Customer Provided Terminal.

The database information needs to be defined on the OPDBPARM form, (5434 Record) and the OPEXTDB form (5435 Record). For the IBM or VDR database access, the database name is used on the associated softkey at the WINCST (Windows CST), the TERM TYPE is set to "IBM" and the auto session field is set to "Y". None of the X.25 parameters are needed.

After the database is defined, the office parameter that contains the maximum number of WINCSTs that are allowed should be entered on the OSPSOP form. This parameter cannot be entered or changed on the RC view 8.9.

The OSPSOP form (5401 Record) is used to enable the IBM or VDR interface within the WINCST positions on the specified DSL. The IBM or VDR interface and database access are enabled or disabled each time an operator logs into OAP.

7.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OPDBPARM	5434	3	4AI	27.30
OPEXTDB	5435	3	AJ	27.31
OSPSOP	5401	3	4B	21.32
OSPSOPT	5424	3	4Y	8.9

OPDBPARM form (5434 Record) - This record defines the database and X.25 protocol parameters necessary to establish a session to an external database from an operator's terminal. This form defines the login and password strings being passed from the external database. The "IBM" or "VDR" enumeration was added as a TERM TYPE for 5E9(1) and later.

OPEXTDB form (5435 Record) - This record assigns each Serving Team within an OSPS OSC access to one or more external databases. The AUTO SESSION value must be set to "Y" whenever "IBM" or "VDR" is entered as a TERM TYPE on the OPDBPARM form, indicating that IBM or VDR is the terminal emulation type.

OSPSOP form (5401 Record) - This record defines each operator position within an OSPS OSC, and assigns RISLU ports. For 5E9(1) and later, the CST INTERFACE field indicates the vendor for the CST software. "IBM" or "VDR" are only entered for this feature. This value is only allowed if the POS TYPE field on this form is set to "OPT". The total number of OSPSOP forms with the CST INTERFACE field cannot be greater than the value of MAX DUAL PORT CST field on the OSPSOPT form. The number of ports that have this value set to "IBM" or "VDR" cannot exceed the value extracted from the password entered on the OSPSOPT form.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. For 5E9(1) and later, MAX DUAL PORT CST indicates the maximum number of operator positions allowed to use the CST software for the Recognition of Customer Provided Terminal feature.

8. DIRECTORY ASSISTANCE CALL COMPLETION

DACC (Directory Assistance Call Completion) allows callers who have received Listing Services, such as Directory Assistance, to have their calls completed to the listed number without having to originate a new call or dial the number they wish to call. The vendor supplied EIS contains the database of numbers, announces the retrieved number, and prompts the caller to enter a digit to indicate whether or not call completion is desired. The OSPS determines if the TCA (Telephone Company Administration) allows this call to be completed and then completes the call with TA (Toll and Assist).

8.1 Directory Assistance Call Completion Feature Assignment

The SERVDATA form assigns the route indexes for announcements for Call Completion.

The OPRTK form for Call Completion indicates if a Toll and Assistance switch has previously handled the

listing services call, if listing services traffic is carried on the trunk, whether or not call completion is allowed for the trunk, and whether or not an interLATA carrier can be used for interLATA Call Completion calls.

The OSPSOPT form defines the office parameters for Directory Assistance Call Completion. The parameters define if interLATA coin sent paid billing is allowed, and if interLATA call completion is allowed.

The ACDCTP form assigns the call type information for OSPS ACD.

8.2 ODA Forms

Figure 9 shows the form flow for Directory Assistance Call Completion.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	4M	26.10
ACDPOL	5412-B/C/E/F	3	4M	26.10
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
SERVDATA	5466	3	4BS	21.54

8.3 Directory Assistance Call Completion Translations

ACDCTP form (5412-A/D Record) - The ACDCTP form assigns call type information for the OSPS ACD (Automatic Call Distribution) feature. If the incoming call is a Listing Services Call using TA (Toll and Assist) originating treatment, "LSTA" should be entered in the CALL ORIGIN field.

When CALL ORIGIN on the ACDCTP form is "LSTA" and PRE CALL ID is entered, CALL ORIGIN must be the same on all ACDCTP forms with the same PRE CALL ID.

If "AIS" or "LSTA" is entered in CALL ORIGIN, the following cross checks are needed.

- If the PRE CALL ID of the ACDPOL form matches the PRE CALL ID of the ACDCTP form, CALL ORIGIN cannot be "LSTA" or "AIS", and APOS CALL TYPE cannot be entered.

OSPSOPT form (5424 Record) - The following are the new office parameters of Call Completion: LS FEATURE WORD, COIN PAID TRAF, LS INTER CC.

OSPSCT form (5404 Record) - If CALL ORIGIN on ACDCTP form is "LSTA", SVC ID must be entered on the OSPSCT form. An OSPSCT form is required for each ACDCTP form where OSPS CALL TYPE on the OSPSCT form matches CALL TYPE on the ACDCTP form. OPER TYPE must be "TA" on that OSPSCT form. Conversely if "LSTA" is not entered for CALL ORIGIN, SVC ID must not be entered on the OSPSCT form.

In addition, for each list element on an ACDPOL form where CALL TYPE is entered, SVC ID must be entered on the associated OSPSCT form when CALL ORIGIN on the associated ACDCTP form is "LSTA". OSPS CALL TYPE on the associated OSPSCT form matches CALL TYPE on the ACDPOL form and PRE CALL ID on the associated ACDCTP form matches PRE CALL ID on the ACDPOL form.

SVC ID of OSPSCT form must be same as the SVC ID of SERVDATA form. (OSPS CALL TYPE of OSPSCT form is matched with CALL TYPE of ACDCTP form.)

If APOS CALL TYPE is entered on the ACDPOL form, CALL ORIGIN cannot be "LSTA" on the corresponding ACDCTP form. Forms correspond if PRE CALL ID of ACDPOL form matches the PRE CALL ID of ACDCTP form.

OPRTK form (5417 Record) - CALL COMPL, INTER FOR CC LSTG, SVC TRAF, and FROM TA SYSTEM fields have been added for the Listing Services Call Completion feature.

If TRKCLS is not "FIOPR", "DIOR" or "INAISTRK" on the TKGRP form associated with an OPRTK form, the trunk group is used for Listing Services and LSTG SVC TRAF must be "Y". The TKGRP form is found by matching TGN on the OPRTK form with TGN on the TKGRP form.

SERVDATA form (5466 Record) - New fields for call completion are CALL COMP, DIGIT TIMING, TURN BACK RI, and CALL PROG RI.

If CALL PROG RI or TURN BACK RI is entered, a corresponding RTIDX form is required, where the ROUTE INDEX value on the RTIDX form must match the CALL PROG RI value. In addition, this matching RTIDX form must have ROUTE TYPE set to "HUNT" and CI ROUTE TYPE set to "GENANN". A corresponding TKGRP form is also required. The TGN on the TKGRP form must match the TRUNK GROUP NUMBER on the corresponding RTIDX form. Additionally, on the TKGRP Form, the TRK DIR must be "ANN".

9. DIRECTORY ASSISTANCE CALL COMPLETION RELEASE 2

9.1 Feature Description

DACC R2 (Directory Assistance Call Completion - Release 2) provides the ability for an LS (Listing Services) operator at a CST (Combined Services Terminal) to enter charging information to apply to the subsequent DACC call. Any alternate billing information entered shall apply only to the DACC call; the LS function is billed as sent paid only.

The capabilities added for a CST-equipped LS operator by DACC - R2 are the following:

- the calling party (back) number can be entered in case of ANI Failure or ONI.
- a charging type can be entered.
- an ABS (Alternate Billing Service) number, either a card number or a third number, can be entered.
- DACC with same (sent paid) or different billing can be indicated. Call completion can be requested before the listing is retrieved.

The capability added for a BST-LSDB (Basic Services Terminal - Listing Services Data Base) is the following:

- the calling party (back) number can be entered in case of ANI Failure or ONI.

The Listing Service operator is the user of this feature. The CST-equipped operator may enter a charging type and number to be applied to a DA call completion call at any time during DA call handling. The operator may also indicate that DACC service is desired before a retrieved listed directory number is identified to OSPS. Any Listing Service operator may enter a back number in case of ONI or ANI Failure.

9.2 Call Scenario

The call begins when a caller dials an LS. The call is sent to an OSPS, and the OSPS routes the call to an operator at a CST or a BST-LSDB.

The CST uses 2 display pages for LS calls: the DB (Database) page is used to communicate with the EIS and perform listing searches, and the CP (Call Processing) page is used to display OSPS call information as for

TA calls.

The BST-LSDB is used in combination with a KDT (Keyboard-Display Terminal) to provide LS. Many TA keys are not available to operators using a BST-LSDB.

The OSPS and EIS communicate through CPDL (Call Processing Data Links). At seizure, a message is sent to the EIS. The Operator then uses the CST or KDT to search for the information requested by the caller. Once the listing is found, the operator may announce the number manually or release the call for an automated announcement provided by an ARU (Audio Response Unit) controlled by the EIS. The EIS provides the listed number to the OSPS, (either in the message reporting the verbal report or the message requesting transfer to announcement, depending on the vendor).

Once the listed number is received over the CPDL, call completion may be requested, either by an operator keying in the number or by a customer response to a prompt from the ARUs. If completion is requested, the EIS is disconnected from the call, and the OSPS collects billing information and completes the call.

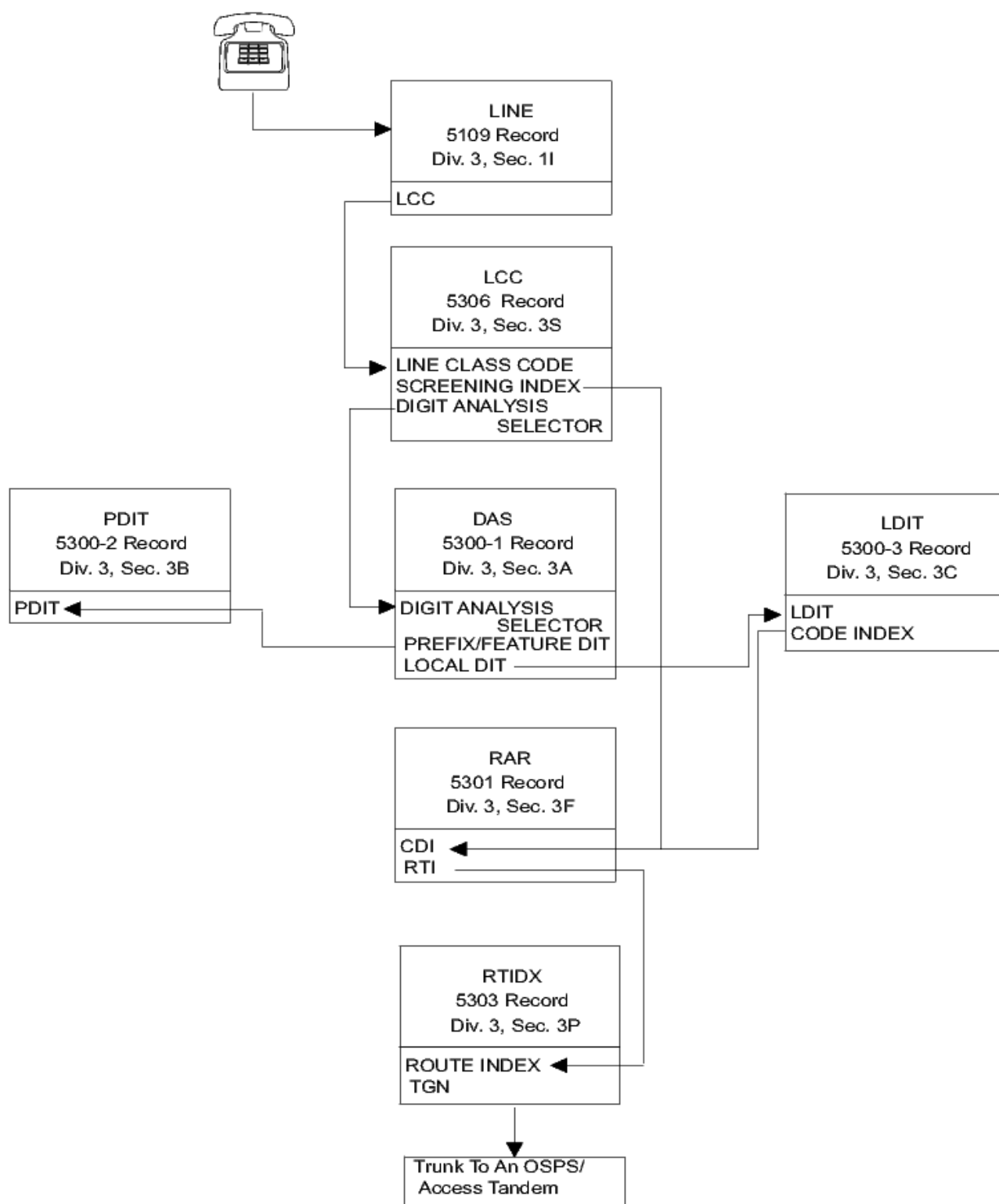
DACC R2 allows operators to enter billing information and a request for call completion during the LS portion of a call (during the listing retrieval) that is applied to the subsequent DACC.

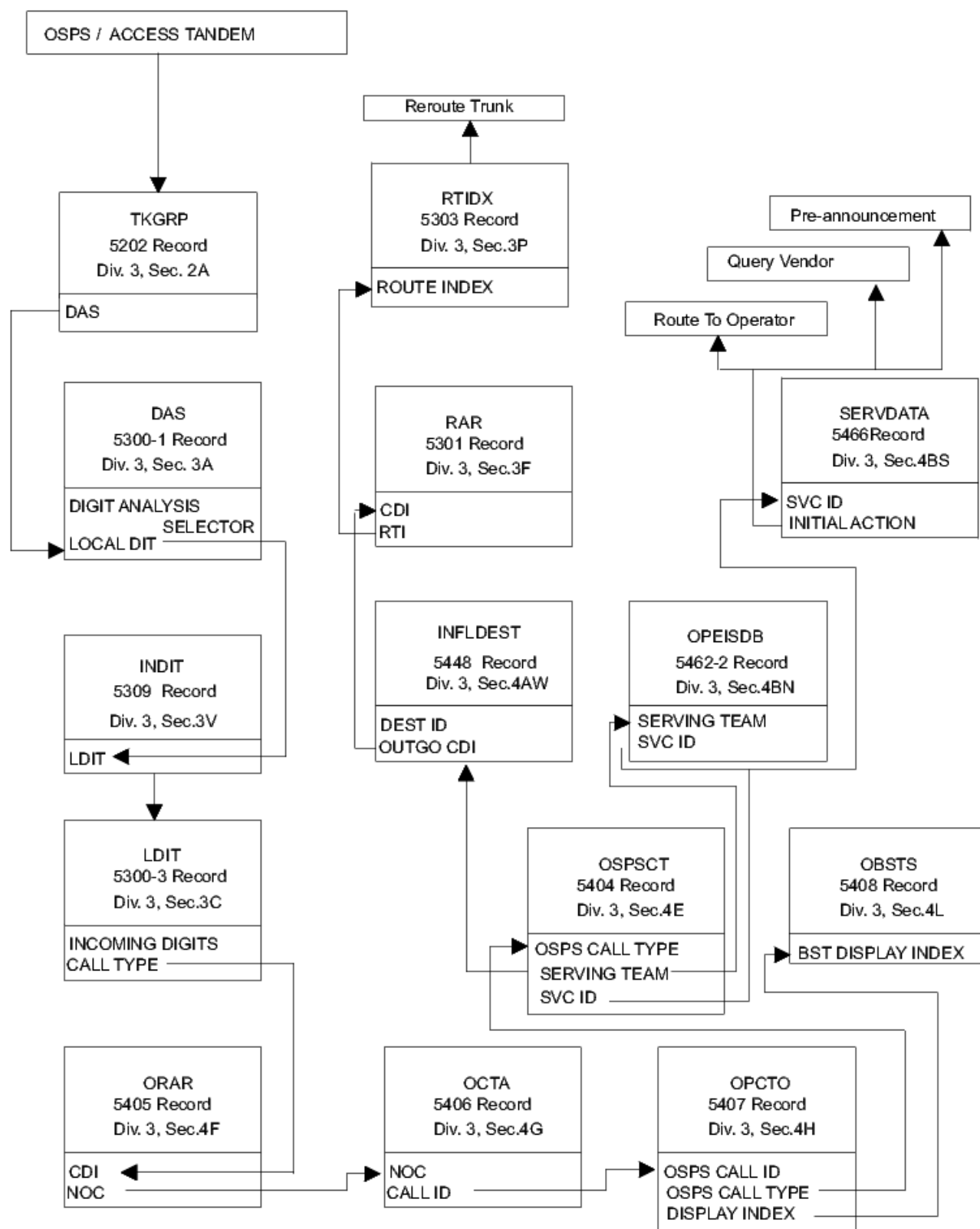
9.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9
SERVDATA	5466	3	4BS	21.54

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. To activate DACC R2, "Y" must be entered in the LSCC field on this form.

SERVDATA form (5466 Record) - This record defines the EIS service parameters for the 5ESS Switch owner. For 5E9(1) and later, if SVC ID is entered on the SERVDATA form, the LSTG SVC field on the OPSOPT form must also be entered.





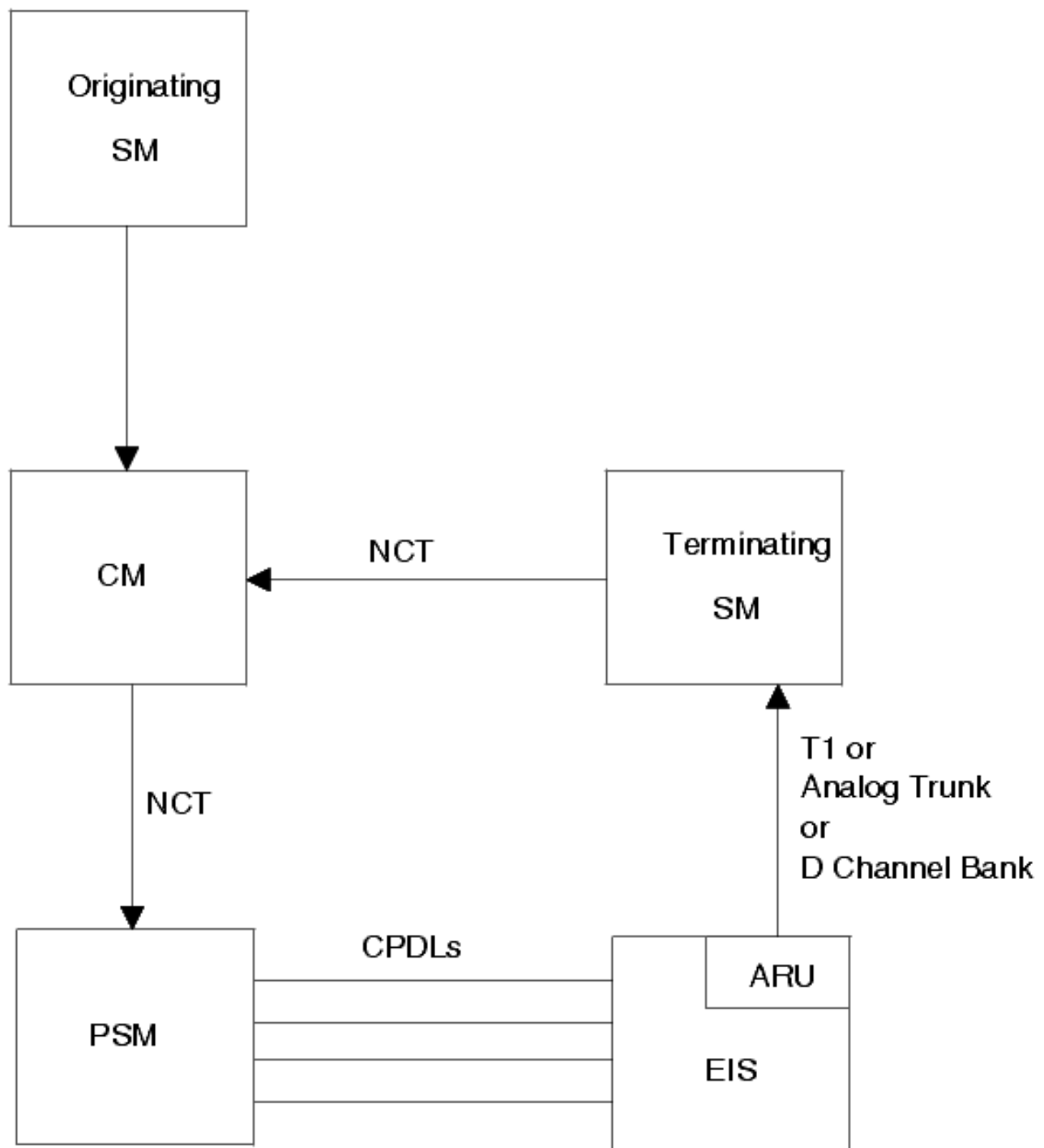


Figure 2 BASIC CONFIGURATION OF AN EXTERNAL INFORMATION SYSTEM

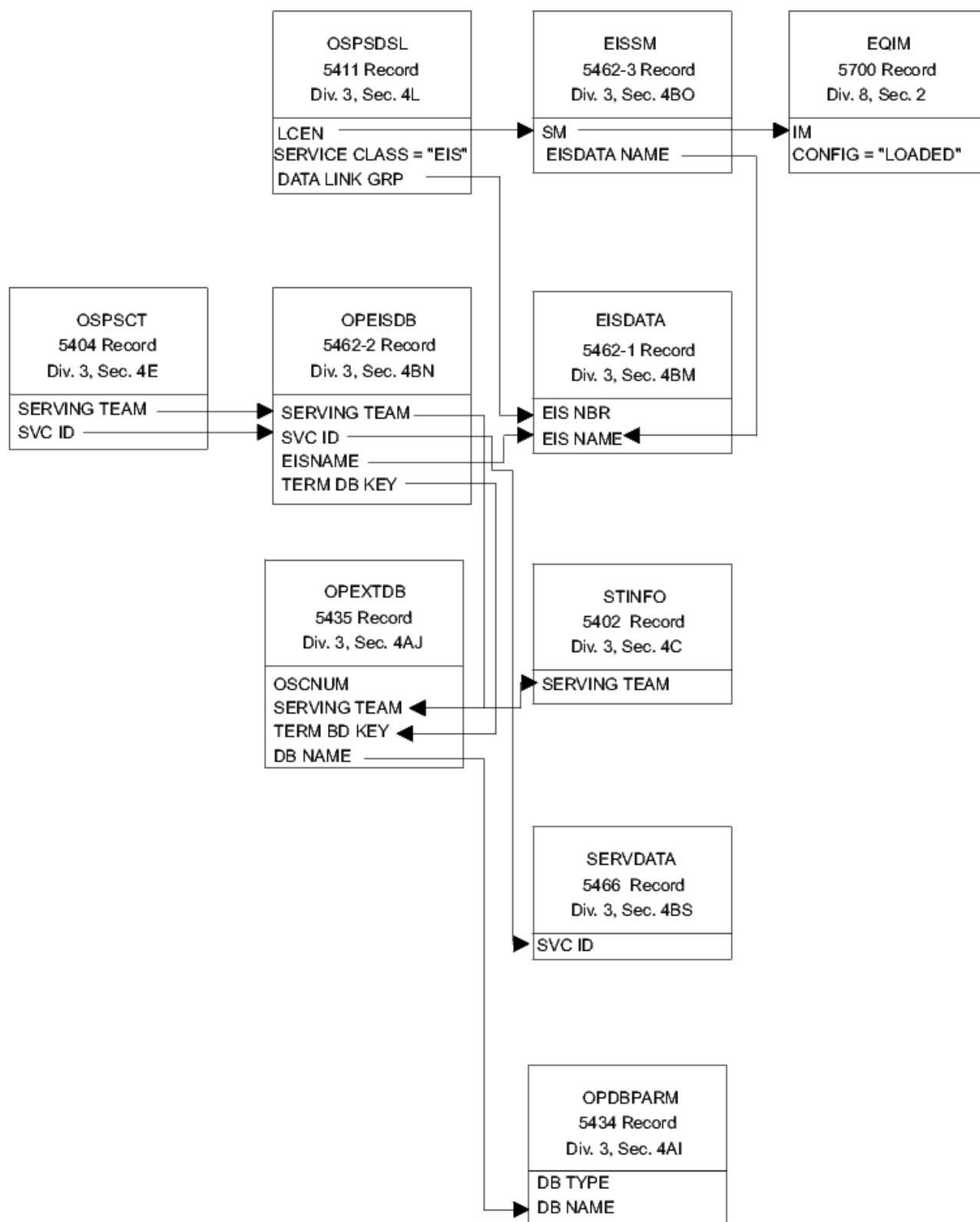


Figure 3 FORM FLOW FOR EIS TRANSLATIONS

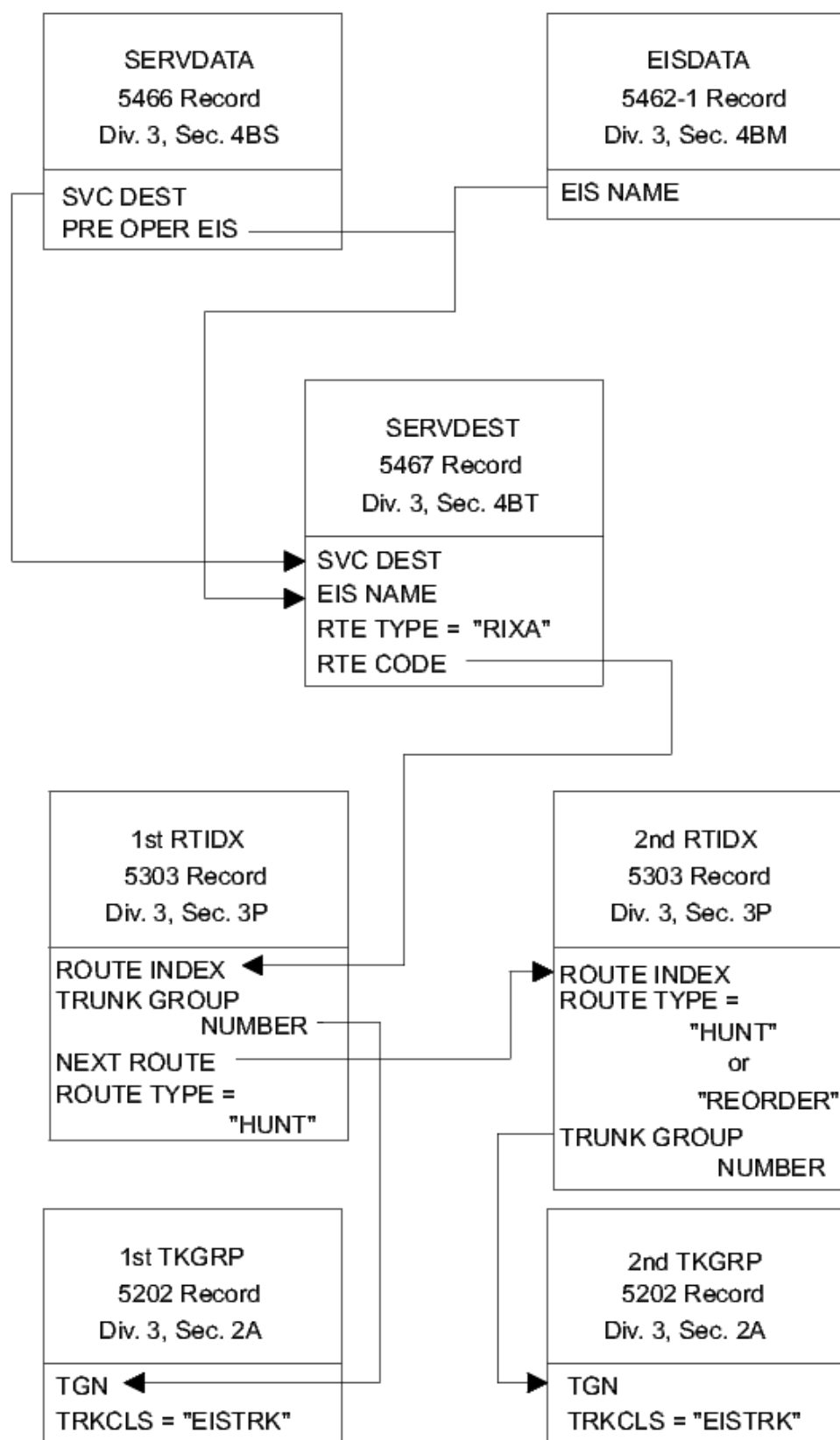


Figure 4 CROSS CHECK FORM FLOW FOR SERVDEST IF RTE TYPE IS "RIXA"

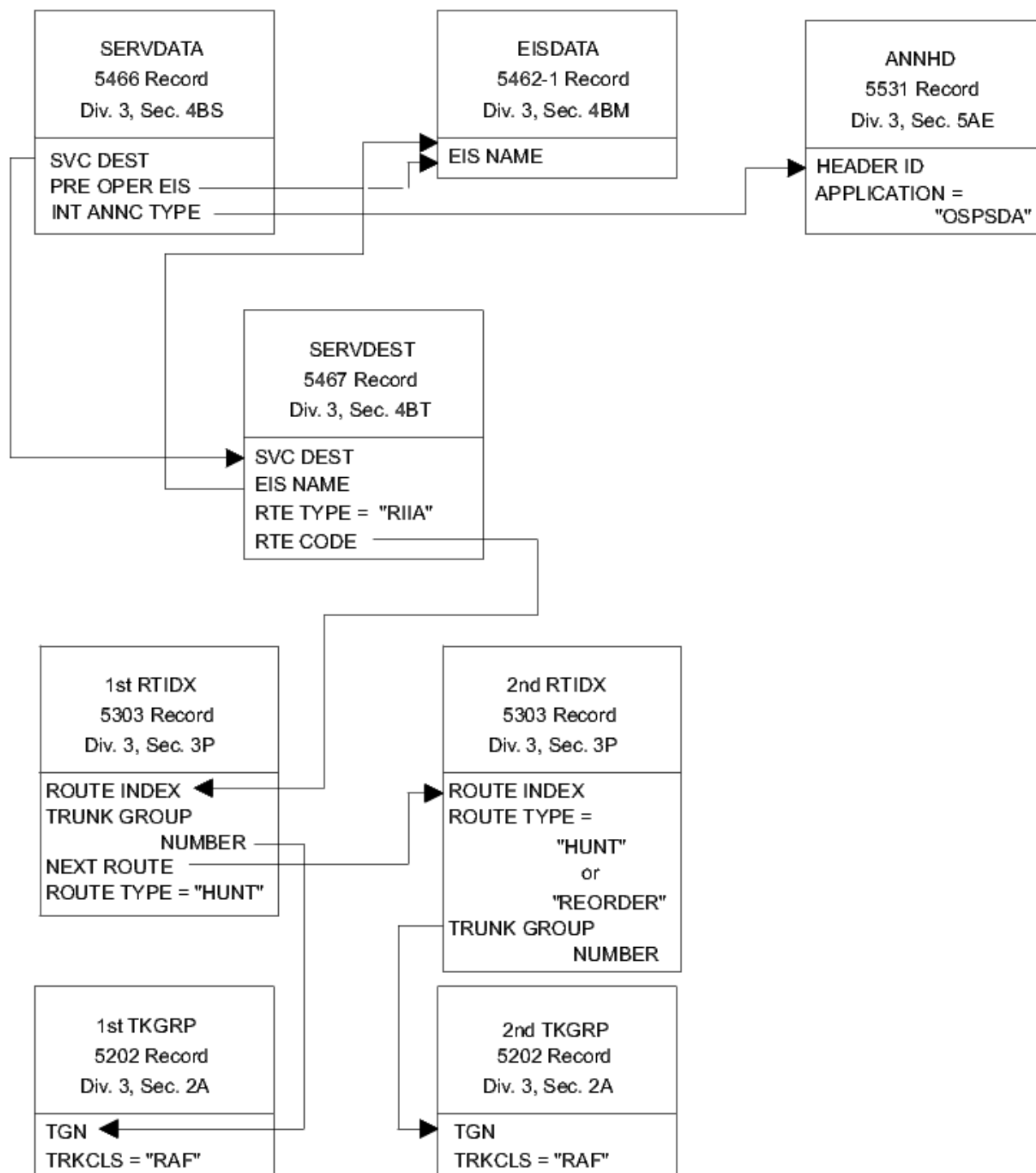


Figure 5 CROSS CHECK FORM FLOW FOR SERVDEST IF RTE TYPE IS "RIIA"

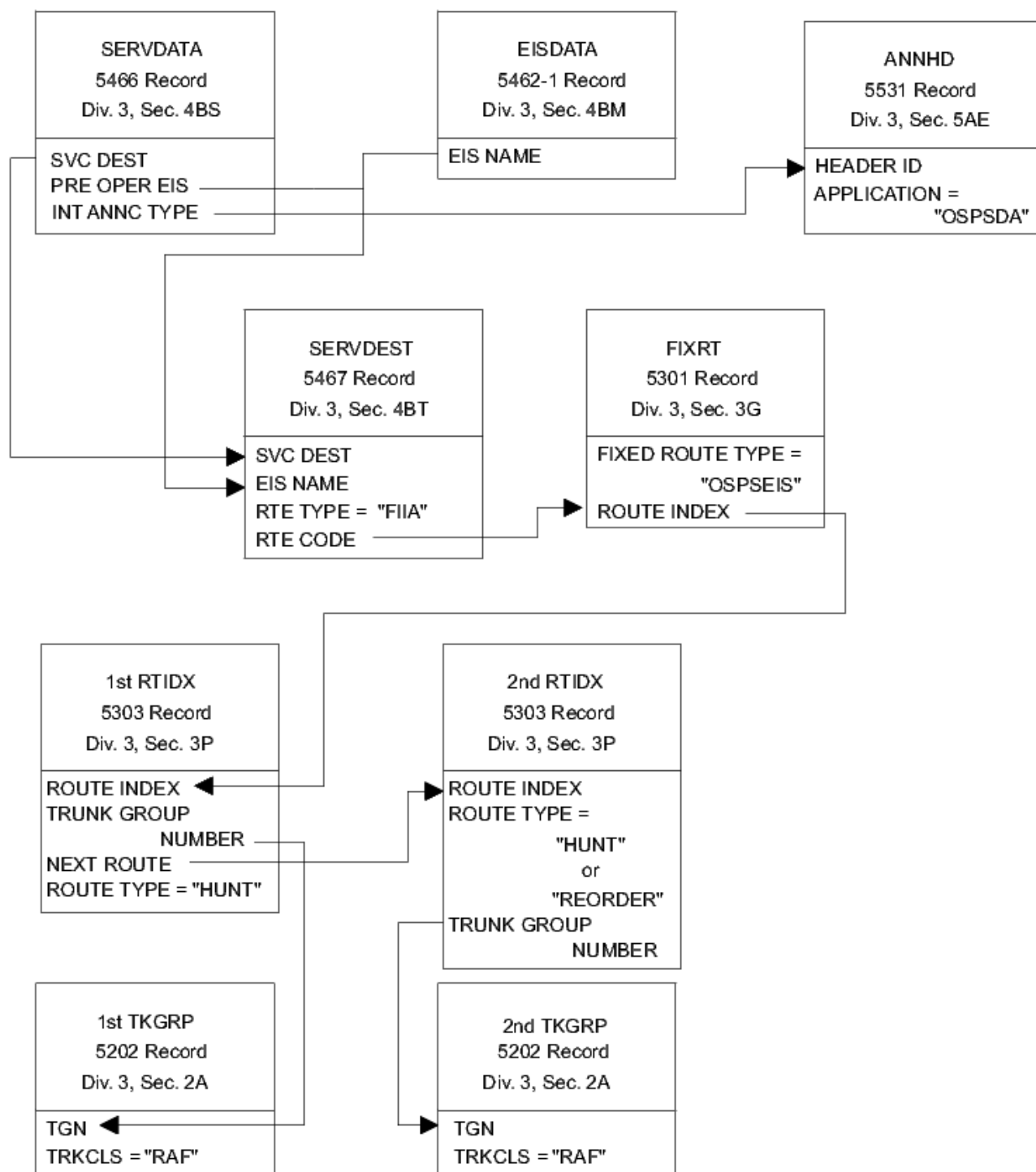


Figure 6 CROSS CHECK FORM FLOW FOR SERVDEST IF RTE TYPE IS "FIIA"

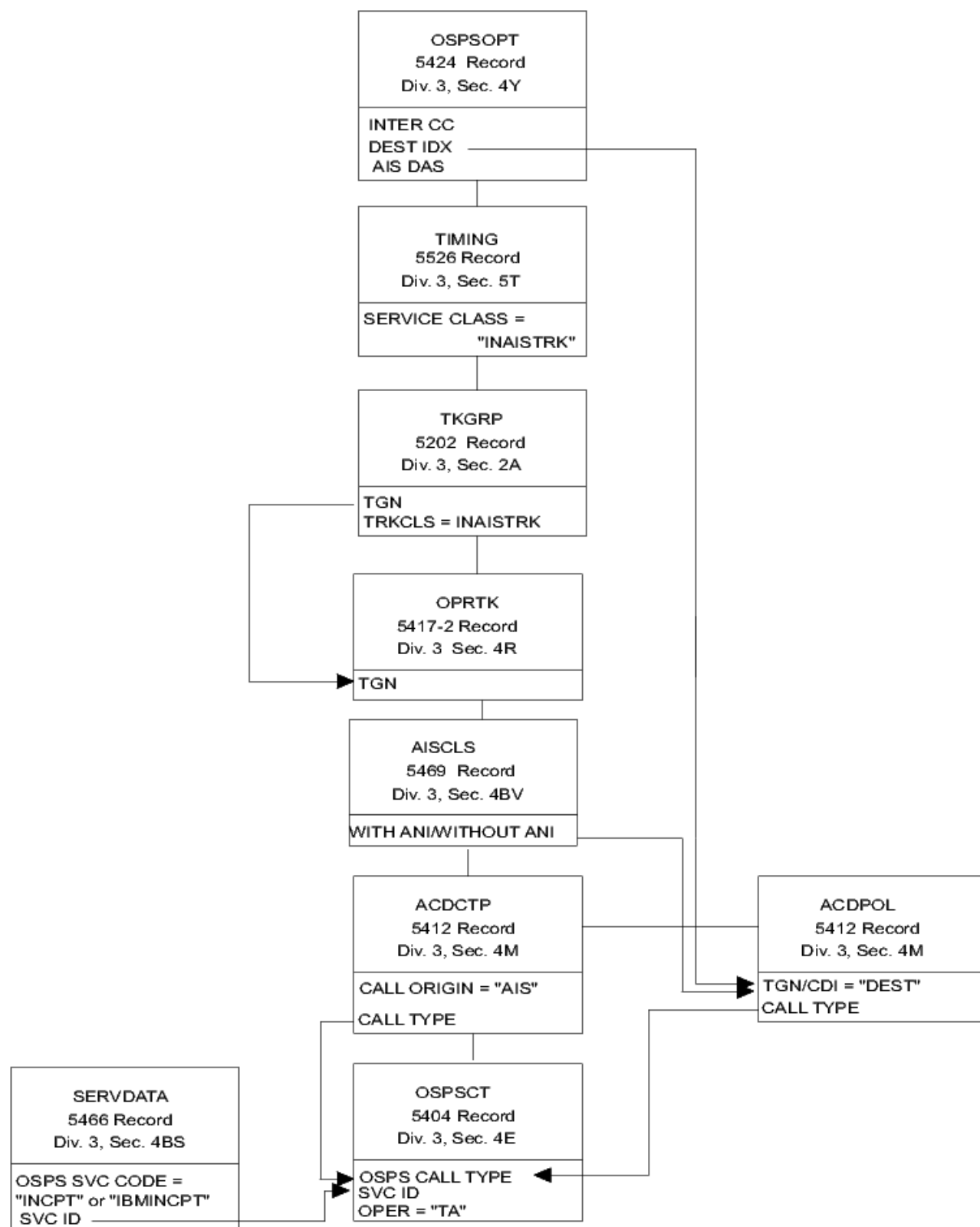


Figure 7 FORM FLOW FOR INTERCEPT SERVICES

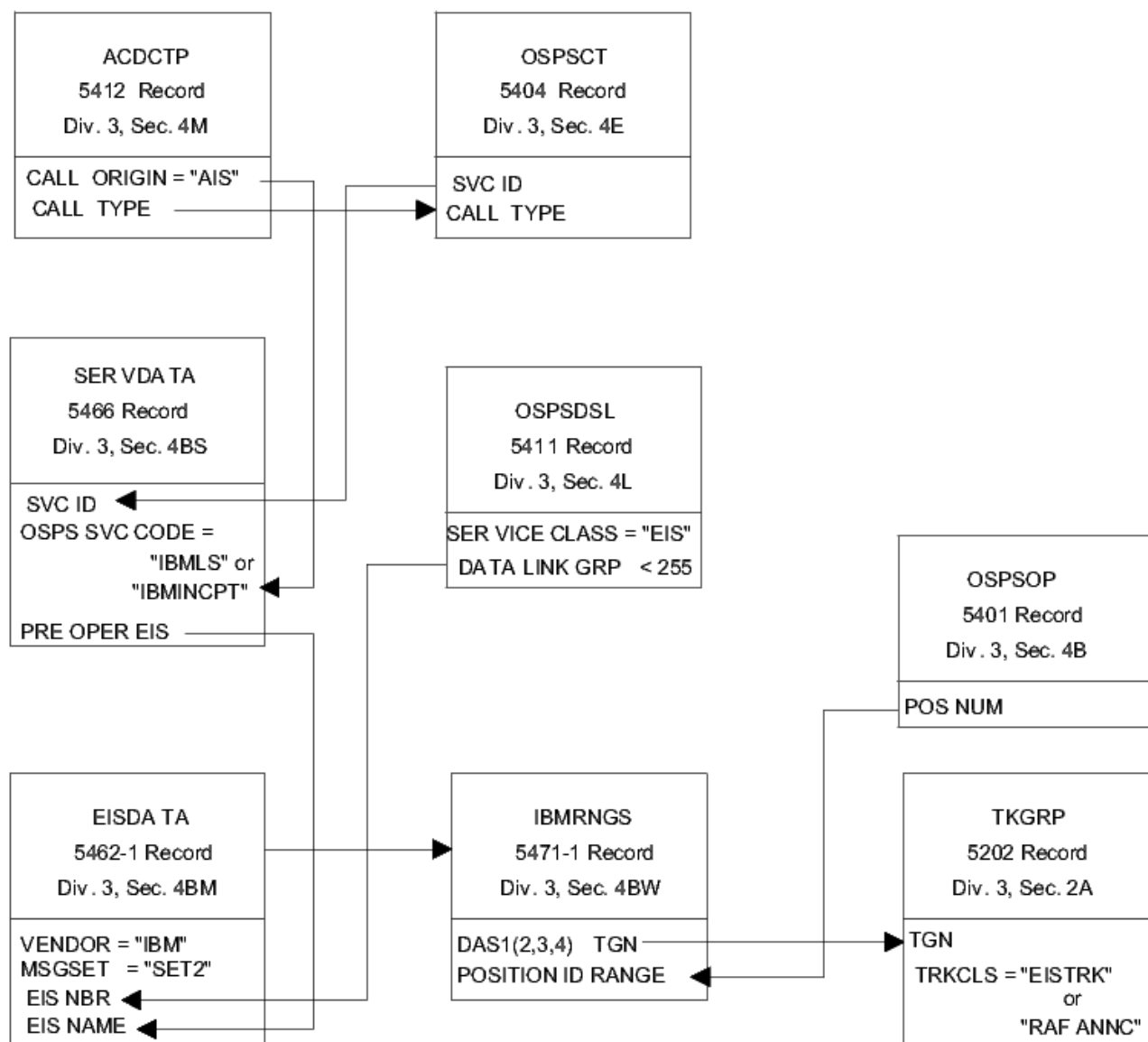


Figure 8 IBM EIS LISTING SERVICES FORM FLOW

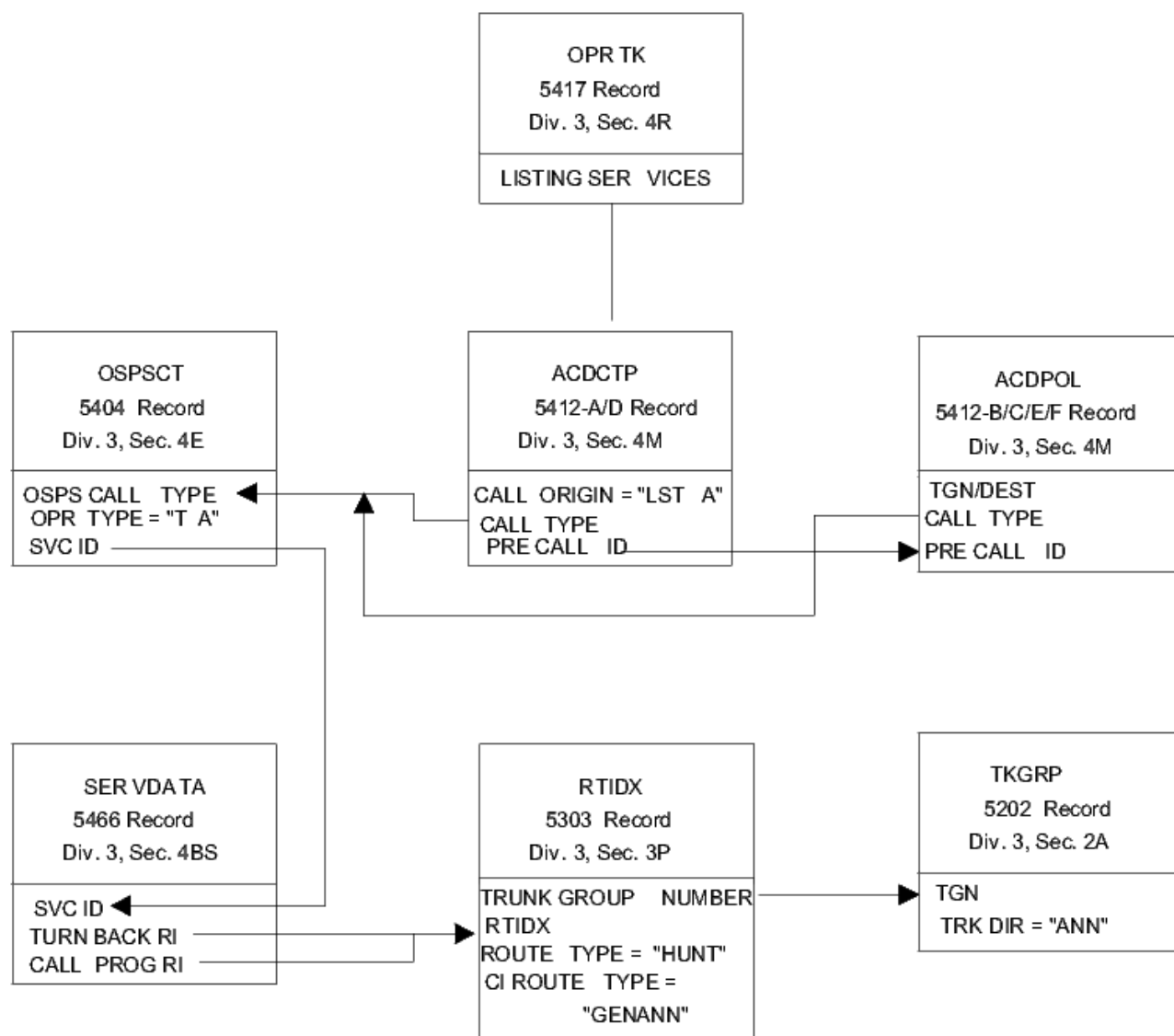


Figure 9 FORM FLOW FOR DIRECTORY ASSISTANCE CALL COMPLETION

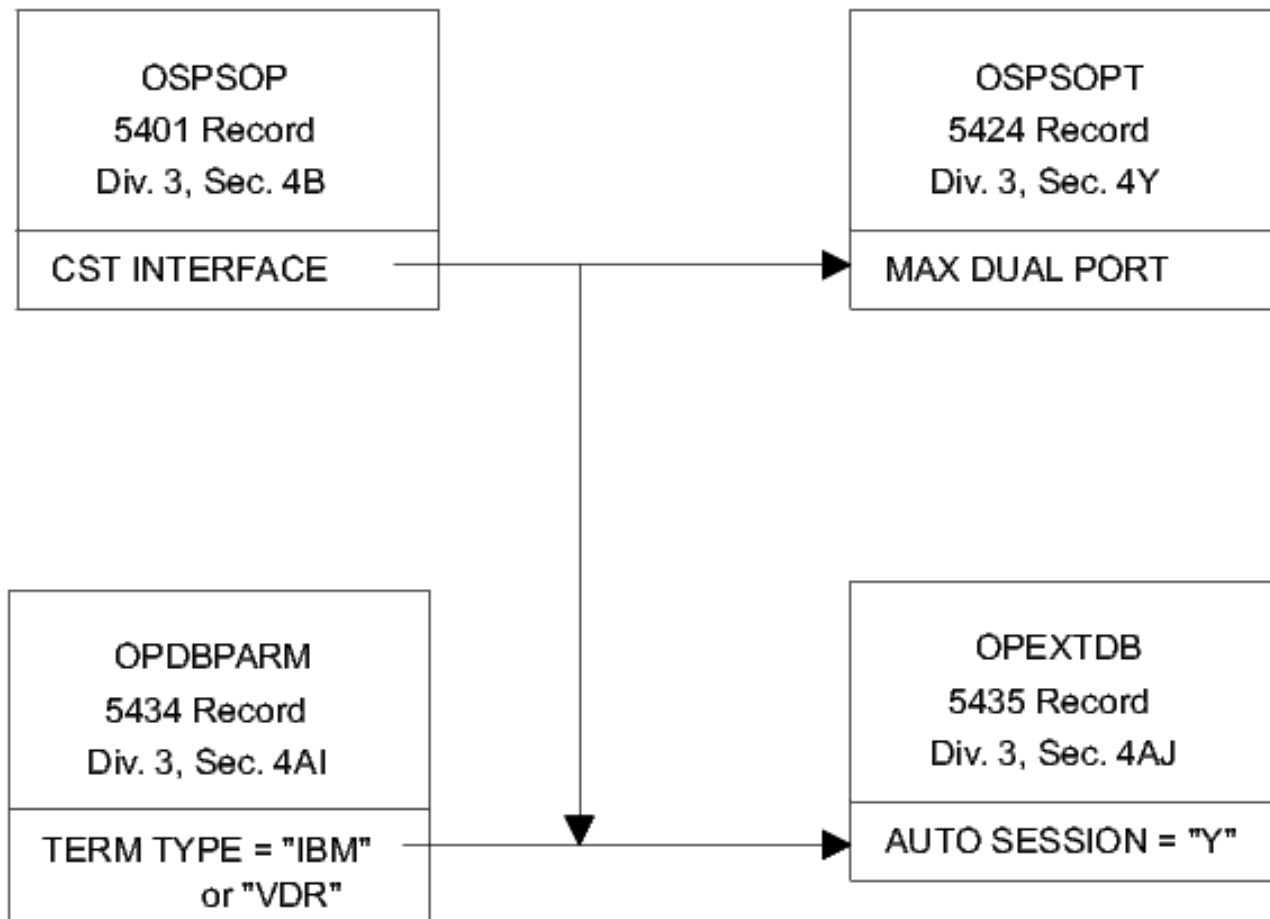


Figure 10 FORM FLOW FOR RECOGNITION OF CUSTOMER PROVIDED TERMINAL

SEC. 3D: OSPA COMMERCIAL ACD (AUTOMATIC CALL DISTRIBUTION)

1. GENERAL

For 5E4(2) and later Software Releases, the CACD (Commercial Automatic Call Distribution) feature distributes incoming calls to ACD/MIS agent groups on a call-type basis in a way similar to call distribution for other (operator) serving teams. Typically, the different agent groups serve different listed directory numbers (800-xxx-xxxx or NPA-yyy-yyyy). The administrative module allocates the path from the incoming trunk group through the switching module, communications module, PSM (Position Switching Module) and APC (Agent Position Controller) to the longest-idle agent position in a particular serving team. A serving team is assigned to be a queue's principal or supporting serving team (see the Intraflow (5E5 and later Software Releases) description in this section). Up to 128 agent and operator serving teams are allowed. When all positions are busy, calls may be queued until a position becomes idle. Note that calls are not queued if:

- The maximum number of calls in the call queue has been exceeded, or
- The third level delay threshold (emergency announcement) has been exceeded.

2. ANNOUNCEMENTS

Announcements are triggered if the "expected answer delay" for queued calls exceeds delay thresholds assigned to each queue. Up to three delay level thresholds and three different announcements can be assigned per queue. The announcement is entered at the announcement machine, but selection of announcements and timing thresholds is administered via the MIS (Management Information System). The announcement circuits can be connected to any switching module, including the PSM.

3. AGENT POSITIONS

An agent interacts with a calling party through the voice path provided with the agent position. The agent can make outgoing calls and transfers, if permitted, but most calls are incoming. The position also provides a data path via the DSL so that an agent can interact with the OSPA software by pressing keys on the position and by observing data displayed by the terminal.

An agent position can be assigned to any agent serving team associated with a particular client. Agent positions receive calls only when an agent is logged in at the position, the position is in the "idle" condition and a call is distributed to that serving team. The status of an agent position changes as an agent interacts with the position and the supporting software in the following way:

- A position is "unoccupied" until an agent plugs a headset into the terminal and logs in using an agent ID number.
- A position changes from idle to busy when a call is distributed to it directly or from the queue.
- A position changes to made-busy when a make busy key is pressed on a logged-in terminal. New calls will not be received, but an existing call stays at the position until released. Pressing the make busy key a second time restores the idle status, and the position is ready to receive the next call, assuming that the existing call ended while the position was made-busy.
- Releasing from a call makes the position idle (unless the position has been made busy) and ready to receive the next call.
- A position changes back to "unoccupied" status when the headset is unplugged.

4. CALL EVENT LINK TO THE ACD/MIS

As agents log on, receive calls, release from calls, make the position busy and log off, call event data is collected and sent over the 9600b/s asynchronous link to the ACD/MIS. Each PSM that routes ACD/MIS calls must have a link to the ACD/MIS (through the APC).

5. ACD/MIS COMPUTERS

Whether the ACD/MIS contains one or several computers, a major purpose is to process the call-event data and create administrative reports of agent performance, resource utilization, answer delay trends and other statistical and historical data. The reports enable an administrator to make decisions to more effectively use agents and facilities. Many reports can be displayed in color in graphic form on the supervisor workstation, allowing quicker comprehension of complex data than if the same data were printed as columns of statistics.

The MIS computers also provide controlled access to the RC/V (Recent Change and Verify) software to change agent assignments to serving teams, to queue attributes such as delay thresholds, to change the distribution of CALL TYPES to serving teams, to assign agent ID numbers, etc. The MIS is partitioned into local exchange carrier administrative areas controlled by the administrator for the telephone company and administrative areas controlled by the clients (who control only their own agents and facilities).

When only one client uses the CACD service, only one computer is required, although the client has the option of using a separate MIS computer located on customer premises. In a multiclient environment, the ECL (Event Control Link) computer on local exchange carrier premises serves two purposes: to distribute call-event data to the proper client's MIS computer and to allow access to the limited subset of the RC/V data allotted to each client.

6. ADMINISTRATIVE TERMINALS AND PRINTERS

The administrative terminal permits access by the LEC administrator to configure the ECL/MIS, assign IDs, allocate resources and set up the call-event links. Reports can be scheduled at the administrative terminal. Most reports can be viewed on the administrative terminal or sent to the printer. A second printer is provided to print error messages.

7. RC/V LINKS

The ECL computer is set up (through the administrative process) to allow access to a limited subset of recent change data for each client. The recent change data resides in the switch and is accessed through an input/output processor port. As each client changes agent assignments, etc., the change is transmitted via the RC/V link to the switch. The synchronous RC/V link operates at 4800 b/s.

8. SUPERVISOR WORKSTATIONS

Each ACD/MIS client has a supervisor workstation to administer the resources assigned to that client. Reports can be viewed on the workstation screen or sent to an attached printer.

9. INCOMING CALLS

An incoming CACD call appears on the switch as a seizure on an incoming trunk. The incoming digits for the called number are analyzed by digit analysis to determine the number's validity. If valid, the number is routed to CACD. This telephone number can be:

- a POTS (Plain Old Telephone Service) termination to ACD/MIS.
- a POTS termination to ACD/MIS where the terminating telephone number is defined as providing free terminating line service. (Free line service are calls that are not billed. They can be from a class of lines, such as intraoffice, or from specified trunks to a line that is designated free.)
- an INWATS (Inward Wide Area Telephone Service) termination to ACD/MIS.

The Office Data translations necessary to handle these three types of incoming calls are defined in the following sections.

9.1 POTS Termination

A POTS termination to CACD appears on the switch as a seizure on an incoming trunk. The incoming digits are analyzed using digit analysis to determine if the number is valid. If the terminating telephone number is valid, the call is routed to ACD/MIS. Table 1 provides a summary of the Office Data used in this process.

9.1.1 ODA FORMS

- DAS form (5300-1 Record)
- INDIT form (5309 Record)
- LDIT form (5300-3 Record)
- OBSTS form (5408 Record)
- OCTA form (5406 Record)
- OPCTO form (5407 Record)
- ORAR form (5405 Record)
- OSPSCT form (5404 Record)
- OSPSOA form (5403 Record)
- RAR form (5301 Record)
- STINFO form (5402 Record)
- TKGRP form (5202 Record)
- TRUNK form (5204 Record)

9.2 Translation Requirements

9.2.1 TKGRP form (5202 Record)

The incoming trunk group must be defined on the Trunk Group - TKGRP form. The individual Trunk members are defined on the Trunk Features and Assignments - TRUNK form (5204 Record). In addition to defining the characteristics of the incoming trunk, the TKGRP form provides the Digit Analysis Selector, DAS, and

Screening Index Number, to be used for digit analysis, routing and charging.

9.2.2 DAS form (5300-1 Record)

The Digit Analysis Selector - DAS form is looked at next. The key to this form is the DAS obtained from the TKGRP form. The DAS form provides the INDIT (Incoming Trunk Preliminary Digit Interpreter Table) number, INC. TRUNK PRELIMINARY DIT and the Local Digit Interpreter Table number, LOCAL DIT, which are the keys for the INDIT and LDIT forms.

9.2.3 INDIT form (5309 Record)

The Incoming Trunk Preliminary Digit Interpretation - INDIT form is looked at next. The keys to this form are the INC. TRUNK PRELIMINARY DIT determined in the DAS form and the incoming digits. For ACD/MIS call seizures, the entry on this record normally indicates that no digits should be deleted and that translation continues with the LOCAL DIT in the LDIT form. At this point, the ROUTE INDEX and CODE INDEX could be specified on the INDIT form and digit analysis would be completed.

9.2.4 LDIT form (5300-3 Record)

If the INDIT form indicates that the LDIT should be used, the Local Digit Interpretation Table - LDIT form is looked at next. The keys to this form are the LOCAL DIT determined in the DAS form and the incoming digits. The CALL TYPE, TYPE OF CI CALL, CODE INDEX and ROUTE INDEX are determined from the LDIT form. If more than one incoming digit string starts with the same digits (e.g. the incoming digits could be 312-979-3456 or 312-1234), then this record should indicate that there is a conflict. The Conflict Resolution entries on the LDIT form (5300-5 Record) are used. Conflict resolution is based on the number of digits entered and is used to define the same information as was found on the LDIT form (5300-3 Record).

9.2.5 RAR form (5301 Record)

A form entry in the Rate and Route - RAR form is required next, although it may not be used by ACD/MIS. The keys for the RAR record are the Screening Index Number, obtained from the TKGRP form and the CDI (CODE INDEX) (on the RAR form) obtained from either the INDIT form (5309 Record) or the LDIT form (5300-3 Record). If the INDIT was used, then a prefix PFX of "NONE" is required on the RAR form. A RAR form PFX entry is required to satisfy the cross checks associated with the OSPS Rate and Route Record - ORAR form (5405 Record).

Once digit analysis has verified that the number is valid and has determined the CODE INDEX and ROUTE INDEX, screening data is looked at to determine if the incoming call is destined for CACD.

9.2.6 ORAR form (5405 Record)

The first form to be looked at is the OSPS Rate and Route - ORAR form. The key fields for the ORAR form are the Screening Index Number, which is obtained from the TKGRP form (5202 Record) and the CDI (on the RAR and ORAR forms) obtained from either the INDIT form or the LDIT form. If the call is an ACD call and the CODE INDEX came from the INDIT form, then a prefix, PFX, of "NONE" should be entered in the ORAR form.

The ORAR record provides either a Normalized Office Code, NOC, used as one of the keys for the OSPS Call Type Assignment - OCTA form, (5406 Record) or a pre-call identification number, OSPS CALL ID, used as one of the keys for the OSPS Call Type for Trunk Originations - OPCTO form (5407 Record).

The form to be looked at next is determined by the entries on the ORAR form. If a NOC is specified on the ORAR form, then the OCTA form will be looked at next. Otherwise, if an OSPS CALL ID is specified,

screening will proceed directly to the OPCTO form.

9.2.7 OCTA form (5406 Record)

If a NOC was specified on the ORAR form, the OSPS Call Type Assignment - OCTA form will be looked at next. The keys for the OCTA form are the OPER NOC obtained from the ORAR record and the last four digits of the incoming digit string LOCDN. The OCTA record provides a pre-call identification number (OSPS CALL ID) used as one of the keys for the OSPS Call Type for Trunk Originations Record (50DA record number 5407).

9.2.8 OPCTO form (5407 Record)

The OSPS Call Type for Trunk Originations - OPCTO form is looked at next. The key fields for the OPCTO form are the OSPS CALL ID obtained from either the ORAR form or the OCTA form and the incoming TGN (Trunk Group Number) obtained from the TKGRP form.

Optionally, a value of 9999 may be entered as the trunk group number when screening of incoming calls by trunk group is not desired. An entry of 9999 designates any incoming trunk group.

The OPCTO form provides an OSPS CALL TYPE used as a key for the OSPS Call Type Parameters - OSPSCT form (5404 Record) and a BST DISPLAY INDEX used as a key for the OSPS Basic Services Terminal Seizure - OBSTS form (5408 Record).

9.2.9 OSPSCT form (5404 Record)

The OSPS Call Type Parameters - OSPSCT form is looked at next. The key for the OSPSCT form is the OSPS CALL TYPE obtained from the OPCTO form. This form defines the Call Type and is used to assign serving teams, delay announcements and to define other parameters associated with Call Types. Fields to be noted on this form are the operator type field, OPER TYPE, which must be set to "DA" and the CACD Call Type field (AUTO CALL DIST?) which must be set to a "Y". The SERVING TEAM provided by the OSPSCT record is used as a key for the OSPS Serving Team Information - STINFO form (5402 Record).

9.2.10 OBSTS form (5408 Record)

The OSPS Basic Services Terminal Seizure - OBSTS form will be used when the incoming call seizes an ACD/MIS agent's position. This form defines the text to be displayed at the agent's position when an incoming call seizes the position.

9.2.11 STINFO form (5402 Record)

The OSPS Serving Team Information - STINFO form defines the serving team that will service a Call Type. Fields to be noted on this form are the operator type field, OPER TYPE, which must be set to "DA" and the ACD/MIS serving team field, AUTO CALL DIST?, which must be set to a "Y".

9.2.12 OSPSOA form (5403 Record)

The OSPS Operator Assignment - OSPSOA form is used to define ACD/MIS agent login ids, assign the agent to a serving team and provide parameters which define valid agent actions. A field to be noted on this form is the operator type field, OPER TYPE, which must be set to "DA".

9.3 Free Line Termination

A Free Line termination to CACD appears on the switch as a seizure on an incoming trunk, just like a POTS

termination to ACD/MIS. The incoming digits are analyzed using digit analysis to determine the numbers' validity. If the terminating telephone number is valid, the call is routed to ACD/MIS.

A Free Line termination to ACD/MIS is defined by:

- Setting the FREE ANS field on the TKGRP form (5202 Record) to "N" to indicate that answer supervision is not to be returned when completing to a free line, and
- Assigning a Charge Index number, via the appropriate RAR form (5301 Record), where the AMA CALL TYPE field on the CGIDX form (5302-1 Record) is set to "FREE". The keys for the RAR record are the Screening Index Number, obtained from the TKGRP form (5202 Record), the CODE INDEX, obtained from either the INDIT form (5309 Record) or the LDIT form (5300-3 Record) and a PREFIX, PFX, of "NONE" since the INDIT was used.

When defining a telephone number terminating to ACD/MIS as providing free line service, ACD/MIS Originating Treatment will not relay an answer signal over the incoming trunk.

9.4 INWATS Termination

An INWATS termination to CACD appears on the switch as a seizure on an incoming trunk, much like a POTS termination to ACD/MIS. The incoming digits are analyzed using digit analysis to determine the numbers' validity. If the terminating telephone number is valid, the call is routed to ACD/MIS. The same Office Data is required to route an INWATS termination to ACD/MIS as is required to route a POTS termination to ACD/MIS. This data was described earlier in the "POTS Termination to CACD" section. Additional data is required to define the incoming call as an INWATS termination to ACD/MIS. Table 1 provides a summary of the Office Data used in digit analysis, routing and charging. Table 2 provides a summary of the additional Office Data used to route an INWATS termination to ACD/MIS.

After completing digit analysis, routing and screening of the incoming digits, INWATS terminations to ACD/MIS are routed through a Simulated Facility Group, SFG, before being routed to a ACD/MIS agent. Routing the call through an SFG serves three purposes:

- the SFG is used to limit the total number of call appearances terminating to the ACD/MIS INWATS telephone number,
- the SFG can be used to provide a billing number for all incoming calls terminating to the INWATS telephone number and
- optionally provide the ability to overflow from one SFG to another.

Allowing one SFG to overflow to another effectively provides the ability to support WATS band overflows. When populating data to provide for SFG overflows, a billing telephone number should be assigned to each SFG to insure that calls are billed to the appropriate telephone number.

The following office data is used only to define the terminating INWATS telephone number and is not used during the routing of an ACD/MIS call.

9.4.1 ODA Forms

- CGIDX form (5302-1 Record)
- HGRPAS form (5115 Record)

- LCC form (5306 Record)
- LINE form (5109 Record)
- MCRTIDX form (5304 Record)
- NOC form (5501 Record)
- PFAINWT form (5609-4 Record)
- PFASFG form (5609-3 Record)
- RAR form (5301 Record)

9.5 Translation Requirements

9.5.1 NOC form (5501 Record)

The Normalized Office Code - NOC form is used to define an Office Code and to assign it a Normalized Office Code. This record also assigns a default ROUTE INDEX and CHARGE INDEX to be used for routing to the Regular Intercept, Blank Number, Out-of-Service and Deny Termination treatments. The key for the NOC record is the OFFICE CODE.

9.5.2 LCC form (5306 Record)

The Line Class Code - LCC form is used to define a Line Class Code on the switch. The keys for the LCC record are the LINE CLASS CODE and the RATE AREA number. An LCC is assigned to a telephone number and provides routing and service information. For INWATS telephone numbers terminating to ACD/MIS the CLASS OF SERVICE should be assigned as Individual, "INDIV" and the TERMINATING TREATMENT should be assigned the value "INWATS". Therefore, the LCC record is used to assign an INWATS terminating treatment to a telephone number.

9.5.3 LINE form (5109 Record)

The Telephone Number - LINE form is used to define the Office Equipment Number and features for each telephone number in a switch. The key for the LINE record is the seven-digit local telephone number. Fields to be noted on the LINE record are the RAX and LCC fields used to assign a Rate Area and Line Class Code, respectively, to the telephone number. When defining INWATS telephone numbers terminating to ACD/MIS, the LCC defined in step 2 would be assigned to the ACD/MIS telephone number. In addition, the telephone number must be assigned an analog-type Line Equipment Number, LEN, in the OE TYPE and OE NUMBER fields. No calls would ever terminate to this LEN but it could be used to originate calls, if a station set was used, although doing so is not recommended.

The routing of an INWATS termination to ACD/MIS continues and the following Office Data is used in the routing of the call:

9.5.4 RAR form (5301 Record)

The first form to be looked at is the Rate and Route - RAR form. The keys for the RAR record are the Screening Index Number, obtained from the TKGRP form (5202 Record), the CODE INDEX, obtained from either the INDIT form (5309 Record) or the LDIT form (5300-3 Record), and a PREFIX, PFX, of "NONE" since the INDIT was used. The RAR record is to be populated such that the Route Index field, RTI, is left

blank. Instead, the Office Code of the ACD/MIS telephone number is entered in the NXX field and a Charge Index number is entered in the CHGI field. The Office Code and Charge Index number must have been previously defined using the NOC form (5501 Record) and the CGIDX form (5302-1 Record), respectively. Entering an Office Code in the NXX field indicates that special directory number translations are to be done for calls terminating to this telephone number.

9.5.5 CGIDX form (5302-1 Record)

The Charge Index Expansion - CGIDX form is looked at next. The key for the CGIDX form is the Charge Index number, CHARGE INDEX, obtained from the RAR form (5301 Record). This form provides charging, or billing, information for the call.

9.5.6 HGRPAS form (5115 Record)

The Hundreds Group(s) Assignment - HGRPAS form is looked at next. The keys for the HGRPAS form are the OFFICE CODE, and the THOUSANDS DIGIT and HUNDREDS DIGIT of the terminating telephone number. The Thousands Digit and the Hundreds Digit are the fourth and third digits, respectively, of the local telephone number. The HGRPAS form is used to assign a routing module for a hundreds group. Once the routing module has been determined, the originating Switch Module will transfer control for the routing of the incoming call to the designated routing module.

9.5.7 PFAINWT form (5609-4 Record)

The INWATS Simulated Facility TN - PFAINWT form is looked at next. The key for the PFAINWT form is the seven-digit local telephone number. The local telephone number must have been previously defined using the LINE form (5109 Record). The PFAINWT form provides an MC ROUTE INDEX used as a key for the BRCS - MC Route Index Expansion - MCRTIDX form.

9.5.8 MCRTIDX form (5304 Record)

The BRCS - MC Route Index Expansion - MCRTIDX form is looked at next. The key for the MCRTIDX form is the MC ROUTE INDEX obtained from the PFAINWT form (5609-4 Record). The MCRTIDX form is to be populated such that the MC ROUTE TYPE field is set to "SFG", and the SFG NUMBER field contains a valid SFG number. The SFG NUMBER serves as the key for the Simulated Facility Group - PFASFG form (5609-3 Record). The NEXT MC ROUTE INDEX field should contain the key for an MCRTIDX form where the MC ROUTE TYPE is set to "REORD" in cases where overflow from one SFG to another is not desired. When overflow from one SFG to another is desired, then the NEXT MC ROUTE INDEX field should contain the key for the MCRTIDX form which routes the next SFG.

9.5.9 PFASFG form (5609-3 Record)

The Simulated Facility Group, PFASFG form, is looked at next. The key for the PFASFG record is the SFG number, SFG NBR, obtained from the MCRTIDX form (5304 Record). The PFASFG form defines the characteristics of the SFG, such as the SFG TYPE which should be set to "INWATS", the SFG size and the Special Bill Number (if desired). The Queue Allowed field should be set to "N".

At this point, control of the call is returned to ACD/MIS Originating. If an idle SFG member was found and allocated to the incoming call, the call will be routed to a ACD/MIS agent. Otherwise, the incoming call is blocked and the incoming call is connected to the reorder tone.

10. OUTGOING EXTERNAL CALLS

Currently, an CACD agent originates an outbound external call by pressing the DIAL key, followed by the external network access code (#9), the desired external number and the ENTER key. Digit analysis is done on the external number to determine the number's validity. If it is valid, the number is routed to its destination. This process is described below in the "Outbound External Call Origination" section.

To provide speed calling capabilities and to allow for standard billing records, outbound external calls may be routed over loop around (hair-pin) trunks. The section "Loop Around Trunk Interactions" presents the information needed to allow for this.

The section entitled "Example" presents an example of two-digit speed calling.

10.1 Outbound External Call Origination

After the agent has entered an external number, digit analysis is done to determine the number's validity. The following office data is used in this process.

10.1.1 ODA Forms

- CGIDX form (5302-1 Record)
- DAS form (5300-1 Record)
- ICF form (5305 Record)
- INDIT form (5309 Record)
- LDIT form (5300-3 Record)
- OSPSOA form (5403 Record)
- PDIT form (5300-2 Record)
- RAR form (5301 Record)
- RTIDX form (5303 Record)
- STINFO form (5402 Record)
- TKGRP form (5202-1 Record)

10.2 Translation Requirements

10.2.1 OSPSOA form (5403 Record)

The agent's serving team is determined. Using the agent's login id as the key, the OSPS Operator Assignment - OSPSOA form is checked to determine the serving team the agent belongs to.

10.2.2 STINFO form (5402 Record)

Using the agent's serving team number as the key, the OSPS Serving Team Information - STINFO form is checked. Assuming that this form says that the agent is allowed to originate calls, the following information from that form is needed: Digit Analysis Selector, Screen Index, pre-subscribed Carrier and Carrier Dialing Permission.

10.2.3 DAS form (5300-1 Record)

Using the DIG ANALYSIS SEL from the STINFO form as the key, the INDIT (Incoming Trunk Digit Interpreter Table) and LDIT (Local Digit Interpreter Table) are determined from the Digit Analysis Selector - DAS form. If the agent is allowed to dial a prefix or a carrier access code, a PDIT (Prefix/Feature Digit Interpreter Table) could be specified rather than an INDIT.

10.2.4 INDIT form (5309 Record)

This record is used to define the initial digit analysis and subsequent treatment of impulsed digits from all Incoming and Two-Way Trunks based upon the initial digits received.

10.2.5 PDIT form (5300-2 Record)

Depending on whether an INDIT or PDIT is specified, one of the following 2 steps is executed.

- Using the INDIT determined above and the external number entered by the agent, the Incoming Trunk Digit Interpretation - INDIT form is looked at next. For OSPS ACD/MIS agent calls, the entry on this record normally indicates that no digits should be deleted and that translation continues with the LDIT. A route index and code index could be specified at this point and digit analysis would have completed.

Alternately,

- Using the PDIT determined above and the external number entered by the agent, the Prefix/Feature Digit Interpretation - PDIT form is looked at next. Using this form, a carrier access code (e.g., 10288) and/or a prefix (0 or 1) entered by the agent can be identified. After doing this, the translation continues with the LDIT.

10.2.6 LDIT form (5300-3 Record)

If the previous form indicates that the LDIT should be used, the CALL TYPE, TYPE OF CI CALL, CODE INDEX and ROUTE INDEX are determined from the Local Digit Interpretation Table - LDIT form. The keys to this form are the LOCAL DIT determined in the DAS form and the external number. If more than one external number starts with the same digits (e.g., the agent could dial 312-979-3456 or 312-1234), then this record should indicate that there is a conflict. The Conflict Resolution entries on the LDIT form (5300-5 Record) are used. Conflict resolution is based on the number of digits entered and is used to define the same information as was found on the LDIT form (5300-3 Record).

10.2.7 ICF form (5305 Record)

If the agent had entered a carrier access code or if the external number entered required a carrier, carrier specific routing information is needed. Using the agent entered carrier access code, or the pre-subscribed carrier, CARRIER ID, from the OSPS Serving Team Information - STINFO form (5402 Record), a carrier specific ROUTE INDEX and CODE INDEX are found from the InterLATA Carrier Feature - ICF form. This ROUTE INDEX, CODE INDEX pair is used in routing.

Once digit analysis has verified that a number is valid and has determined the CODE INDEX and ROUTE INDEX, the agent entered external number is routed to. The following office data is used in this process:

10.2.8 RAR form (5301 Record)

Using as keys the CODE INDEX previously determined, the prefix, PFX, from the PDIT form (5300-2 Record), or a prefix of "NONE" if the INDIT is used, and the SCREEN INDEX from the STINFO form (5402 Record), a Charge Index, CHGI and a potentially different Route Index, RTI, are specified on the Rate and Route - RAR form. If a Route Index is specified on the form, it is used in routing.

If the information from digit analysis defines this call as terminating at a line, that data must be changed at this point so that the call routes over a trunk.

10.2.9 CGIDX form (5302-1 Record)

The CHARGE INDEX is used as the key to the Charge Index Expansion - CGIDX form. This gives the charging information for the call.

10.2.10 RTIDX form (5303 Record)

Using the ROUTE INDEX as the key, the trunk group to route out of, the type of signaling to use and the digits to delete and/or prefix are found from the Route Index - RTIDX form.

10.2.11 TKGRP form (5202-1 Record)

The characteristics of the outgoing trunk group are found for routing from the Trunk Group - TKGRP form, using the Trunk Group Number, TGN, as the key. This trunk group must be either outgoing or two-way.

10.3 Billing Outgoing Calls From Agents

The calls to and from the agent positions are supported primarily by the same software as for DA service. Traditionally, because no AMA records are generated, outgoing calls from DA operator positions are not charged. Optionally, the calls can be charged using the following procedure. When ACD/MIS service is added, a means for charging outgoing calls is required. One or more loop-around trunks are allocated to each ACD/MIS client, and call routing is administered so that all charged outgoing calls are automatically routed through a loop-around trunk. The routing cannot be changed by the ACD/MIS client. Calls routed in this way appear as incoming calls to the same 5ESS Switch and are billed to the ACD/MIS client.

An agent outbound external call may be routed over a loop around trunk to associate a billing number with an agent call or to support speed dialing.

10.3.1 Billing Number

This section describes the office data used when this call arrives back in the 5ESS Switch.

10.3.2 TKGRP form (5202-1 Record)

The incoming end of the loop-around trunk group must be defined in the Trunk Group, TKGRP form. The Trunk Class, TRKCLS, for this trunk must be either "PF" or "PFLASH". Assuming no speed calling or BRCS (Business and Residence Custom Services) features are associated with this incoming trunk group, the DAS and Screen Index, found on this form are used in digit analysis, charging and routing. For billing purposes, the BILLING DN on the form is used.

10.3.3 Speed Calling

This section describes the office data used when this call arrives back in the 5ESS Switch.

10.3.4 ODA Forms

- ADLIST form (5601-9 Record)
- IDFD form (5601 Record)
- IDPDCA form (5606-1 Record)
- IDPGP form (5601-4 Record)
- IDPTPA form (5601-8 Record)
- TKGRP form (5202-1 Record)
- TKGRPFA form (5206 Record)
- TRUNK form (5204 Record)
- TRUNKFA form (5205 Record)

10.4 Translation Requirements

10.4.1 TKGRP form (5202-1 Record)

The incoming end of the loop-around trunk group must be defined in the Trunk Group - TKGRP form. The Trunk Class for this trunk must be either "PF" or "PFLASH".

Before digit analysis is done for the number received over this trunk group, a check is made to see if any BRCS (Business and Residence Custom Services) features are assigned to the trunk group member or the entire trunk group. One BRCS feature is an IDP (Individual Dialing Plan). If BRCS features are assigned to all members of the trunk group, then the BRCS field on the TRKGRP form (5202-1 Record) for the trunk group is set to "Y".

10.4.2 TRUNK form (5204 Record)

Alternately, if BRCS features are to be assigned to trunk group members individually, allowing individual members to have different features, then the BRCS field on the TRUNK form for the trunk group member is set to "Y". Since a speed call could arrive over any member of the trunk group, the entire trunk group should normally show BRCS features as assignable.

10.4.3 TRUNKFA form (5205 Record)

This 5205 Record defines information for Feature Assignment keyed by TRKGRP and TKMEMB.

10.4.4 TKGRPFA form (5206 Record)

Assuming IDP is used, the feature name associated with the IDP feature must be determined. There are two methods through which this is done: the first is for individual trunk group members, while the second is for an entire trunk group. The methods use data as follows:

- To determine what features are assigned to a particular trunk group member, the Feature Assignment Trunk Group Member Number - TRUNKFA form is checked, using the Trunk Group, TGN and Member Number, MEMB, as keys. Since 2 digit speed calling is desired, an IDP pre-constructed or constructed

feature name could be specified.

- To determine what features are assigned to the entire trunk group, the Feature Assignment Trunk Group, TKGRPFA form, is checked, using the TRUNK GROUP Number as the key. Since 2 digit speed calling is desired, an IDP pre-constructed or constructed feature name should be specified.

10.4.5 IDPTPA form (5601-8 Record)

This record is used for assigning IDP (Individualized Dialing Plan) to trunks.

10.4.6 IDFD form (5601 Record)

Now that the IDP feature name is determined, the individualized dialing plan name, the abbreviated dialing list name and other information about the feature is needed. Based on whether a pre-constructed or constructed feature is used, this data is found in one of two places.

- If a pre-constructed IDP feature is used, the IDP data must be specified on a per Trunk Group Member basis. This is done using the IDP Trunk Parameter, IDPTPA form. Using the TRUNK GROUP, MEMBER number and the pre-constructed feature name, ID FEATURE, this record indicates if the IDP is active, if 1 and/or 2 digit speed calling is part of the feature and gives the IDP group name along with AD1 (1 digit abbreviated dialing) and AD2 lists names.
- For a constructed feature, the Individualized Dialing Feature Definition, IDFD form is checked, using the IDP constructed feature name specified in the previous step. This record indicates if an IDP is active, if 1 and/or 2 digit speed calling is part of the feature, and gives the IDP group name along with AD1 and AD2 group names. The speed calling list names are stated on this form since they are shared lists.

10.4.7 IDPGP form (5601-4 Record)

Dialing error treatment is defined using the Individualized Dialing Plan Group Definition - IDPGP form. This also specifies the default intraLATA carrier.

10.4.8 IDPDCA form (5601-1 Record)

The incoming digits are analyzed. Using the IDP group name from the IDFD form (5601 Record) or the IDPTPA form (5601-8 Record) and the incoming digits, the Individualized Dialing Plan Dialed Code Assignment - IDPDCA form is consulted. The ACTION field indicates how the incoming digits should be treated, while the DIALING STATE indicates if the digits alone specify how to treat the number. For 2 digit speed calling, an action of "AD2USE" should be assigned. If more than one ACTION starts with the same digits, then the correct DIALING STATE is "CONFLICT", and the Individualized Dialing Plan Conflict Resolution Entries section of the IDPDCA form (5601-2 Record) is consulted.

10.4.9 ADLIST form (5601-9 Record)

Now that the 2-digit speed calling code has been identified, the number actually wanted is determined from the Abbreviated Dialing List - ADLIST form. The keys to this are the AD LIST NAME from the IDFD form (5601 Record) or the IDPTPA form (5601-8) form and the 2-digit speed dialing code.

This newly determined number is then run through digit analysis and routing.

10.5 Example

For this example, agent 1234 dials the external two-digit speed calling number 22 through the DIAL #9 22 ENTER dialing sequence. In addition to speed calling, 22 could also be the first two digits of a valid four-digit extension number or a seven-digit external number. This number is sent out over a loop-around trunk, a billing number is associated with the call, and the speed calling number is replaced with the actual number of 1-312-979-0000. This example uses a pre-constructed IDP feature that is assigned to the individual members of the loop-around trunk group.

Figure 3 illustrates digit analysis being done on the agent entered number. Agent 1234 is identified as belonging to serving team 6. A DAS of 9 is used for outgoing external numbers dialed by agents on serving team 6. Associated with the DAS of 9 are an INDIT of 4 and an LDIT of 1. The INDIT deletes no digits and just passes the number to the LDIT. In the LDIT, there is a conflict because the digits 22 represent a valid 2-digit number and the first 2 digits of a 4- or 7-digit number. In the conflict resolution record, it is determined that 22 by themselves comprise a valid normal number, have no carrier interaction, use a code index of 400 and a route index of 700. Because these dialed digits have a CI TYPE of NONCI, no carrier is expected or allowed and the 5305 form is not used.

Figure 4 illustrates this call routing to a trunk. Using the screen index for serving team 6 (to which agent 1234 belongs), the code index of 400 and a prefix of NONE, the charge index of 1 is determined. Since the route index value of REGL is specified, the previously obtained route index of 700 is used. The charge index shows this to be a free call. The route index of 700 translates into routing out over trunk group 700 using traditional signaling and deleting/prefixing no digits. Trunk group 700 is an outgoing LTOLLCON trunk. The dialed digits of 22 are outpulsed over this trunk using TT (not MF) signaling.

Figure 5 illustrates how this call is handled when it arrives at the other end of the loop around trunk. The outgoing end of this hair-pin is 700 and the incoming end is 800. Trunk 800 has a billing DN of 999-0000 assigned to it. In addition, BRCS features can be assigned to it. This call arrives over incoming member 2, which has the /IDCTX10 and /TGUUA pre-constructed features assigned to it. The /IDCTX10 feature has an IDP associated with it (the CACDGP IDP group), has a shared 2-digit speed dialing list (the CACDAD2 abbreviated dialing list) and inhibits charging for calls completed within the terminal group. The /TGUUA feature is used to define terminal group permissions. The CACDGP group shows that there is a conflict with numbers starting with 22, and, as the conflict record shows, digits 22 by themselves mean that 2-digit speed dialing is wanted. A 4-digit number starting with 22 is treated as intercom call to another member of the same terminal group. Longer sequences starting with 22 are translated using the office dialing plan. The CACDAD2 list shows that 22 represents the digits 13129790000.

This new number is now analyzed, first using the IDP, and then using the office dialing plan.

11. INTERFLOW

The Interflow feature is available with 5E5 and later Software Releases. The OSPS Interflow feature allows for immediate, scheduled or permanent close down of one, some or all operator serving teams at an OSPS. Call traffic requiring operator assistance that is otherwise handled by the closed serving teams is subsequently interflowed to another OSPS. This section describes the Interflow feature as it applies to ACD/MIS calls. For complete information on the Interflow feature for offices providing Directory Assistance services, refer to the DIRECTORY ASSISTANCE OFFICES description in this section. For complete information on the Interflow feature for T&A (Toll and Assistance) calls, refer to the TOLL AND ASSISTANCE OFFICES description in this section.

For the ACD/MIS application, Interflow is accomplished via rerouting the calls over analog or digital facilities to other operator switches for operator services and call handling. In the course of rerouting the call, data can be populated such that the dialed digits received are outpulsed, different digits than those received are outpulsed, or some digits are outpulsed in the case where no digits were received. An operator switch that

receives a rerouted call has no indication that the call has been rerouted, therefore, caution should be taken when populating the data such that rerouted calls do not end up back at the switch that initiated the reroute.

12. INTERFLOW ACTIVATION/DEACTIVATION

Interflow activation and deactivation allows a user to turn Interflow "on" or "off" on an immediate or scheduled basis. Activation and deactivation of Interflow may be accomplished via Recent Change only. Interflow cannot be activated or deactivated via ODA.

Interflow is activated and deactivated to a receiving OSPS Interflow switch on a serving team basis. A user turns Interflow "on" or "off" for a serving team. A serving team may be activated to Interflow to only one receiving OSPS switch at time, but multiple serving teams may be activated to the same receiving OSPS switch. When a serving team is activated for Interflow, all calls that would otherwise be handled by an operator on that serving team are interflowed.

If the activated serving team handles ACD/MIS, DA or Non-ISP to VDT calls, then the calls will be interflowed via rerouting the calls through the network to another operator switch. If the activated serving team handles T&A call traffic, then the calls will be interflowed via the OSPS EDSL to the receiving OSPS switch. If the case exists where a serving team handles both T&A and Non-ISP to VDT calls, then the T&A calls will be interflowed via the OSPS EDSL and the Non-ISP to VDT calls will be interflowed via rerouting calls out over trunks to the network.

For complete information on the Interflow feature for offices providing Directory Assistance services, refer to the DIRECTORY ASSISTANCE OFFICES description in this section. For complete information on the Interflow feature for T&A calls, refer to the TOLL AND ASSISTANCE OFFICES description in this section.

ODA Forms

OSPSOPT form (5424 Record)

12.1 Translation Requirements

Since activation and deactivation of Interflow can be accomplished only via Recent Change Views 21.7, 21.8 and 21.16, there are no ODA input forms to activate or deactivate Interflow. The following sections describe how to activate and deactivate Interflow via Recent Change.

12.1.1 Scheduled Interflow Activation/Deactivation

The Q DRN TIME parameter on the OPSOPT form is used only when Interflow has been scheduled for activation. Interflow can be scheduled for activation on quarter hour boundaries via Recent Change Views 21.16 and 21.8. Q DRN TIME specifies the number of minutes prior to the scheduled quarter hour when Interflow activations are to occur. For example, if Interflow is scheduled to be activated at 8:15 AM and Q DRN TIME is set to 3 (minutes), then the activation will actually occur at 8:12 AM. This parameter was defined because once Interflow is activated for a serving team, all newly arriving calls will be interflowed and calls that were queued will not be interflowed and, therefore, must be served on the initial OSPS switch. If an administrator wishes to not have any operators handling calls at or near to the scheduled quarter hour, then Q DRN TIME should be set to nonzero. If Q DRN TIME is set to zero, then operators must stay logged in past the scheduled quarter so that the calls that were queued at the time of activation will be served.

The OSPS ID field on the OPSOPT form identifies the originating OSPS switch. These OSPS IDs should be selected such that OSPS switches within the same Interflow network are unique. The OSPS ID is used when reporting the occurrence of Interflow activations and deactivations at the OAP (OSPS Administrative Processors) at both the originating and receiving Interflow switches. These reports always indicate the OSPS

ID of the switch which initiated the activation or deactivation.

OSPS Automatic Reconfiguration Time and OSPS Scheduled Interflow Activation and Deactivation, are used to schedule Interflow activations and deactivations defines an auto-reconfiguration pattern in terms of a PAT ID and the time that the pattern should take effect. Patterns may be scheduled to take effect either on an hour boundary or 15, 30 or 45 minute quarter hour boundary for a given forcing day.

If Interflow is to be activated for a serving team, an "A" is entered on the field corresponding to the serving team number. Conversely, a "D" is entered if Interflow is to be deactivated for a serving team. A serving team's scheduled status may be deleted by updating an "A" or "D" to " ". A blank entry indicates that the associated serving team is neither activated nor deactivated by this pattern when this pattern takes effect.

12.1.2 Immediate Interflow Activation/Deactivation

As for scheduled activations and deactivations, the OSPS ID field on the OSPSOPT form identifies the originating OSPS switch. It is used when reporting the occurrence of Interflow activations and deactivations at the OSPS Administrative Processors at both the originating and receiving Interflow switches.

OSPS Immediate Interflow Activation and Deactivation, is used to immediately (manually) activate/deactivate Interflow. This view is constructed such that serving teams can be activated or deactivated for a particular receiving Interflow OSPS switch as specified by the DEST ID field. The OSPS ID of the receiving OSPS should be entered in the DEST ID field. An "A" should be entered for each serving team that is to be activated and a "D" for those that are to be deactivated. The Interflow activations and deactivations take place immediately upon completion of the RC UPDATE operation.

13. ACD FOR INTERFLOW CALLS

Interflow for ACD/MIS, Directory Assistance and Non-ISP to VDT calls is accomplished by rerouting the calls back into the telephone network. This section describes the ACD operation for ACD/MIS calls. For complete information on the Interflow feature for offices providing Directory Assistance services, refer to the DIRECTORY ASSISTANCE OFFICES description in this section. For complete information on the Interflow feature for T&A (Toll and Assistance) calls, refer to the TOLL AND ASSISTANCE OFFICES description in this section.

ODA Forms

INFLDEST form (5448 Record)

RAR form (5301 Record)

13.1 Translation Requirements

The INFLDEST form allows for assigning a new code index (OUTGO CDI field) to an incoming OSPS call that is to be interflowed via reroute through the network. After the ACD determines that an ACD/MIS call must be interflowed, a new code index must be determined and used to route the call back into the network.

Determination of a new code index is based on the code index derived from digit analysis on the incoming call, the incoming trunk group number and the ID of the receiving operator switch. Each of these are used to match on the respective INC CDI, TGN and DEST ID fields on a INFLDEST form. The OUTGO CDI entered on the INFLDEST form must exist on a RAR form. The DEST ID field on a INFLDEST form is also used in reporting Interflow activations and deactivations at the OAPs.

13.1.1 Interaction with Intraflow

A serving team that has Interflow activated is not eligible to receive intraflowed traffic. A queue whose principal team is being interflowed may be intraflowed to a supporting team whose delay outflow threshold is zero. If an Interflow channel is not found and no supporting team server is found, the call will fail because queuing is not allowed for teams which are interflowed.

14. INTRAFLOW

The OSPS Intraflow feature is available with 5E5 and later Software Releases. Intraflow allows an ACD/OSPS administrator to assign for each call queue, a single principal serving team and up to eight supporting serving teams which may handle calls from the call queue when all of the operators on the principal serving team are busy.

For detailed information on the Intraflow feature, refer to the Intraflow description in the TRANSLATIONS REQUIREMENTS FOR ALL OSPS OFFICES portion of this section.

15. TRANSLATION REQUIREMENTS FOR AGENT POSITION AND MIS DSLs

The ACD/MIS feature uses DSLs for agent positions and MIS links. The translation requirements for these two types of DSL are specified below.

Agent Position DSL

The OSPSDSL form (5411 Record) is used to assign Line Card Equipment Numbers associated with operator positions to Integrated Services Channel Numbers. DSLs for agent position DSLs must be assigned a SERVICE CLASS of "DAOPER".

Position DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

The following fields are not used for agent position DSLs and should be left blank: DSL NAME ID, DSL NAME RL, MATE LCEN, SCR IDX and DAS.

MIS (Management Information System) DSL

The MIS (Management Information System) is a PC-based teleservices workstation, that provides detailed real-time displays and historical reports for telemarketing call traffic. The MIS is connected to the 5ESS Switch via a DSL.

The OSPSDSL form is used to assign the Line Card Equipment Number to which the MIS DSL is connected to an Integrated Services Channel Number. There is at least one MIS DSL per SM that has agent position terminals connected. MIS DSLs must be assigned a SERVICE CLASS of "MISLNK".

MIS DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

The DSL NAME ID and DSL NAME RL are for assigning external names to DSLs to be used when reporting maintenance messages. MIS DSLs having the same DSL NAME ID must have their DSL NAME RL fields in consecutive order beginning with 0.

16. CALL VECTORING

For 5E6 and later Software Releases, Call Vectoring allows the CACD (Commercial Automatic Call Distributor) customer to specify a series of steps that an incoming ACD call follows before it is routed to an

CACD agent. These series of steps are referred to as a Call Vector.

A call is routed to the appropriate vector based on the dialed digits and/or the trunk group. If a conflict occurs, e.g., a trunk group is assigned to a different vector than the vector for the dialed digits, the vector for the dialed digits is used. Any combination of up to 2000 trunk groups and up to 4096 dialed digits combinations can be assigned to any one of the 256 call vectors. These assignments are controlled by the CACD customer. If an assigned vector cannot be retrieved for any reason, vectoring does not take place. Instead, the call receives standard treatment, i.e., the call is placed into a default queue according to Call Type.

Each step in a vector contains a command. Some commands are conditionally executed based on parameters such as time of day, day of the week or queue length. The selection and ordering of the commands, as well as specifying the conditions, are under the control of the ACD administrator. Vectors and the assignment of trunk groups or dialed digits to vectors may be changed at any time through Recent Change Views. When altering a vector it may be desirable to temporarily redirect all calls that normally use the vector to another vector. Each vector has a redirection step to do this. If the call is redirected to a second vector, it cannot be redirected again to a third vector. If the attempt is made to redirect the call from a second vector to a third vector, the third vector is ignored and the call receives the treatment specified by the second vector.

Call Vectoring Steps

Call Vector steps are defined on the CTECT form (5460 Record). The following is a list of the actions provided by call vectoring:

- Place call in queue
- Branch on queue or team status
- Route call to a DN over public or private networks
- Return answer supervision
- Branch to another vector
- Connect a call to an announcement
- Delay vector processing for a specified number of seconds
- Branch to another step of the vector
- Force disconnect
- Force busy
- Stop further vector processing
- Prompt for caller TOUCH-TONE digit entry
- Provide branching according to the caller entered digits after Prompt announcement

Each vector has an activation field. If the field is set to "no" the vectoring is suppressed, the contents of the redirection vector are not examined, and the call is placed in the default call queue.

Originating Treatment

If the originating treatment determines that a vector is assigned to the trunk group or dialed digits, and the SM is not in overload, vector processing will begin. If a vector is not assigned or the SM is in overload, the call is placed into the queue corresponding with the Call Type.

Vectoring Termination

- Vector processing terminates when
- the call is connected to an available agent,
- the caller abandons
- after a ROUTE step is processed,
- after a DISC step is processed, or
- after a BUSY step is processed.

In all five cases, any resource being used for vector processing, e.g., timers or MDBs (Model Data Blocks), are released.

If a "ROUTE" or "DISC" step is encountered during vector processing, the call is immediately disconnected from any active delay treatment.

Stop Vector Processing

Call vectoring stops when

- a "STOP" step is encountered,
- the limit on the number of total vector steps or a specific vector limit is exceeded,
- the limit for the amount of time a call can be vectored without being queued is exceeded,
- a fatal error is encountered during vector processing or
- the last step of a vector is processed and does not cause a branch to another step.

If the call has NOT been placed into a queue when vectoring stops, reorder tone is returned to the caller. If the call has been placed into a queue when vectoring stops, it remains in the queue and any active delay treatment continues. The call remains in this state until an agent becomes active or the caller abandons.

Vector Processing Limits

To prevent infinite loops in a vector, a 5ESS Switch TCA limit is set for the number of vector steps. Every limit has a default value. If no limit is specified, the limit is not enforced. The limits are administered through a CACD Administration on the CACDPARM form, 5458 Record, which is not accessible via Recent Change to the MIS administrator.

Delay Treatment

Call Vectoring provides three types of delay treatment,

- connect call to music for a period of time as specified in the "MUSIC" step on the CTECT form (5460 Record)
- connect call to audible ring for a period of time as specified in the "RING" step on the CTECT form (5460 Record)
- delay processing for a period of time as specified in the "QUIET" step on the CTECT form (5460 Record)

Announcements

Calls are connected to an announcement using the "ANNOUNC" Step. The announcement step requires a route index for the path to the port for the announcement unit. The vector process can branch to an optional error step, if the routing to the announcement fails,

Conditional Branching

Call Vectoring supports the ability to branch on the following conditions:

- Day of Week "GOTODOW"
- Time of Day "GOTOTOD"
- Number of calls in a queue "GOTOQUE"
- Age of call at head of the queue "GOTOAGE"
- Number of staffed agents on serving team "GOTOSTA"
- Number of agents available to handle a call "GOTOAVL"
- Expected delay "GOTODLY"
- TOUCH-TONE number entered by caller "GOTONUM"

The conditional GOTO steps require specifying conditional arguments. (See CTECT form, 5460 Record)

Prompting Caller For TOUCH-TONE Digits

The "PROMPT" step routes the caller to an announcement that prompts the caller to enter TOUCH-TONE digit(s). The "GOTONUM" command is used in conjunction with the "PROMPT" command to provide branching on the digits entered by the caller.

The "PROMPT" command is a Secured Feature. Secured Features are the optional service features that can be purchased in addition to the features included in the current Software Releases. The Secured Features need to be enabled by an AT&T SEE (System Equipment Engineer). Once the SEE determines through the TEO (Telephone Equipment Order) that Secured Features have been purchased by the customer, the SEE enables those features either through 5ODA for 5E5 and later Software Release or through Recent Change. To activate a Secured Feature, see Division 2, Section 4a, which describes Secured Features.

Forced Disconnect and Forced Busy

The "DISC" And "BUSY" steps are used when a CACD site cannot handle a call, e.g., after business hours or the queue is full. When "BUSY" or "DISC" is step is encountered, the call is disconnected from any active

delay treatments, such as audible ring or music. It is also removed from any queue. If the call is routed to an agent before it is removed from a queue by "DISC" or "BUSY", the "DISC" or "BUSY" step is aborted.

Queuing Calls

Call are placed into a queue or transferred between queues using the "QUEUE" step. The "QUEUE" step contains a Call Type identifying the queue, an optional display index and an error step number to be used if the call cannot be queued or transferred.

Answer Supervision

Answer supervision is returned when an "ANSWER" step is processed.

Routing to an Alternate Destination Telephone Number

When the "ROUTE" step is encountered, the caller is rerouted to an alternate destination. If billing is required for the connection between the CACD site and the "ROUTE" step destination number, the charge is applied to the number of the CACD customer. The caller does not get these charges.

The destination number specified in the "ROUTE" step is translated into a telephone number or route index on the CVDSTTN form, 5459 Record. The destination number ID must be specified with the "ROUTE" step. The destination number ID is a key into the CVDSTTN form, 5459 Record, which is used to identify the destination telephone number or route index. For each destination number ID, either a 7- or 10-digit telephone number is entered in the TN field, or a ROUTE INDEX, defined on the RTIDX form is entered in the RI field on the CVDSTTN form.

For INWATS terminations, the telephone number identified in the SPECIAL BILL NBR field of the PFASFG form, 5609-3 Record, is billed for the forwarded leg of the call.

If billing is required for the connection between the CACD site and the destination telephone number of the "ROUTE" step, the call should be rerouted over a line that has remote call forwarded "/CFR". Although a line unit is required for the "/CFR" line, no physical line to the customer's site and no CPE (Customer Premise Equipment) are involved. The TN (Telephone Number) associated with the call forwarding line, "/CFR", may be used as the billing number for the subsequent leg of the call. If the TN field on the CVDSTTN form is entered, the TN must be defined on a LINE form, MLHLN form, PSMTN form, DSLUSR form, DFLSRV form, SHTN form, ACQS form, MTNDR form or a MLTITN form.

If the call is routed over a Private Facility trunk group, three features should be created: a Call Forwarding feature, an Individualized Dialing feature and a Private Facility Access feature. "PFITT" is entered in the TRKCLAS field on the TKGRP form.

If the call is routed to a trunk group, enter the route index in the RI field on the CVDSTTN form (5459 Record). The RTIDX form (5303 Record) and the TRKCL form (5203 Record) also must be entered. **Music Source**

The CACD customer can define an announcement or music port for the "MUSIC" step interface (or for Music on Hold interface, see MUSIC RI field on the STINFO form. The port must be defined as barge-in because no periodic start-of-announcement is generated. The maximum number of calls per announcement/music port is given by the MAXCALL field on the TRUNK form (5204 Record).

17. SYSTEM CONFIGURATION

The basic system configuration elements for call vectoring are the incoming trunks, SMs, PSM, ACD/MIS, Call Event Link and outgoing trunks to music source or announcement. If the caller is prompted for digits, a UTD (Universal Tone Decoder) is needed. See Figure 6 for the basic system configuration.

The CACD calls arriving on a trunk are treated like any other CACD OSPS call. If the Originating Treatment determines that a vector has been assigned to the trunk group or dialed digits and the SM is not in overload vector processing begins. If the SM is in overload or no vector is assigned, the call is given standard treatment.

CACD/MIS

The CACD/MIS system may consist of the following external equipment:

- ECL (Event Control Link) provides interconnection between CACD/MIS services and the physical distribution of the RC/V interfaces.
- Management Information System Computer provides statistical information on a workstation and on office performance.
- RCOS (Recent Change Operations System) link is used to communicate between the AM/PIP and the ECL.
- MIS Call Event Link is used to communicate between the RISLU and the ECL.

Announcement Ports

All announcement and music sources are a 13A unit or a similar Type.

DSU2 Universal Tone Decoder

If the caller is required to press additional digits for the Call Vectoring "PROMPT" Step, additional DSU2 Universal Tone Decoders may be needed and should be equipped in the Originating Switch Module.

18. CALL VECTORING TRANSLATIONS

New and Changed Forms for Call Vectoring

The following forms are new or have changes for the Call Vectoring feature.

- TRUNK form (5204 Record)
- TKGRP form (5202 Record)
- ORAR form (5405 Record)
- OCTA form (5406 Record)
- CACDPARM form (5458 Record)
- STINFO form (5402 Record)
- OPCTO form (5407 Record)
- CTECT form (5460 Record)
- CVDSTTN form (5459 Record)

- SFSYS form (5713 Record)

18.1 ODA Forms for Incoming Calls for Call Vectoring

The ODA Translations for Call Vectoring require the following forms for the incoming call:

- TKGRP form (5202 Record)
- DAS form (5300-1 Record)
- INDIT/LDIT form (5309 Record)/(5300-3 Record)

18.2 ODA Forms for Commercial ACD Associated With Call Vectoring

The ODA translations for CACD associated with Call Vectoring require the following forms:

- OSPSOPT form (5424 Record)
- CACDPARM form (5458 Record)
- ORAR form (5405 Record)
- OCTA form (5406 Record)
- OPCTO form (5407 Record)
- OSPSCT form (5404 Record)

18.3 Incoming INWATS Translations

Additional data is required to define the incoming INWATS (Inward Wide Area Telephone Service). The translations for INWATS is given in the paragraphs under the heading INWATS TERMINATION in this Section of the TG-5 for CACD Services.

18.3.1 CACD Serving Team Translations

The translations for the CACD Serving Teams is given in the paragraphs under the heading "INCOMING CALLS" in this Section of the TG-5 on CACD Services.

ODA Forms For Call Vectoring Translations The ODA translation for Call Vectoring require the following forms:

18.3.2 CACDPARM form (5458 Record)

For 5E6 and later Software Releases, the CACDPARM form defines the OSPS CACD Call Vectoring global parameters. Only one CACDPARM form is entered for an office.

18.3.3 CVECT form (5460 Record)

The CVECT form defines the Call Vector steps for each CALL VECTOR ID.

18.3.4 ODA Forms For Call Vector Steps

The additional forms required for the translations for specific Vector Steps in the CTECT form are listed below.

- DISC Step or ANNOUNC Step
 - RTIDX form (5303 Record)
 - TKGRP (5202 Record)
- ROUTE Step
 - CVDSTTN form (5459 Record)
 - LINEFA form (5112 Record)
 - CFWLPA form (5614-3 Record)
 - LINE form, MLHLN form, MLHG form, PSMTN form, DSLUSR form, DFLSRV form, SHTN form, ACQS form, MTNDR form or MULTITN form.

Or, to reroute to Private Facilities translations require IDPLPA, IDPGP, IDFD, IDPDCA, PFAFD, PFAGPA, LCC, RAR, RTID and TKGRP forms.

- MUSIC Step
 - RTIDX form (5303 Record)
 - TKGRP form (5202 Record)
 - TRUNK form (5204 Record)
- PROMPT Step and GOTONUM Step
 - SFSYS form (5713 Record)
 - RTIDX form (5303 Record)
 - TKGRP form (5202 Record)
 - TRUNK form (5204 Record)

19. CALL VECTORING TRANSLATION REQUIREMENTS

The ODA Translations for Call Vectoring follow. See Figures 6 through 9 for form flows for Call Vectoring Translations.

Incoming Call Translations For Call Vectoring

See Figure 7 for a form flow of the incoming call translations for call vectoring. The incoming call translations follow:

TKGRP form (5202 Record)

When a call arrives at an OSPS office equipped with the C-ACD application, normal digit analysis steps are performed on the forward number. The TKGRP form (5202 Record) has an entry in the DAS field for the incoming trunk group. The DAS Field entry must be defined in the DAS form (5300-1 Record), which is used to assign the preliminary and primary translation tables. The TRUNK DAS field should have entries in the TRUNK DAS subfields, INC. TRUNK PRELIMINARY DIT and LOCAL DIT. These entries identify the tables used for a trunk DAS. See Figure 7 for the form flow for incoming calls.

DAS form (5300-1 Record)

INC. TRUNK PRELIMINARY DIT and INCOMING DIGITS entries on the DAS form are the keys to the INDIT form.

INDIT form (5309 Record)

If call vectoring is determined by an incoming trunk group, then the INDIT form has LDIT = "N" and an entry in the CDI field.

If call vectoring is determined by the incoming digits, then LDIT = "Y" and CDI field is blank. The form flow then enters the LDIT form (5300-3 Record) for the CDI field entry. The CDI field is the key to the ORAR form (5405 Record).

LDIT form (5300-3 Record)

If call vectoring is determined by the incoming digits, then the LDIT form (5300-3 Record) is entered for the CDI, which is the key to the ORAR form (5404 Record).

CACD Translations for Incoming Calls

See Figure 8 for the form flow for translations for CACD for Call Vectoring. After the incoming call has successfully passed through digit analysis, the following forms are checked for Commercial ACD translations for the incoming call:

OSPSOPT form (5424 Record)

If call vectoring is determined for the incoming digits or trunk groups, then set the field OSPS DA = "Y" to allow CACD to be activated on the CACDPARM form (5458 Record). (For 5E6 and later Software Releases, the COMMERCIAL ACD field has been moved to the CACDPARM form.)

CACDPARM form (5458 Record)

For 5E6 and later Software Releases, the COMMERCIAL ACD field has been moved from the OPSOPT form (5424 Record) to the CACDPARM form. For call vectoring to be activated, the COMMERCIAL ACD field = "Y" and CALL VECTORING = "Y". This form also establishes the maximum number of times a conditional command (GOTO command) can be executed per call, maximum delay between steps and the number of seconds that a call is paused if any of the resettable limits are reached.

ORAR form (5405 Record)

The ORAR form allows call treatment, such as Call Vectoring, to be based on either the incoming trunk group

or the incoming digits. If the call treatment can be defined based on the incoming trunk group alone, the OSPS CALL ID field is populated and the NOC field is blank. The OSPS CALL ID must be defined on the OPCTO form (5407 Record).

If the call treatment is based on the incoming digits, the NOC field must be populated and the OSPS CALL ID must be left blank. The NOC field is the key into the OCTA form (5406 Record), which then assigns the OSPS CALL ID. The OSPS CALL ID must be defined on the OPTCO form (5407 Record).

OCTA form (5406 Record)

If the call treatment is based on the incoming digits on the ORAR form (5405 Record), the NOC field on the ORAR form is a key to the OCTA form. The OSPS CALL ID is assigned on this form for the incoming digits.

If the call treatment is based on the incoming digits, then the TGN field on the OPCTO form (Record 5407) must be the wild card "9999".

OPCTO form (5407 Record)

This form defines the OSPS CALL TYPE. For Call Vectoring, the VECTOR ID is assigned to an OSPS CALL ID. The VECTOR ID provides the type of call handling for incoming calls that are waiting for a CACD agent. The OSPS CALL TYPE field points to a CACD call queue.

If screening of the incoming calls by trunk group is desired, the TGN field may be populated with the incoming trunk group number, or, the TGN field can be populated with the wild card value of "9999". If the wild card value, "9999", is used, another OPCTO form cannot exist with the same value for OSPS CALL ID, OSPS CALL TYPE and DISPLAY INDEX, respectively.

An entry in the VECTOR ID field requires an entry in the VECTOR ID field on the CTECT form, which defines the Call Vectoring steps. Also, the SVC ID field in the corresponding OSPSCT form must be blank. (The forms correspond if the OSPS CALL TYPEs match on both forms.) The corresponding OSPSCT form must also have the AUTO CALL DIST set to "Y" and OPER TYPE is set to "DA".

OSPSCT form (5404 Record)

The OSPSCT form assigns parameters to the OSPS CALL TYPE. If VECTOR ID on the OPCTO form has an entry, then the SVC ID field must be blank on the corresponding OSPSCT form. (The OSPS CALL TYPE is the same on Corresponding forms.) Also, the following fields must be populated, AUTO CALL DIST = "Y" and OPER TYPE = "DA".

Call Vectoring Translations

The following translations are required to activate Call Vectoring.

CTECT form (5460 Record)

The CTECT form defines call vectoring steps and activates call vectoring. If VECTOR ID is assigned on the OPTCO form (5407 Record), then VECTOR ID must be defined on the CTECT form.

Calls can be diverted to another Vector for alternate Call Vectoring treatment by setting the REDIRECT VECTOR field to the VECTOR ID of the alternate Vector. If the VECTOR ID of the alternate vector does not exist, the call does not receive call vectoring treatment, but is placed in a call queue for a CACD agent. Only one level of redirection is permitted. If the alternate vector has REDIRECT VECTOR = VECTOR ID, the second redirection is ignored and the call is provided with the call vectoring treatment of the first alternate vector.

Up to 15 steps or commands can be identified in each Vector. Longer command sequences can be created by chaining vectors together with the GOTO commands.

The NOOP command can be used to temporarily disable vector commands instead of deleting them.

Translations For Call Vector Steps CMD CD

Additional translations are required for the Vector Command Steps in the CTECT form that are listed below.

DISC and ANNOUNC Steps

The following forms are required for the the CMD CD field "ANNOUNC" or "DISC".

RTIDX (5303 Record)

If ARG1 on the CTECT form is a route index, then the following fields on RTIDX form are affected:

- TRUNK GROUP NUMBER = TGN on TKGRP form and TRUNK form
- ROUTE INDEX = Route Index in ARG1 on CTECT form
- SIGNALING PROTOCOL = "TRAD"
- ROUTE TYPE = "HUNT"
- CI ROUTE TYPE = "GENANN"

TKGRP (5202 Record)

The following fields are affected:

- TGN = TRUNK GROUP NUMBER on the RTIDX form (ARG1 on CTECT form is a route index)
- TRK DIR = "ANN"
- HUNT TYPE = "ANN"
- TRUNK CLASS = "ANNCMNT"
- CYCLES = the number of times the announcement is given to the caller. CYCLES should "1".
- BARGE IN (wait for announcement to begin at the start, or begin immediately). If BARGE IN is "Y", then AUD RING must equal "N".
- MAXCALLS = Number of callers attached to port or a unit at one time.

TRUNK (5204 Record)

The following fields are affected:

- SUPV = "EM2"
- IDLE STATE = "ON"

- TGN = TRUNK GROUP NUMBER on RTIDX form and TGN on the TKGRP form
- MEM = 0

ROUTE Step

CVDSTTN form (5459 Record)

This form defines the destination for a call specified in a call vectoring route.

The following fields are affected:

- DEST NBR = Destination Number Index in ARG1 of CTECT form
- TN = the caller is either rerouted to this 7 to 10 digit number, or to the route index entered in the RI field. Any TN on the CVDSTTN form must be defined on a LINE, MLHLN, MLHG, PSMTN, DSLUSR, DFLTSRV, SHTN, ACQS, MTNDR or MLTITN. If an entry is made in the TN field, then RI field must be left blank. If an entry is made in the RI field, then the TN field must be left blank.
- RI = ROUTE INDEX on RTIDX form. This should be the route index to a private facility trunk. If this field is entered, the TN field must be left blank. For provisioning data rules see figure 9.

LINEFA (5112 Record)

FEATURE field should be "/CFR", if the call is not routed over private facilities.

CFWLPA (5614-3 Record)

LINE form, MLHLN form, MLHG form, PSMTN form, DSLUSR form, DFLSRV form, SHTN form, ACQS form, MTNDR form or MULTITN form.

The translations for rerouting calls are given in this Section under the paragraph heading "INCOMING CALLS".

Or, to reroute to Private Facilities translations require IDPLPA, IDPGP, IDFD, IDPDCA, PFAFD, PFAGPA, LCC, RAR, RTIDX and TKGRP. These translations are given in this Section under the paragraph heading "INCOMING CALLS".

MUSIC Step

RTIDX (5303 Record)

The following fields are affected:

- TRUNK GROUP NUMBER = TGN on TKGRP form and TRUNK form
- ROUTE INDEX = Route Index in ARG1 on CTECT form
- SIGNALING PROTOCOL = "TRAD"
- CI ROUTE TYPE = "GENANN"
- ROUTE TYPE = HUNT

TKGRP (5202 Record)

At least one TKGRP form must have the following:

- TGN = TRUNK GROUP NUMBER on a RTIDX form where ROUTE INDEX = ARG1 on the CTECT form.
- TRK DIR = "ANN"
- HUNT TYPE = "ANN"
- TRUNK CLASS = "ANNCMNT"
- CYCLES = "0"
- BARGE IN = "Y"
- AUD RING = "N"
- MAXCALLS = Number of callers attached to port or a unit at one time. If CYCLES = "0", then BARGE IN = "Y". If TRK DIR = "ANN", then the corresponding TRUNK form (the TGN fields on both forms are equal) must have an entry in the MAXCALLS field. If MAXCALLS field on the TRUNK form differs from MAXCALLS field on the TKGRP form, the MAXCALLS field on the TRUNK form will be populated for that specific trunk.

TRUNK (5204 Record)

The following fields are affected:

- SUPV = "EM2"
- IDLE STATE "ON"
- MEM = "0"
- TGN = TRUNK GROUP NUMBER on RTIDX form
- MAXCALLS = Number of callers attached to port at one time.

PROMPT and GOTONUM Step

If the caller is routed to the announcement unit, which is specified by the Route Index in ARG1, see the DISC and ANNOUNC Steps above for translations. ARG2 gives the maximum number of digits to collect. Digits entered after the maximum value has been reached are ignored.

If ARG1 on the CTECT form is a route index, then the following ODA forms are required for the PROMPT Step.

SFSYS form (5713 Record)

This form can only be entered by the AT&T SEE. See Division 2, Section 4a for information on activating secured features. FEATURE NUMBER = "41"

RTIDX form (5303 Record) The following fields are affected:

- ROUTE INDEX = ARG1 on CTECT form

TKGRP form (5202 Record)

- TRK DIR = "ANN" CYCLES = 1

TRUNK form (5204 Record)

The following fields are affected:

- TGN = TRUNK GROUP NUMBER on the RTIDX form
- MEMB = "0" for the first trunk member.

The MIS receives a vector PROMPT message for all PROMPT steps in which the value of the ARG2 field is greater than one even if the caller enters only one digit. Single digit entries are not sent to the MIS, as they are associated with the selection of a call queue and would not be useful to the CACD customer.

Once the caller-entered digits have been collected, the GOTONUM command is evaluated. The conditional arguments supported by the GOTONUM command are LE (Less Than Or Equal To), GT (Greater Than) and EQ (Equal To). If the condition evaluates to be TRUE, Call Vectoring treatment branches to the specified step or another vector given in the ARG1 and ARG2 fields. If the condition evaluates to be FALSE, the next step in the current vector is processed.

QUEUE Step

ARG1 of the QUEUE step is the OSPS CALL TYPE. The corresponding OSPS CALL TYPE field must be populated on the OSPSCT form (5404 Record).

ARG2 can be left blank or it is the BST DISPLY INDEX on the OBSTS form.

GOTO Steps

If the conditional (GOTO) steps specify a VECTOR ID in ARG1, then that VECTOR ID must be defined on another CTECT form.

GOTOQUE, GOTOAGE, GOTODLY Steps

If the CMD CD is "GOTOQUE", "GOTOAGE" or "GOTODLY" have populated the CARG1 field with the OSPS CALL TYPE, then that OSPS CALL TYPE must be defined on the OSPSCT form (5404 Record).

GOTOSTA, GOTOAVL Steps

If the CMD CD of "GOTOSTA" or "GOTOAVL" have populated the CARG1 field with the serving team number, then the SERVING TEAM number must be entered on the STINFO form (5402 Record), where SERVING TEAM equals CARG1.

20. BASE COMMERCIAL ACD

With the 5E6 Software Release, the Base Commercial ACD (Automatic Call Distribution) Capability

implements the Expansion of Maximum Number of Positions. This feature provides up to 4000 OSPS positions per 5ESS Switch and 200 positions per PSM. Base Commercial ACD ensures that adequate resources are available in the AM, PSM and PIP to support terminal connectivity to these positions for data base relation engineering and 5E6 memory allocation.

This feature was activated in the 5E4(2) and 5E5 Software Releases by an entry of "Y" in the COMMERCIAL ACD field of the OSPSOPT form (5424 Record). With the 5E6 and later Software Releases, the expanded CACD is activated on the newly added Commercial ACD Parameter, CACDPARM form (5458 Record).

21. TRANSLATION REQUIREMENTS FOR BASE ACD

CACDPARM form (5458 Record) has been added with 5E6. This form defines OSPS (Operator Services Position System), CACD (Commercial Call Distributor) and Call Vectoring global parameters residing in the SM (Switching Modules). Also defined on this record are call vectoring limits that can be set by TCA (Telephone Company Administration). Only one CACDPARM form is entered per office.

OPCTO form (5407 Record) a new attribute has been added to this form. An entry of "Y" or "N" in the attribute DAA determines whether Direct Agent Access is assigned to CACD Call Types.

OSPDSL form (5407 Record) is usedThe OSPS Service Class field on to assign equipment to a specific LCEN. A restriction has been added for the enumeration "MISLNK" which sets up the OSPS commercial Automatic Call Distribution datalink. With 5E6, MISLINKS within a data link group must be numbered consecutively from 0 to 2 without regard to the DATA LINK GRP number.

OSP SOP form (5401 Record) has increased the maximum number of operator positions per SM to 200.

OSP OPT form (5424 Record) has added a required field for this feature with the 5E6 Software Release. The CLAIM CQDB field specifies the maximum number of conference and transfer requests within the OSPS ACD to specific positions (i.e., requested by operator login id or position number) that can be queued because the "claimed" positions are busy. Valid entries are from 0 to 5000. The default is "0"

RAR form (5301 Record) must have a corresponding ORAR (OSPS Rate and Route) form (5405 Record) with matching values for SCR, CDI and PFX. For the CACD feature, the RAR form is used to detect a free call to a CACD agent (charge index is FREE) or to determine if routing data would (if used) lead to INWATS data and a simulated facilities group.

22. DIRECT AGENT ACCESS

The DAA (Direct Agent Access) feature allows a caller to reach a specific CACD agent by dialing a number in which the last four digits correspond to the agent's login ID. This feature also allows agents to receive personal calls.

Direct Agent Access is available with the 5E5 and later Software Releases, however, feature activation differs between 5E5 and 5E6. In 5E5, the BST DISPLAY INDEX field on the OPCTO assigns DAA to a Call Type. In 5E6, the DAA field on the OPCTO form is set to "Y" (Yes) to activate the feature.

A DAA call "seizes" an agent's terminal when that agent is idle. The agent hears a normal call arrival alerting tone in the head/handset and sees the unique claim indicator "d" (indicating a DAA call) and the login ID in the office-defined display region.

A DAA call can "claim" an agent's position while that agent is handling a call. In this case, the "d" appears in position 19 of the claim region and the agent hears a double beep in the head/handset. The caller hears a ring. The agent can handle the claimed call when the active call is terminated.

When an agent already handling a call is also claimed by a DAA call, all other DAA calls to that agent are routed to busy.

A DAA call can also claim an agent in the "ACMADEBUSY" state. This agent may be handling an ICT (Interposition Communication and Transfer) call or an outgoing call, or may have pressed the "SPCL" or "MAKE BUSY" key. When claimed, this agent sees the unique claim indicator and hears the double beep. An external tone sounds if the agent presses either the "SPCL" or "MAKE BUSY" key while claimed. A caller to this agent hears a ring, if appropriate firmware is loaded into ACT.

An agent does not have to be a member of the serving team that is handling a specific DAA Call Type to receive a DAA call. The agent may also receive a DAA call when the DAA Call Type is closed (the "CALL TYPE OPEN?" field in the OSPSCT form (5404 Record) is set to "N").

The DAA feature has precedence over Reroute, Intraflow and Call Vectoring. A DAA call receives Intraflow or Call Vectoring treatment only when a specific agent is not logged in. Members of a serving team assigned to Reroute will still receive DAA calls.

ACD does not reroute non-DAA calls to an agent actively handling a DAA call.

An agent that terminates a DAA call can continue to handle non-DAA calls if the agent is not claimed by another DAA call and does not press the "MAKE BUSY" key.

ODA Forms

OSPSOA (OSPS Operator Assignment) form, (5403 Record)

OSPSCT (OSPS Call Type Parameters) form, (5404 Record)

ORAR (OSPS Rate and Route) form, (5405 Record)

OCTA (OSPS Call Type ID Assignment) form, (5406 Record)

OPCTO (OSPS Call Type for Trunk Originations) form, (5407 Record)

OBSTS (OSPS Basic Services Terminal Seizure) form, (5408 Record)

22.1 Translation Requirements

A call's OSPS CALL ID (determined in the ORAR or OCTA form) is a key into the OPCTO form. This record defines the OSPS CALL ID and a trunk group identified in the TGN field. To screen an incoming trunk group, the trunk group value or a wild card value of "9999" is required in the TGN field. If a match for the incoming trunk group is not found, the wild card value is used. The "CALL TYPE" field contains the Call Type queue associated with the incoming call. This entry must be defined in the OSPSCT form.

For 5E5, the BST DISPLAY INDEX field of the OPCTO form assigns the DAA feature to a Call Type. For DAA, this field can be from 1-511. Prior to this feature, the maximum value that could be entered was 276. Entries in the range of 1-256 are associated with a back number Display Index, and entries in the range of 257-276 are associated with a forward number Display Index. The DAA feature is assigned whenever a Display Index greater than 276 is entered.

Each Display Index identified in the OPCTO form must be defined in the OBSTS form. The valid Display Index identified in the OBSTS form remains 1-276. Any Display Index defined in the OPCTO form with a value greater than 276 corresponds to the Display Index in the OBSTS form that has a value 276 less than the

value in the OPCTO form. For example, a Display Index of 280 in the OPCTO form corresponds to a Display Index of 4 in the OBSTS form ($280 - 276 = 4$).

For 5E6, the BST DISPLAY INDEX field on the OPCTO form no longer assigns DAA to a Call Type; therefore, entries in this field greater than 276 are not allowed in the 5E6 Software Release. Instead the field DAA has been added to the OPCTO form. This field is set to "Y" (Yes) to assign DAA to a Call Type.

Once DAA is assigned to a Call Type, the last four digits of the forward number are compared to each operator login ID (defined in the OSPSOA form). If no match is found, the call receives normal CACD call processing treatment (i.e., the call is placed in the appropriate Call Type queue with treatment based on system status).

If a login ID match is found, the caller is routed to the desired agent. If that agent is not logged in, the caller receives normal CACD call processing treatment.

For an office that has activated the DAA feature in the 5E5 Software Release, any Call Type which has a Display Index greater than 276 on the OPCTO form results in an entry of "Y" in the DAA field during a 5E5 to 5E6 retrofit. The Display Index is also created in this record by subtracting 276 from the 5E5 Display Index value. No change is made to the Display Index range on the OBSTS form.

23. MUSIC ON HOLD

The MOH (Music on Hold) feature routes a caller to a music source when placed on hold by a CACD agent. The caller hears music until the call is taken off hold by the agent. MOH can only be applied by CACD calls.

MOH is activated for a serving team, therefore, MOH treatment is applied to all calling parties placed on hold by agents belonging to a serving team. A caller can be connected to a music source multiple times during a call.

Only the caller hears music while on hold.

The unit that provides the music must conform to a 13-A interface. The music source can be at the CACD customer location or at the telephone company. If the 13-A music source is not available or if the number of calls currently connected to the music port is the maximum allowed, the caller hears silence.

ODA Forms

TKGRP (5202 Record)

TRUNK (5204 Record)

RTIDX (5303 Record)

STINFO (5402 Record)

OSPSCT (5404 Record)

ODA Translations

Each CACD serving team entered on an OSPSCT form must be defined on the STINFO form. For MOH feature, two fields have been added to STINFO. The MUSIC RI field identifies the Route Index that connects callers to a music source. CACD customers can enter this field after Telco personnel have created the Route Index in the RTIDX form. The MUSIC SELECTD field activates or deactivates ("Y" or "N") the MOH feature for each serving team. The MUSIC SELECTD field cannot be set to "Y" unless a Route Index is populated in

the MUSIC RI field.

The trunk group identified on the RTIDX form must be defined on the TKGRP form. The fields TRK DIR and HUNT TYPE on the TRKGRP form must both be "ANN" and TRUNK CLASS must be "ANNCMNT". The CYCLES field determines the number of times the caller hears an announcement. For MOH this field must be "0". The BARGE IN field is used with announcement trunks only. It identifies whether callers should immediately "barge in" to an announcement once attached to an announcement port or whether the caller must wait until the announcement is queued to the beginning. The BARGE IN field must be set to "Y" for a music trunk to allow callers to be provided with music treatment immediately upon attachment to a music port. The AUD RING field must be "N". This field provides audible ring to a caller who is waiting for an announcement to queue and must be set to "N" when BARGE IN is "Y". The SVC GRP field must be "NQANNC". The MAX CALLS field has been added with the 5E6 Software Release. It defines the maximum number of callers that can be connected to a music or announcement port at a given time. A maximum of 50 callers can be connected to a port at a given time, with 32 being the default for this field. The RETRY field is also new for 5E6 and identifies whether attachment to announcement or music source is retried if attachment fails in the first attempt. Each music trunk group member must be defined in the OSPSCT form. Trunk group member entries should be made with the SUPV field set to EM2 and the IDLE STATE field set to "ON".

24. CALLING PARTY NUMBER DELIVERY

The CPND (Calling Party Number Delivery) feature is available with 5E6 and later Software Releases. The feature allows CACD customers to display a calling number at a BST (Basic Services Terminal) or an ACT (Agent Communication Terminal). Prior to 5E6, CACD customers could only display the called number or predefined call originating information on a BST or ACT.

The calling number can be displayed under the following circumstances:

- The call arrives at the CACD site on a CCS7 trunk.
- All switches between the CACD site and the calling party support the transmission of the calling number.
- The calling number is not private (i.e., the calling party has not identified that the calling number should not be displayed).

The calling number is displayed on the agent's BST or ACT upon terminal seizure. The calling number is also displayed on any terminal that the call is transferred to, on any terminal that the agent conferences with and on any terminal that is monitoring the agent handling the call. When a calling party number is eligible for display on a call that has encountered a vector "ROUTE" step (used to reroute a call to another CACD site), the calling number is forwarded to the alternate destination if the call is routed over CCS7 trunks.

Up to 15 calling number digits can be sent to the MIS (Management Information System); however, a maximum of 10 calling number digits can be displayed.

ODA Forms

OSPSCT (5404 Record)

OPCTO (5407 Record)

OBSTS (5408 Record)

ODA Translations

The OPCTO form contains three new fields that define CPND treatment for a call. The CPND ASSIGNED field assigns the feature to a Call Type. This field must be "Y" for a calling number to be eligible for display. Only telephone company administration can assign and unassign CPND. This field cannot be set to "Y" unless the AUTO CALL DIST field of the OSPSCT form for the given Call Type is also "Y". This ensures that the CPND feature can only be assigned for CACD Call Types.

The other new fields on the OPCTO form control the use of the calling number. The CPND TO MIS field ("Y" or "N") determines if the calling number arriving at the switch is delivered to the MIS. The CPND TO AGENT field ("Y" or "N") determines whether the calling number is displayed at an agent's terminal. The CACD customer can enter "Y" in these fields only when the CPND ASSIGNED is "Y".

The BST DISPLAY INDEX field (valid entries 1-276) on the OPCTO form identifies the display index associated with a given Call Type. The display index is defined on the OBSTS form. Prior to 5E6, entries were made in the DN START and DN LENGTH fields only if the display index entered in the GST DISPLAY INDEX field was in the range 257-276. These fields were used to format the display of the called number only. The CPND feature allows entries to be made in these fields for display indices 1-276. Display of the called number continues to be formatted with indices 1-256, 257-276. The calling number display is formatted with indices 1-256. The DISPLAY field can display up to 10 alphanumeric characters associated with the calling number. DISPLAY entries are allowed only for indices 1-256 (i.e., only with a calling number display index.)

The DN START field identifies the digit in either the calling or called number that will begin the number display. The DN LENGTH field identifies the length of the number display. If a called number is "3125551234", and if the DN START field contains an entry of "4" and a value of "7" in the DN LENGTH field indicates that display should be 7 characters in length. The display would then be "5551234".

With the 5E6 Software Release, the calling number and the text identified in the DISPLAY field can be displayed together. The calling number is displayed the DN START and DN LENGTH fields are entered for a display index less than 257. When text is also to be displayed, it must be determined whether calling number digits should be used to replace all or part of the textual information. The calling number digits should be used to replace all or part of the textual information. The calling number is displayed if there are enough digits to satisfy the defined values of the DN START and DN LENGTH fields (the calling number must consist of at least DN START + DN LENGTH - 1 digits). If this condition is met, the selected digits will be placed in the rightmost portion of the display. If the value of the DN LENGTH field is 7, for example, the rightmost 7 characters of the text would be replaced with 7 digits of the calling number. The leftmost 3 characters of the text would continue to be displayed.

Suppose that the calling number of a call is "3125551234" and the OBSTS form contains the following:

DISPLAY = SALES DN START = 4 DN LENGTH = 7

The display would be:

SAL5551234

The DN START entry indicates that the calling number should be displayed starting with the fourth digit. The DN LENGTH entry indicates that the next 7 digits of the calling number should be displayed. This 7-digit portion of the calling number is displayed right justified allowing only "SAL" to be displayed. If a calling number is only 7 digits in length (5551234) and the OBSTS form contains the values identified above, the display would be SALES.

The DN START and DN LENGTH fields in the example above indicate that the calling number must be at least 10 digits in length before any of the calling number is displayed (DN START + DN LENGTH - 1 or 4 + 7 -

1).

The next example contains the calling number "3125551234" and the following entries in the OBSTS form:

DISPLAY = SALES DN START = 1 DN LENGTH = 10

The display would be:

3125551234

In this example, the the DN START and DN LENGTH fields indicate that the entire 10-digit display is text and is completely overwritten by the calling number populated with the calling number.

25. DELAY LEVEL 3 AND CLOSEDOWN ANNOUNCEMENT ROUTING

With 5E6 and later Software Releases, the Delay Level 3 and Closedown Announcement Routing feature allows CACD calls that would normally receive either Delay Level 3 or Closedown Announcement treatment to be routed to a DN. Prior to this feature, if the expected delay of a CACD call met or exceeded the Delay Level 3 threshold or the call queue was full, the call was routed to general announcement. Likewise, when the Call Type associated with a call was closed, the call was also routed to general announcement.

ODA Forms

TKGRP (5202 Record)

RTIDX (5303 Record)

OSP SCT (5404 Record)

25.1 ODA Translations

The 3RD ANNC RTI field on the OSP SCT form identifies the Route Index used for call handling when the expected delay for a call meets or exceeds the delay threshold specified in the 3RD ANNC DELAY. This Route Index is also used when the queue is full (i.e., number of queued calls equals MAX CALLS). In this case, new calls are not queued but receive the same treatment as calls in which the Delay Level 3 threshold is exceeded. Rather than queuing a call, Delay Level 3 treatment disconnects the call after the caller receives specified treatment. Prior to this feature, the Route Index entered in the 3RD ANNC RTI field only pointed to a general announcement.

Also on the OSP SCT form, the CLOSE DOWN RTI field identifies the Route Index used for call handling when the call queue is closed (i.e., CALL TYPE OPEN? field is "N"). As with Delay Level 3 treatment, a call cannot be queued when the call is closed. The call is disconnected after specified treatment. Therefore, the Route Index entered in this field cannot point to a general announcement.

A Route Index entered in either of these fields must be defined in the RTIDX form. The PREFIX DIGIT field of this record can contain the forward DN routed to for a Route Index. Up to 10 digits can be entered in this field. These digits are outpulsed using the trunk group identified in the TRUNK GROUP NUMBER field. Each trunk group identified in this field must be defined on the TKGRP form.

26. TRANSLATION REQUIREMENTS SUMMARY

In summary, the following ODA forms are used for the ACD/MIS feature.

CACDPARM form (5458 Record) for 5E6 and later Software Releases, the COMMERCIAL ACD field has

been moved from the OSPSOPT form (5424 Record) to the CACDPARM form. The CACDPARM form defines the OSPS CACD and Call Vectoring global parameters residing in the Switching Module.

CFWLPA form (5614-3 Record) This form defines the call forwarding line parameters.

CVDSTTN form (5459 Record) This form defines the destination for a call specified in a call vectoring route.

CVECT form (5460 Record) The CVECT form defines the Call Vector steps for each CALL VECTOR ID.

DAS form (5300-1 Record) The DAS form is used to define DAS values which are assigned on a STINFO form.

FIXRT form (5301-1 Record) The FIXRT form is used to define routing and charging treatment of fixed route types.

ICF form (5305 Record) The ICF form is used to define the carriers which are assigned on a STINFO form.

INDIT form (5309 Record)

ISDNOPT form (5941 Record) Any OSPS office type entered on the OPARM form must be designated on the ISDNOPT form in the OSPS INSTALLED field.

ISLULC form (5942 Record)

Any LCEN (Line Card Equipment Number) entered on the OPARM form, OSPSOP form or OSPSDSL form must be specified on the ISLULC form. On the ISLULC form, the equipment status must be 'O' (Operational).

LDIT form (5300-3 Record)

LINE form (5109 Record) The Telephone Number - LINE form is used to define the Office Equipment Number and features for each telephone number in a switch.

LINEFA form (5112 Record)

LINEFA form defines the BRCS (Business and Residence Custom Services) Features to a particular customer telephone number.

OBSTS form (5408 Record) The OSPS Basic Services Terminal Seizure form provides information for agent terminal displays. Display contents, starting positions and lengths are defined.

OCTA form (5406 Record) The OSPS CALL TYPE Assignment form assigns ACD/MIS CALL TYPES from ACD/MIS normalized office code and local digits-dialed combinations.

OPARM form (5400-1/2 Record) The OSPS Operator Parameters form defines parameters of an ACD/MIS office including type of equipment, displays and reports and the assignment of serving teams.

OPCTO form (5407 Record) The OSPS CALL TYPE for Trunk Originations form determines ACD/MIS call types and a agent terminal display indexes for trunk origination from ACD/MIS call identification/trunk group combination. Entries (other than 9999) in the TGN field of this form must be defined on a TKGRP form.

ORAR form (5405 Record) The OSPS Rate and Route form identifies a call as an ACD/MIS call by defining the routing and charging for each ACD/MIS screening index/code index combination in a 5ESS Switch.

OSPSCT form (5404 Record) The OSPS CALL TYPE Parameters form assigns CALL TYPE information

such as "open for business" and serving teams to ACD/MIS CALL TYPES through agent position to port mapping. Each route index (1ST ANN RTI, 2ND ANN RTI, 3RD ANN RTI or CLOSE DOWN RTI) entered on this form must be defined on a RTIDX form.

OSPSDL form (5411 Record) The OSPS Digital Subscriber Line form assigns ACD/MIS circuits to line card ports.

OSPSEA form (5403 Record) The OSPS Operator Assignments form defines OSPS agents positions, assigns agents to serving teams and defines valid agent actions.

OSPSEP form (5401 Record) The OSPS Operator Position form defines each operator position within an OSC, assigns RISLU (Remote Integrated Service Line Unit) ports and assigns agent positions.

OSPSEP form (5424 Record)

RAR form (5301 Record) The RAR form is used to define screening index values which are assigned on a STINFO form.

RESXDL form (5409 Record) The OSPS Restricted External Dialing form defines restricted dialing sequences for a serving team's agents.

RTIDX form (5303 Record) The RTIDX form is used to define route indices which are assigned on an OSPSCT form.

SFSYS form (5713 Record) This form can only be entered by the AT&T SEE. See Division 2, Section 4a for information on activating secured features.

STINFO form (5402 Record) The OSPS Serving Team Information form provides information about an OSPS serving team. Each digit analysis selector value and secondary digit analysis selector value entered on this form must be defined on the DAS form. Each screening index entered on this form must exist on a RAR form. Each carrier specified on this form be defined on an ICF form.

TKGRP form (5202-1/2 Record)

The TKGRP form is used to define the trunk groups which are assigned on an OPCTO form.

ODA		RC	
Number	Name	Title	View
5202	TKGRP	Trunk Group	5.1
5204	TRUNK	Trunk Features and Assignments	5.5
5300-1	DAS	Digit Analysis Selector	9.1
5309	INDIT	Incoming Trunk Preliminary Digit Interpreter	9.5
5300-3	LDIT	Local Digit Interpreter Table	9.3
5301	RAR	Rate and Route	10.10
5405	ORAR	OSPS Rate and Route	21.24
5406	OCTA	OSPS Call Type ID Assignment	21.25
5407	OPCTO	OSPS Call Type for Trunk Originations	21.23
5404	OSPSC	OSPS Call Type Parameters	21.22
5408	OBSTS	OSPS Basic Services	21.26
5402	STINFO	Terminal Seizure OSPS Service Team Information	21.2

5403	OSP SOA	OSPS Operator Assignment	21.4

Figure 1 POTS TERMINATION FORM

ODA			RC
Number	Name	Title	View
5501	NOC	Normalized Office Code	8.2
5306	LCC	Line Class Code	4.1
5109	LINE	Telephone Number	1.1
5301	RAR	Rate and Route	10.10
5302-1	CGIDX	Charge Index Expansion	10.11
5115	HGRPAS	Hundreds Group(s) Assignment	4.14
5609-4	PFAINWT	INWATS Simulated Facility TN	7.4
5304	MCRTIDX	BRCS - MC Route Index Expansion	10.4
5609-3	PFASFG	Simulated Facility Group	7.3

Figure 2 INWATS TERMINATION FORM

OSPS Operator Assignment
OSPSOA form (5403 Record)

OPERATOR ID	OPER TYPE	SERVING TEAM
*1234	DA	6

OSPS Serving Team Information
STINFO form (5402 Record)

SERVING TEAM	OPER TYPE	DIALING PERM INDEX	SCREEN INDEX	DIG ANALYSIS SEL	AUTO CALL DIST?
*6	DA	UNRES	19	9	Y

Digit Analysis Selector
DAS form (5300-1 Record)

DIG ANALYSIS SEL	INC. TRUNK PRELIMINARY DIT	LOCAL DIT
*9	4	1

Incoming Trunk Preliminary
Digit Interpreter
INDIT form (5309 Record)

INC. TRUNK PRELIMINARY DIT	INCOMING DIGITS	LDIT?	NBR OF DIGITS TO BE DELETED
*4	*2	Y	0

(22 = dialed digits)

Local Digit Interpreter Table
LDIT form (5300-3 Record)

LDIT	INCOMING DIGITS	CALL TYPE	TYPE OF CI CALL	CODE INDEX
*1	*22	CONFLCT		

(22 = dialed digits)

Local Digit Interpreter Table:
Conflict Resolution Entries
LDIT form (5300-5 Record)

LDIT	INCOMING DIGITS	NBR DIG	CALL TYPE	CI TYPE	CDI	RTI
*1	*22	2	NORMAL	NONCI	400	700
*1	*22	4	NORMAL	NONCI	400	700
*1	*22	7	NORMAL	NONCI	400	700

(22 = dialed digits)

*Key Fields

Figure 3 OUTBOUND CALL: DIGIT ANALYSIS

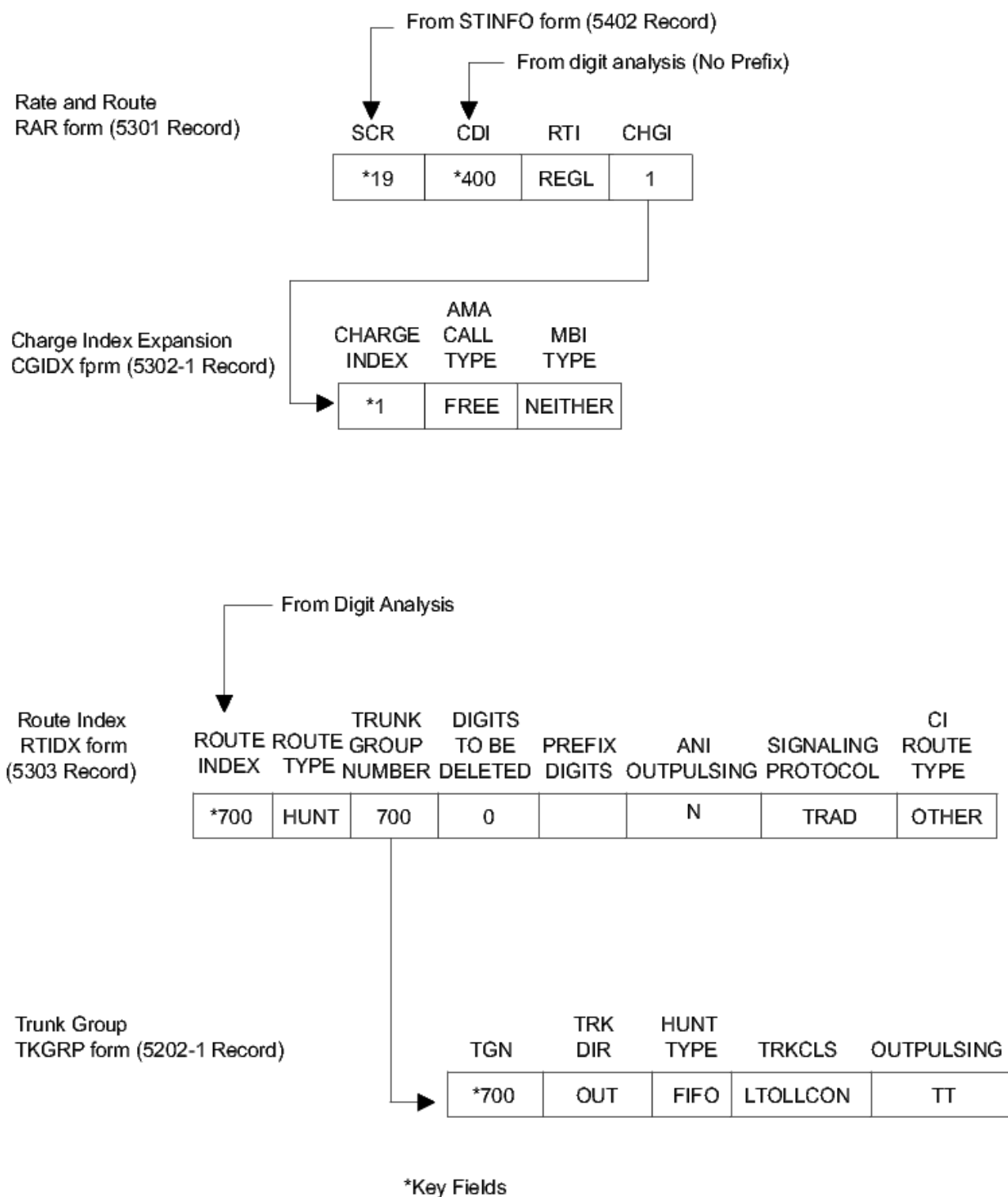


Figure 4 OUTBOUND CALL: ROUTING

Trunk Group
TKGRP form
(5202-1 Record)

TGN	TRK DIR	SCR	DAS	TRKCLS	INPULSING	BRCS?	BILLING DN
*800	IN	33	2	PF	TT	Y	9990000

Feature Assignment
Trunk Group Member Number
TRUNKFA form (5205 Record)

TGN	MEMB	FEATURE	A	M	AC
*800	*2	/IDCTX10	Y	Y	N
*800	*2	/TGUUA	Y	Y	N

IDP Trunk Parameter
IDPTPA form (5601-B Record)

				ABBREVIATED DIAL AD2 LIST	
TRUNK GROUP	MEMBER	ID FEATURE	IDP GROUP NAME	LIST NAME	SHARED?
*800	*0002	/IDXTX10	CACDGP	CACDAD2	Y

IDP Dialed Code Assignment
IDPDCA form (5601-1 Record)

IDP GROUP	INCOMING DIGITS	ACTION
*CACDGP	*22	CONFLCT

(22 = dialed digits)

IDP Conflict Resolution Entries
IDPDCA form (5601-2 Record)

IDP GROUP	INCOMING DIGITS	NBR REM DIG	ACTION	FEATURE
*CACDGP	*22	0	AD2USE	/ID*
*CACDGP	*22	2	ICMUSE	/ID*
*CACDGP	*22	3	NTPOTSA	/ID*

(22 = dialed digits)

Abbreviated Dialing List
ADLIST form (5601-9 Record)

AD LIST NAME	AD CODE BLOCK	SHARED?	AD CODE	STORED DN
*CACDAD2	*20	Y	*22	13129790000

*Key Fields

Figure 5 OUTBOUND CALL: BILLING AND FEATURE HANDLING

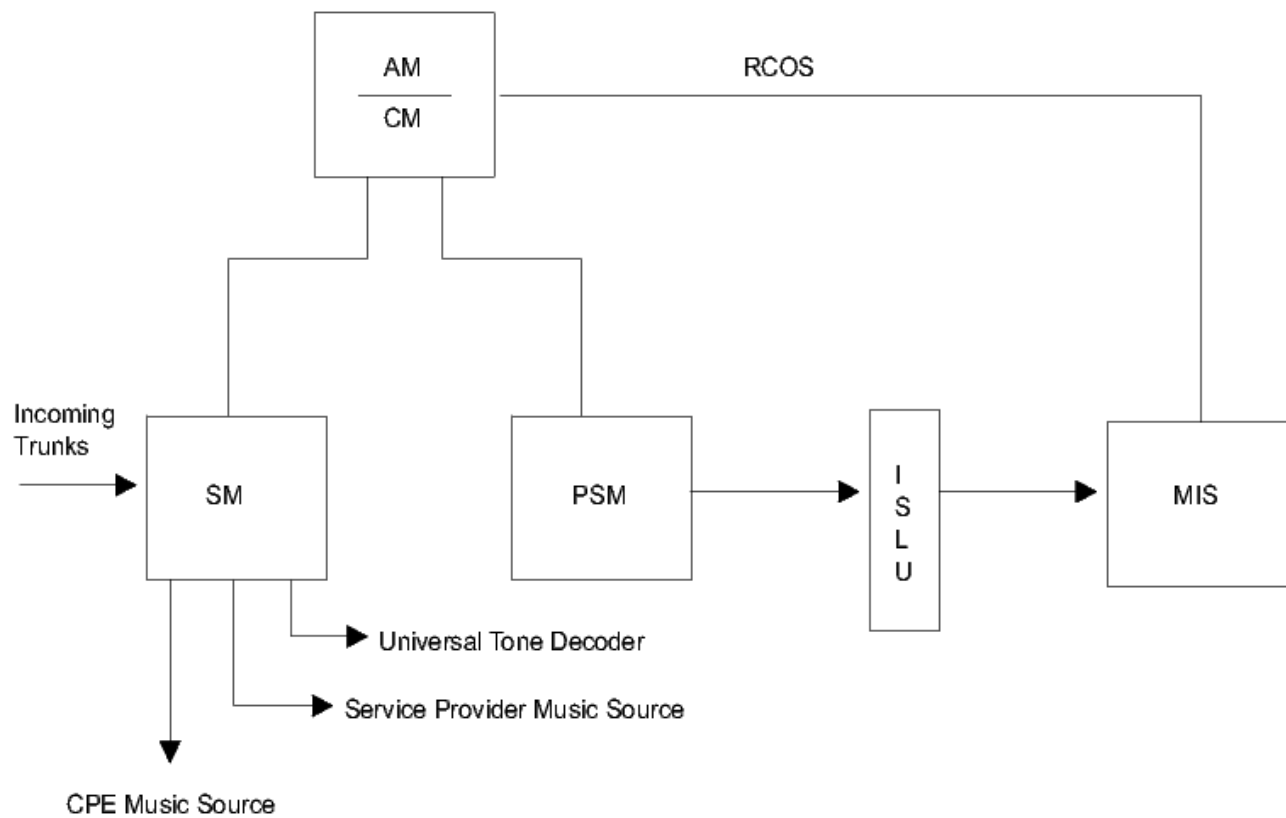


Figure 6 BASIC SYSTEM CONFIGURATION FOR CALL VECTORING FEATURE

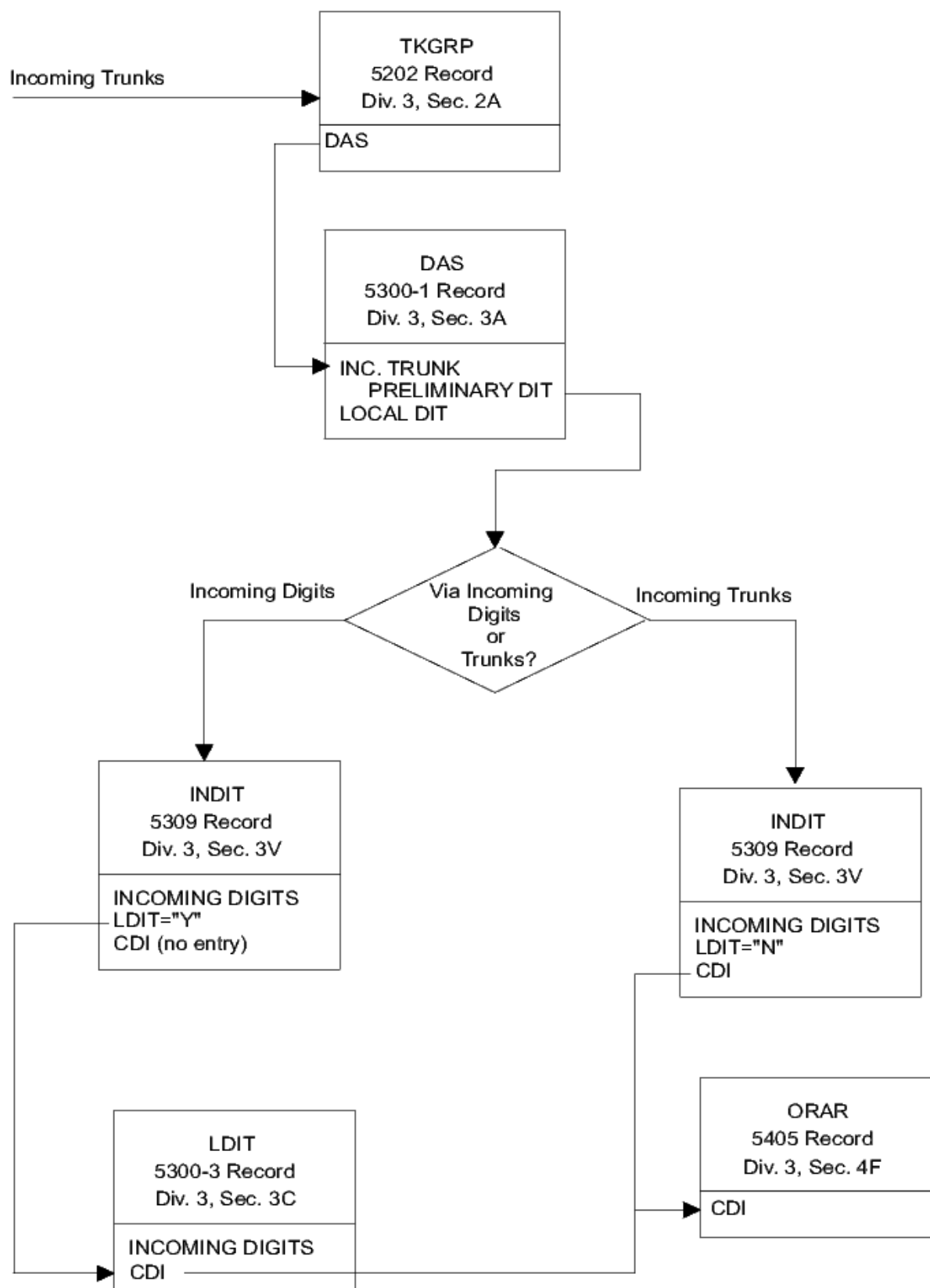


Figure 7 FORM FLOW FOR INCOMING CALLS FOR CALL VECTORING

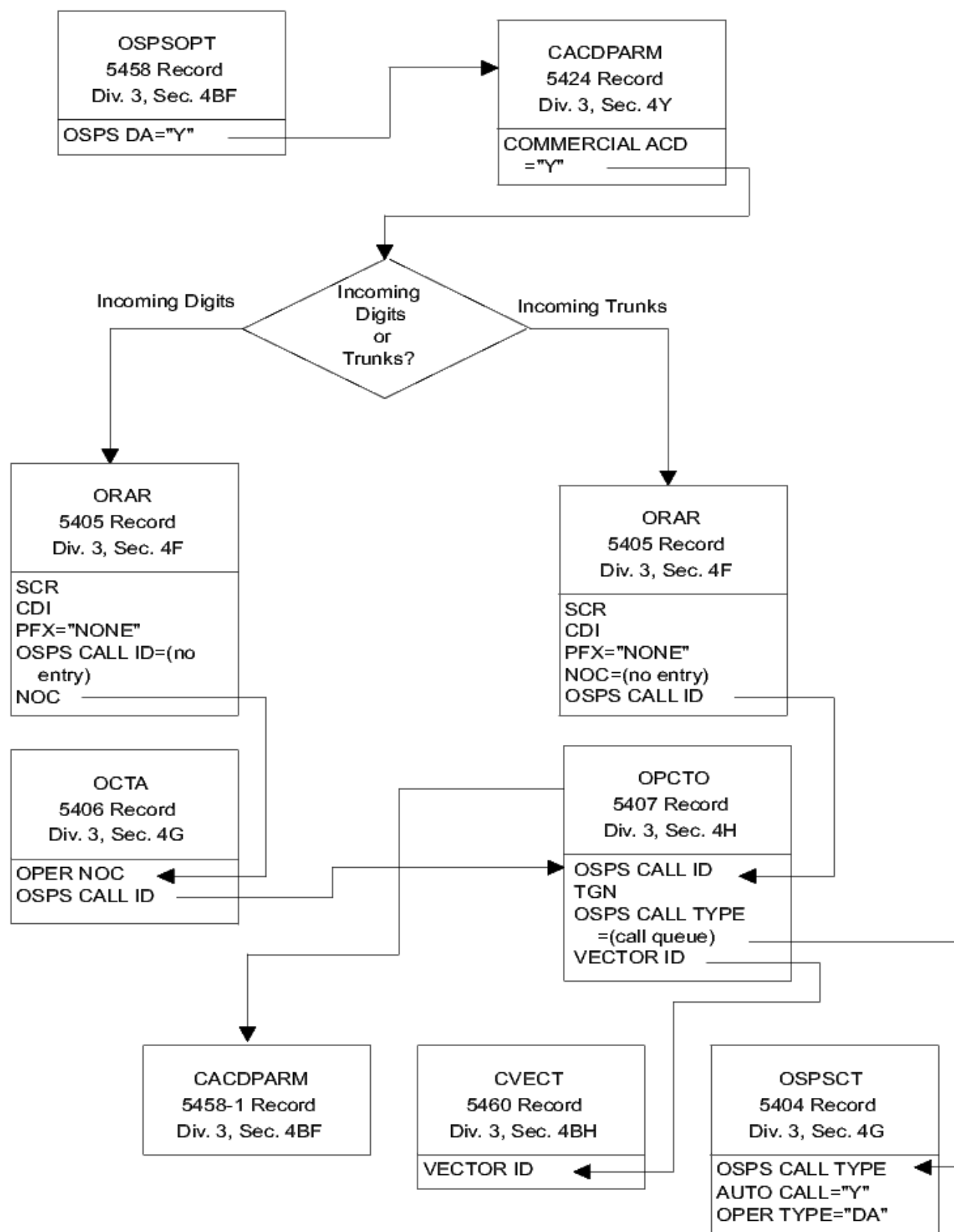


Figure 8 FORM FLOW FOR CACD FOR CALL VECTORING FEATURE

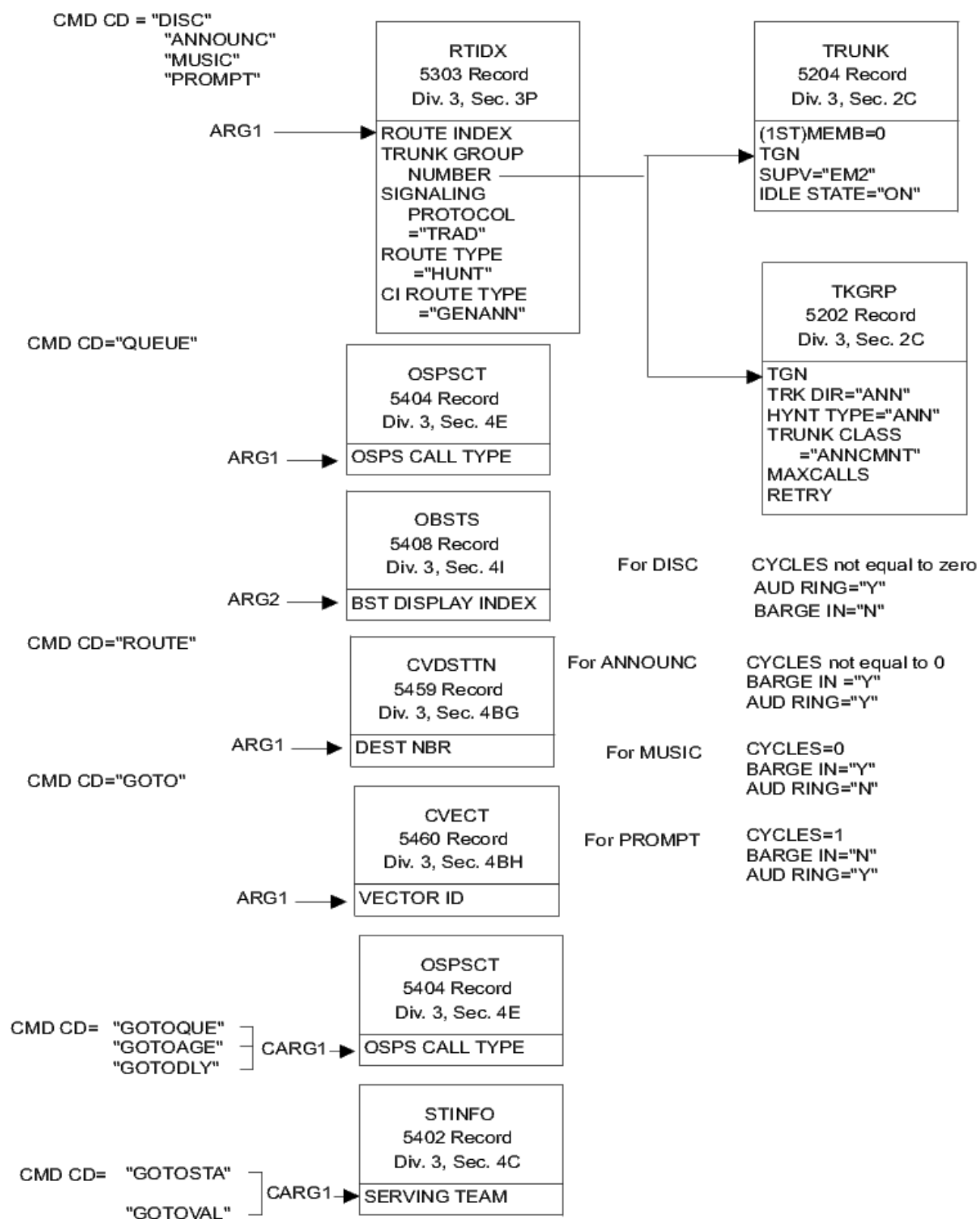


Figure 9 CROSS CHECKS FOR VECTOR COMMANDS ON CTECT FORM, 5460 RECORD

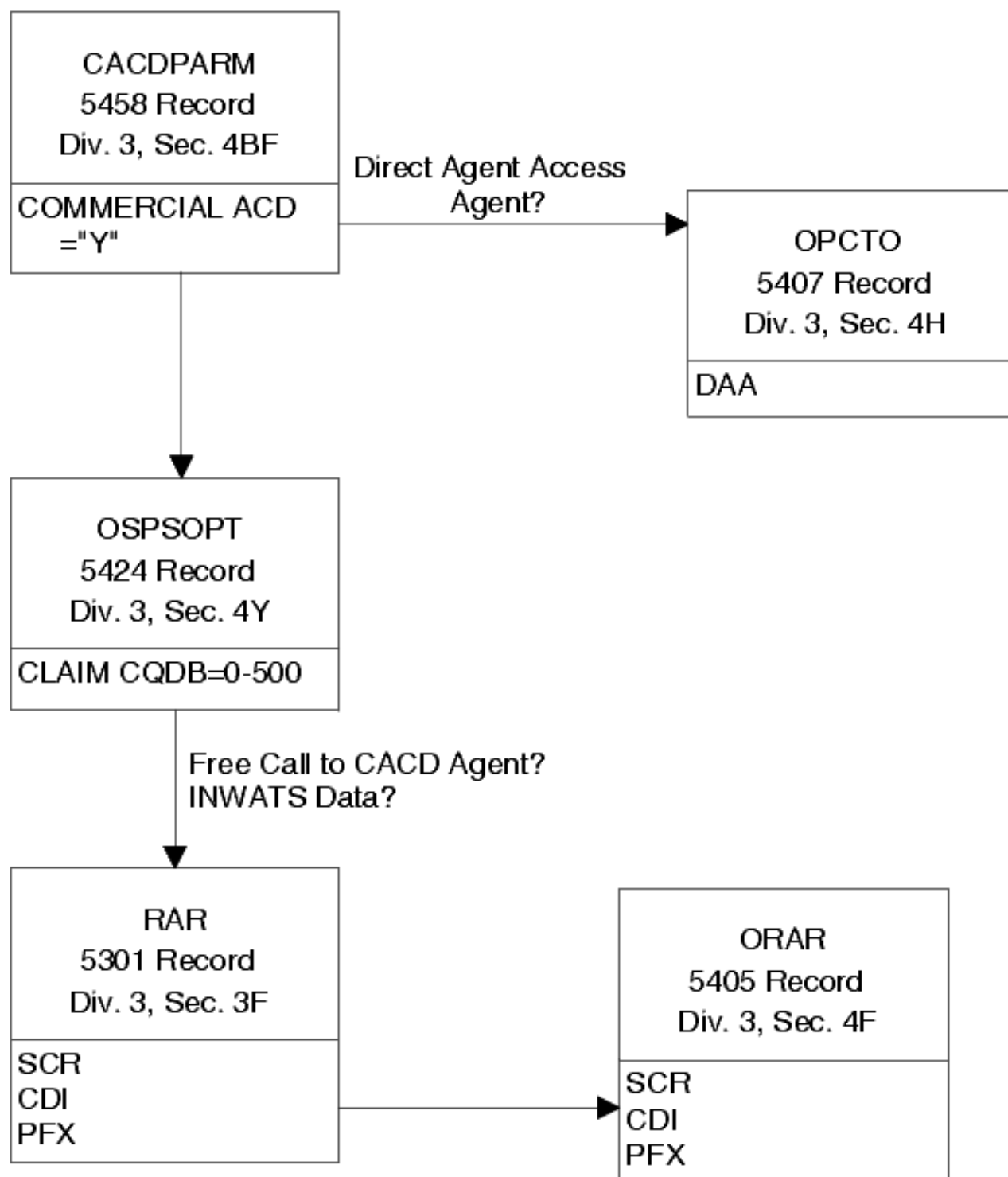


Figure 10 FORM FLOW FOR BASE CACD

SEC. 3E: OSPS 5ESS SWITCH ENHANCEMENTS

1. GENERAL

This section describes the translations for features that enhance and upgrade the OSPS Switch for 5E8 and later Software Releases. This section provides brief descriptions of the feature and how to provision the feature from an ODA input perspective.

2. INTERMEDIATE SWITCH POINT OSPS FEATURE GROUP B CARRIER IDENTIFICATION CODE EXPANSION

The ISP/OSPS FGB CIC (Intermediate Switch Point OSPS Feature Group B Carrier Identification Code) feature is available for 5E8 and later Software Releases. The ISP/OSPS FGB CIC Expansion Capability is responsible for splitting the administration of FGB and FGD CICs and expanding FGB CICs from three to four digits for use by ISP and OSPA.

This Capability depends on the Feature Group B Carrier Expansion Capability, see Division 2, Section 1AY.

2.1 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DIOPR	5418	3	4S	26.25
RSMCAR	5421	3	4V	26.22

2.2 Modified Forms

DIOPR Form (5418 Record) - This form defines the type of carrier and traffic over each carrier group that can access the OSPA operator. For 5E8 and later, the B CARRIER field indicates if this is a Feature Group B carrier and the *Data Rules* section indicates the fields that apply to a B CARRIER.

RSMCAR Form (5421 Record) - This form defines routing indexes to a carrier from an RSM (Remote Switching Module). For 5E8 and later, the FEAT GRP field was added to indicate a Feature Group B or a Feature Group D carrier. The fields which apply to Feature Group B only and Feature Group D only were grouped accordingly on the form. The Carrier ID number was increased to 9999 for Feature Group B.

3. INTERCHANGEABLE NPA

3.1 Feature Description

In order to increase the supply of the NPA (Numbering Plan Area) codes for future use, the format for the NPA has been changed from N[0/1]X to N[0-9]X. For 5E9(1) and later, the digits 2 - 9, in addition to 0 or 1, can be used for the NPA. Also, OSPA provides a dialing option parameter on a per trunk group basis that indicates the number of digits that a customer is required to dial on a call (ALLOW 7 DIGITS field on the OPRTK form (5417 Record)).

3.2 Feature Assignment

Expanding the middle digit to 0 - 9 has an effect on dialing procedures. In some areas the state commission requires that 0+ and 1+ 7-digit dialing be allowed in addition to the 0+ and 1+ 10-digit dialing. In order to accommodate this, the end office performs most of the checks on the number of digits dialed.

The ISP (Intermediate Switching Point) OSPS INPA (Interchangeable NPA) Code feature allows the ISP/OSPS to recognize the NPA codes in the new format and handle the call properly.

See Figure 1 for feature assignment form flow for INPA.

3.3 INPA Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACCST	5428	3	4AC	26.40
ACQS	5425	3	4Z	26.11
ANNHD	5531	3	5AE	8.61
ATC	5446	3	4AT	27.40
BLVNPA	5441	3	4AP	27.10
BLVEX	5442	3	4AQ	27.11
DNNTWK	5419	3	4T	26.20
ESPINFO	5472	3	4BX	27.65
FTSNANP	5486	3	4CN	27.77
NXXZN	5427	3	4AB	26.12
OCNTWK	5420	3	4U	26.21
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
PRONXX	5413	3	4N	26.13
PHRASE	5534	3	5AH	8.63
SPABS	5319	3	3AF	10.20
SPAENXX	5320	3	3AG	10.21
TCSNPA	5437	3	4AL	27.2
TMZN	5426	3	4AA	26.14
TPRNPA	5465	3	4BR	27.5

ANNHD form (5531 Record) - This form lists the phrase IDs in the required order to be associated with an announcement header ID. For the INPA feature, announcement header ID OSPSTA 155 was added to the standard default data. It is used to prompt for NPA, if required, on forward number input, e.g. ACCS sequence calling.

OPRTK form (5417 Record) - This form is used to define the common information and type of traffic over each trunk group that can access an OSPS operator. The ALLOW 7 DIGITS field indicates whether a 7-digits number is allowed on automated sequence calls for this trunk group.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The OSPS INPA field indicates if INPA is active for this office. The EX CONF DN field has been expanded to include 2 - 9 digits for the middle digit for NPA.

PHRASE form (5534 Record) - This form defines and describes phrase IDs which are provided on the DSU2-RAF Announcement Storage circuit packs for each application. New phrase IDs 318 and 319 were added for the INPA feature.

The following forms were updated to reflect expanding the range of the middle digit of the NPA code from 0/1 to 0 - 9.

- ACCST form 5428 Record
- ACQS form 5425 Record
- ATC form 5446 Record
- BLVNPA form 5441 Record
- BLVEX form 5442 Record
- DNNTWK form 5419 Record
- ESPINFO form 5472 Record

FTSNANP form 5486 Record
NXXZN form 5427 Record
OCNTWK form 5420 Record
PRONXX form 5413 Record
SPABS form 5319 Record
SPAENXX form 5320 Record
TCSNPA form 5437 Record
TMZN form 5426 Record
TPRNPA form 5465 Record

4. FEATURE GROUP D CARRIER IDENTIFICATION CODE EXPANSION

4.1 Feature Description

For 5E9(1) and later, the OSPS FGD CIC (Feature Group D Carrier Identification Code) Expansion feature allows 4-digit FGD CICs. This feature supports the entry and display of 4-digit FGD CICs at the operator position, the specification of 4-digit CICs in OSPS Recent Change and Verify, and the signaling of 4-digit CICs to operation support systems such as Real Time Rating System and EIS (External Information Systems) vendor systems. For more information on base 5ESS Switch FGD CIC Expansion, see Division 2, Section 1BI.

4.2 Feature Assignment

Background

CICs (Carrier Identification Codes) are used in dialing plans and within MF and CCS7 signaling sequences to indicate the desired carrier for a call. These CICs are signaled to the AT (Access Tandem) in the first stage of MF (Multi-frequency) signaling using FGD (Feature Group D) type of signaling or in the IAM (ISDN-UP Initial Address Message) when the call is being routed through an AT. Calls that are being routed directly to an IC (Interexchange Carrier) or an INC (International Carrier), are routed slightly differently. The CIC is signaled to the IC/INC only when the call is an international call. Previous to 5E8, CICs were identified using a set of 3-digits shared by both FGB (Feature Group B) and FGD carrier access types. A single CIC (XXX) could identify one carrier which provides both FGB and FGD access. Alternately, a single CIC could identify one carrier which provided only FGB or FGD access, but not both for that CIC. A single CIC, however, could not be used to represent an FGD carrier (currently identified by dialing 10XXX), and simultaneously to represent a different FGB carrier. Only equal access offices could handle FGD type of signaling.

For calls handled by a Toll and Assistance OSPS operator, the CIC and the name of the IC/INC selected to route to the forward party is displayed to the operator. The operator can use keying actions to enter a different CIC or carrier name. If the call is to be completed without using an IC/INC, "LEC" is displayed to the operator. OSPS also allows the TCA (Telephone Company Administration) to specify the CIC of an FGD IC/INC carrier (i.e., the carrier specified in the office data) used to route to conference, bill-to-third and non-floatable route numbers.

FGD CIC Expansion

The FGD CIC Expansion feature is an enhancement to the current Carrier Interconnect feature. It allows the ISP (Intermediate Switching Point) and the OSPS to recognize the new 4-digit CIC and handle the call properly. It allows the expansion of the current 3-digit CIC (XXX) to 4-digits (XXXX) and the current 5-digit CAC (Carrier Access Code) (10XXX) to 7-digits (101XXXX). The FGB CIC Expansion feature eliminates sharing the same set of digits for both FGB and FGD CICs.

FGC

All operator calls come in on TSPS trunks in FGC (Feature Group C) format (Address first and ANI second). However, LS (Listing Services) calls can also come in on FGD trunks (ANI first and Address second). The OSPS can outpulse calls using either the FGC or the FGD signaling protocol or CCS7.

Dialing Plan Conversion

In order to facilitate the dialing plan conversion, during a permissive period the caller can dial either the old or the new dialing format, i.e., dial either the 5-digit CAC or the new 7-digit CAC. All systems supporting only 3-digit CIC capability that expect to support the new 4-digit CIC must be updated by the end of the permissive period.

For trunk groups marked 3-digits, a 3-digit CIC is transmitted in the signaling sequence and for trunk groups marked 4-digits, a 4-digit CIC is transmitted in the signaling sequence. Once the switches involved have the capability to handle 4-digit CIC signaling, the MF trunk groups between those offices will be converted to 4-digit signaling. CCS7 trunk groups can handle both types of traffic on the same trunk group. The TNS (Transit Network Selection) parameter in the ISDN-UP protocol has been modified to identify whether a 3-digit or a 4-digit CIC is involved

ISP

The ISP/OSPS will have to determine from the routing data whether the outgoing IC/INC trunk is marked as 3-digit or 4-digit. In order to accommodate a 3-digit CIC in the outgoing signaling on an international call, the leading digit will be dropped from a 4-digit CIC. In the case of a 3-digit CIC destined for a 4-digit trunk group, a leading 0 will be prepended to the CIC. The call will use an FGD CIC if the forward number is other than 950. If the forward number is 950-XXXX and the call is being routed using FGC protocol, then an FGB CIC will be used.

Recent Change and ODA

Recent Change and ODA (Office Data Administration) records that are associated with a CIC should be updated to accommodate the 4-digit CIC and explicitly identify the carrier as being FGD or FGB or both (ICF form (5305 Record), RSMCAR form (5421 Record)).

See Figure 2 for feature assignment form flow for FGD.

4.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DIOPR	5418	3	4S	26.25
DNNTWK	5419	3	4T	26.20
OCNTWK	5420	3	4U	26.21
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
RSMCAR	5421	3	4V	26.22
STINFO	5402	3	4C	21.2
TPRCC	5464	3	4BQ	27.6
TPRNPA	5465	3	4BR	27.5
TREAT	5461-4	3	4BL	26.33

The following forms were updated to reflect expanding the CIC from 3-digits to 4-digits.

DIOPR form 5418 Record

DNNTWK form 5419 Record
OCNTWK form 5420 Record
OPRTK form 5417 Record
OSPSOPT form 5424 Record
RSMCAR form 5421 Record
STINFO form 5402 Record
TPRCC form 5464 Record
TPRNPA form 5465 Record
TREAT form 5461-4 Record

5. OFFICE TRAFFIC MIX

5.1 FEATURE DESCRIPTION

For 5E9(2) and later, the amount of dynamic memory per trunking SM can be globally allotted in the COIN MECH field on the OSPSOPT form (5424 Record) for coin phone originations plus MECH attempts. LS (Listing Services) incoming attempts plus Quantum incoming attempts can be globally allotted in the LS QUANTUM field on the OSPSOPT form.

The Office Traffic Mix capability does not have a capability number.

5.2 FEATURE ASSIGNMENT

The COIN MECH field and the LS QUANTUM field on the OSPSOPT form allow the Telephone Company Personnel to allot only the memory necessary to support the MECH, coin, LS, and Quantum traffic for the office.

NOTE: The values for these fields must be determined by the Telephone Company Personnel and given to ODA *AFTER* the final dump and *BEFORE* the retrofit tapes are made if a value other than the default value is needed.

COIN MECH:

The COIN MECH field defines the percentage of call attempts originating from coin phones plus the percentage of MECH attempts that a particular telephone office expects for the overall traffic mix on a switch.

To calculate the COIN MECH value, determine the total number of incoming call attempts for a particular time frame, such as the last busy season. Next estimate the percentage of the selected period's total incoming call attempts

1. that originated from prepaid and postpaid coin stations and
2. that were released from operator positions and from APSs (Automated Position Systems) for MECH handling.

The sum of these two percentages, plus an additional padding of 2%, should be the value that is used to populate the COIN MECH field. Thus:

COIN MECH = (% of COIN calls) + (% of MECH calls) + 2%

This field is very important because it dictates dynamic memory availability by creating only the amount of

dynamic memory resources that are needed for the coin and MECH combined traffic load on SMs that have "FIOPR" trunks. Setting the value too high defeats the purpose of this parameter, which is to save resources. However, if the value is set too low, then the resources are exhausted when the coin and MECH load exceeds the expected amount and the additional coin and MECH attempts are dropped.

If COIN MECH dynamic memory becomes exhausted for an SM, an OP OVRLD alarmed report prints for SM=X, RESOURCE COINOT and assert 32765 (for 5E9(2)) are generated.

If coin and MECH calls exhaust the resources, or if an overall coin - MECH traffic increase is planned, more resources can be made available in one of the following ways:

1. If SM COINOT is exhausted, request more software resources for OSPS Coin Originating Treatment dynamic data for the SM with RC/V view 8.40.

Enter the SM number in the MODULE field.

Enter "COINOT" in the SOFTWARE RESOURCES field.

Increase the number of "COINOT" resources via the INCREMENTAL VALUE field. The incremental value can be increased, by up to 50 resources per update, until the needed total is reached. For example, if the incremental value is 10 and 75 resources are needed, first update to 60 and then update to 75. The CURRENT TOTAL VALUE display reflects the true SM total plus the additional resources that are automatically reserved to complete a resource "page".

2. If the coin and/or MECH call load is expected to increase by a large amount as part of the overall traffic mix, then via RC/V view 8.9, adjust the value of the COIN MECH field to reflect the new percentage for the office (based on the COIN MECH formula shown earlier).

LS QUANTUM:

The LS QUANTUM field defines the percentage of Listing Services attempts plus the percentage of Quantum attempts that a particular telephone office expects for the overall traffic mix. The value of this field must be determined by the Telephone Company Personnel.

To calculate the LS QUANTUM value, determine the total number of incoming call attempts for a particular time frame, such as the last busy season. Next estimate, from the selected period's total incoming call attempts, the percentage of that total that were LS attempts and the percentage that were Quantum attempts. The sum of these two percentages, plus an additional padding of 2%, should be the value that is used to populate the LS QUANTUM field. Thus:

5.2.1 **LS QUANTUM = (% of LS attempts) + (% of QUANTUM attempts) + 2%**

This field is very important because it dictates dynamic memory availability by creating only the amount of dynamic memory resources that are needed for the LS and Quantum combined traffic load on trunking SMs. Setting the value too high defeats the purpose of this parameter, which is to save resources. However, if the value is set too low, then the resources are exhausted when the LS and Quantum load exceeds the expected amount and the additional LS and Quantum calls are dropped.

If LS QUANTUM dynamic memory becomes exhausted for an SM, an OP OVRLD alarmed report prints for SM=X, RESOURCE SRVOT and assert 33091 (5E9(2)) are generated.

If LS and QUANTUM calls exhaust the resources, or if an overall LS or Quantum traffic increase is planned, more resources can be made available in one of the following ways:

1. For SM SRVOT exhausted resources, request more software resources for Listing Services Call Data Originating Treatment and EIS (External Information Systems) Interface, i.e., SRVOT resources for the SM, with RC/V view 8.40.

Enter the SM number in the MODULE field.

Enter "SRVOT" in the SOFTWARE RESOURCES field.

Increase the number of "SRVOT" resources via the INCREMENTAL VALUE field. The incremental value can be increased, by up to 50 resources per update, until the needed total is reached. For example, if the incremental value is 10 and 75 resources are needed, first update to 60 and then update to 75. The CURRENT TOTAL VALUE display reflects the true SM total plus the additional resources that are automatically reserved to complete a resource "page".

2. If the Listing Services and/or Quantum call load is expected to increase by a large amount as part of the overall traffic mix, then adjust the value of the LS QUANTUM field on RC/V view 8.9, to reflect the new percentage for the office (based on the LS QUANTUM formula shown earlier).

5.3 TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters.

6. GLOSSARY

ACTS	Automatic Coin Toll System
APS	Automated Position System
AT	Access Tandem
CAC	Carrier Access Code
CIC	Carrier Identification Code
EIS	External Information Systems
FGB	Feature Group B
FGC	Feature Group C
FGD	Feature Group D
IC	Interexchange Carrier

IAM	ISDN-UP Initial Address Message
INC	International Carrier
INPA	Interchangeable NPA
ISP	Intermediate Switch Point
LS	Listing Services
MECH	More Efficient Call Handling
MF	Multi-frequency
NPA	Numbering Plan Area
ODA	Office Data Administration
OSPS	Operator Services Position System
QUANTUM	Easy Reach 700 Calls
TCA	Telephone Company Administration
TNS	Transit Network Selection

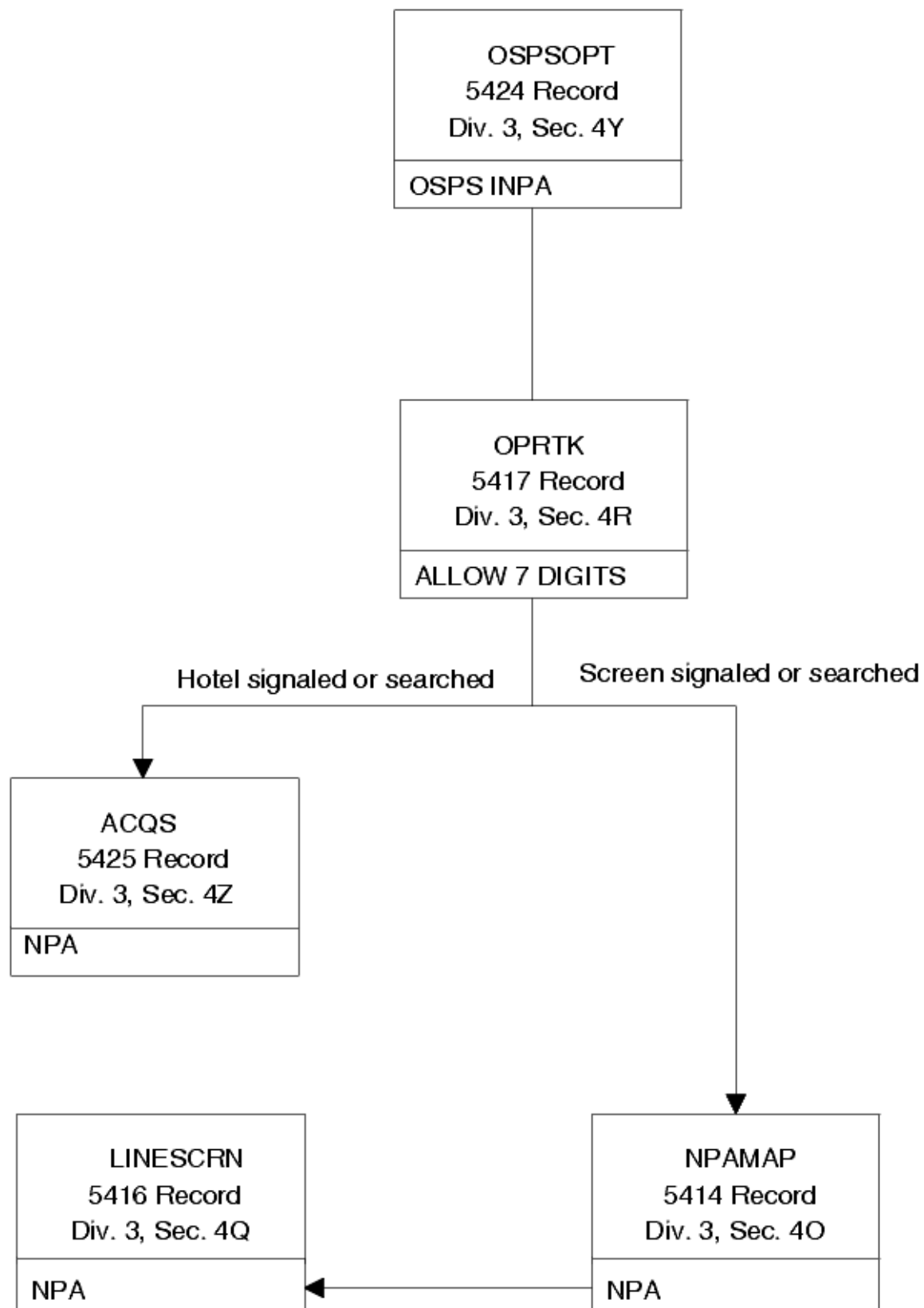


Figure 1 INPA FORM FLOW

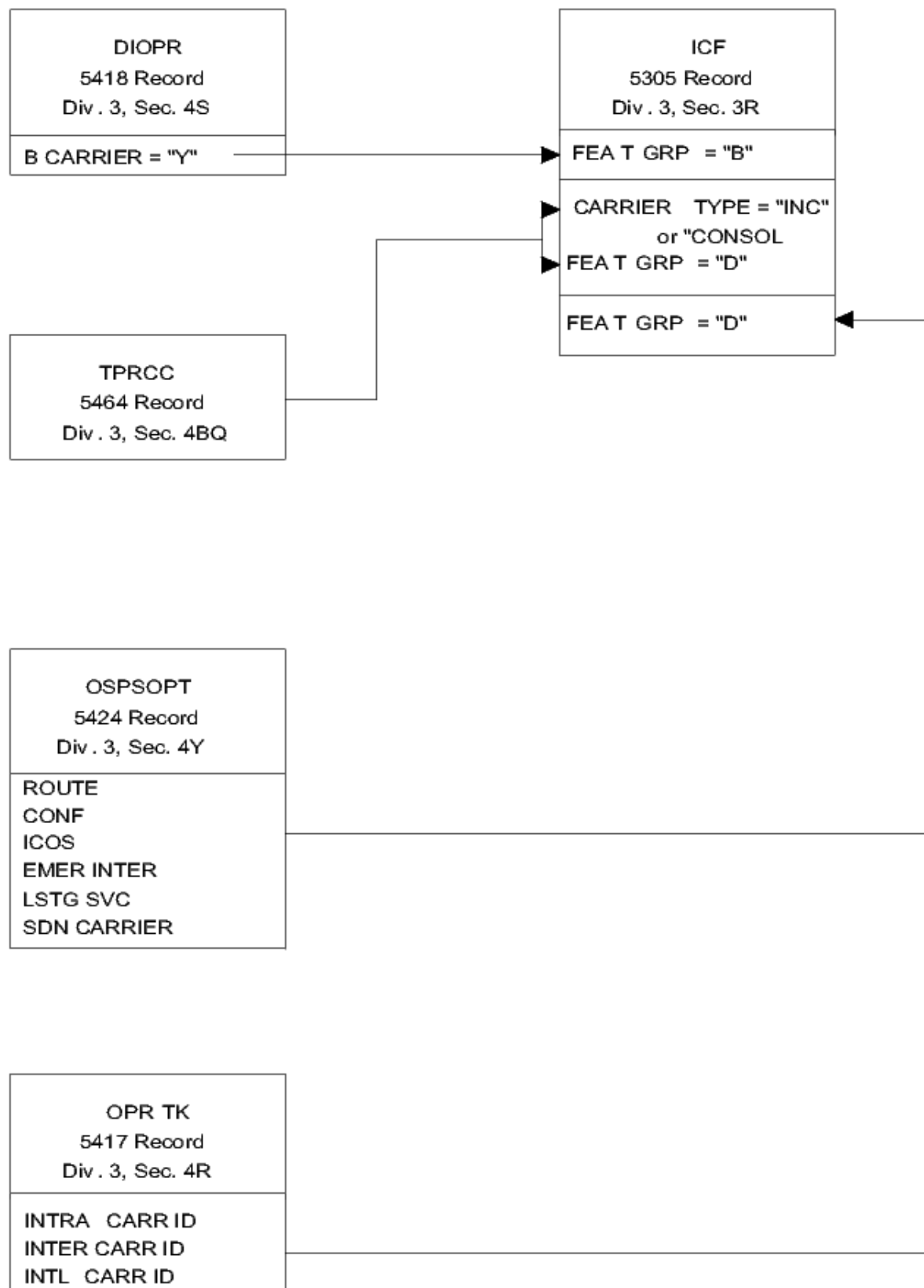


Figure 2 FGD CIC EXPANSION FORM FLOW

SEC. 3F: OSPS COMBINED SERVICES

1. FEATURE DESCRIPTION

For 5E6 and later Software Releases, the CS (Combine Services) feature allows an operator to use a single terminal to process both T&A (Toll and Assist) and Listing Services Calls. Prior to implementation of this feature, these types of calls were typically handled by two separate groups of operators, located in different OSCs (Operator Services Centers). Due to the changing call traffic patterns, some OSCs experienced heavy call loads, while others had relatively light loads. This feature allows the OSCs to be consolidated, thereby reducing traffic pattern problems. Through the CS feature, T&A and Listing Services calls may be handled together on either a VDT (Video Display Terminal) or a CST (Combined Services Terminal). The VDT is limited to using manual access to data bases. The CST (Combined Services Terminal) handles all operator services and data base lookups for T&A, Listing Services and AMLB.

2. TRANSLATION REQUIREMENTS

For Listing Services translations, such as EIS (External Information System), External ARU (Audio Response Unit) and Internal ARU, see Division 2, Section 3c. For T&A translations, see Division 2, Section 3e.

Figure 1 give the form flow for Combined Services. The translations for the Combined Services feature require the following forms:

- OSPSOPT (5424 Record)
- OSPSCT (5404 Record)
- STINFO (5402 Record)
- OSPSOA (5403 Record)
- OSPSOP (5401 Record)
- OSPSDSL (5411 Record)

2.1 Combined Services Translations

The following translations are required for an OSPS Office to handle Listing Services calls and T&A calls.

2.1.1 OSPSOPT (5424 Record)

For an OSPS office to handle Combined Services calls, both the OSPS DA and the OSPS TA field must be set to "Y". If only T&A call handling is being provided, then only the OSPS TA field needs to be set to "Y".

2.1.2 OSPSCT (5404 Record)

This form is used to assign OSPS serving teams and other parameters to OSPS call types. Listing Services and T&A calls may both be handled by the same serving team, but they are not allowed to be associated with the same call type. For both Listing Services and T&A CALL TYPEs, the OPER TYPE field must be set to "TA" and the AUTO CALL DIST? field must be set to "N". However, a Listing Services call type must have an entry in the "SVC ID" field, associating a Service ID with the call type. The Service ID is a number assigned by the TCA (Telephone Company Administration) to define a Listing Service to be provided to calls assigned to the identified call type. An entry in the SVC ID is not allowed for T&A call type. This distinguish the Listing Services

call type from the T&A call type.

2.1.3 STINFO (5402 Record)

Each serving team must have an entry in the STINFO form, which is used to define the parameters associated with a group of operators that compose a serving team. A serving team that will provide service for both Listing Services and T&A must have the OPER TYPE field set to "TA" and the AUTO CALL DIST? field must be set to "N".

2.1.4 OSPSOA (5403 Record)

Each operator login ID assigned to a serving team must have an entry in the OSPSOA form, which is used to assign parameters to an operator login ID, which is the OPERATOR ID field. The SERVING TEAM field contains the SERVING TEAM number identified in the STINFO form (5402 Record). The OPER TYPE field must be set to "TA" for both Listing Services and T&A operator, allowing a single operator to handle both Listing Services and T&A calls.

2.1.5 OSPSOP (5401 Record)

Each operator terminal must have an entry in the OSPSOP form. For both operator terminals, VDT or CST, the POS TYPE field must be set to "OPT". The LCEN field identifies the physical port used to connect the terminal to the switch.

2.1.6 OSPSDSL (5411 Record)

Each terminal, (either a VDT or a CST) must have an entry in the OSPSDSL form. The LCEN field entry on the OSPSDSL form must match the LCEN field entered on the OSPSOP form. The SERVICE CLASS field should be set to "TAOPER". To allow an operator terminal to use packet switching for external data bases the LVL2 PROF field must be set to "VDT". If access to an external data base is not desired, then LVL2 PROF should be set to "BST".

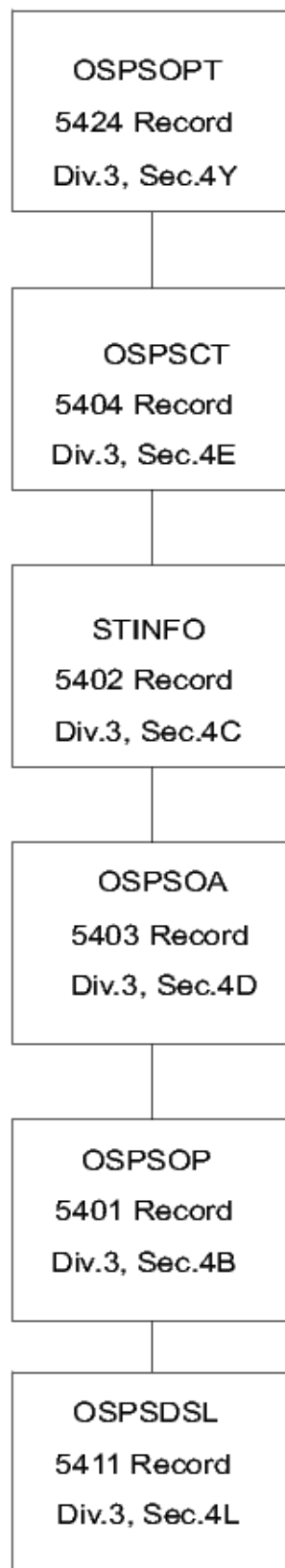


Figure 1 FORM FLOW FOR COMBINED SERVICES

SEC. 3G: OSPS MULTIPLE DATA BASE ACCESS (MDBA)

1. INTRODUCTION

The MDBA (Multiple Data Base Access) capability allows an operator to establish two or more simultaneous data base sessions from a single terminal.

MDBA is considered an expansion of the 5E4(2) AMLB (Automated Multi-Leaf Bulletin) capability introduced in the 5E4(2) Software Release. Whereas AMLB allowed the operator to interact with a single external data base, MDBA allows two simultaneous sessions on a VDT (Video Display Terminal), six simultaneous sessions on a CST (Combined Services Terminal) and access of up to 15 data bases from either terminal. While a VDT can only interface with AMLB-like data bases, a CST can interface with any combination of AMLB- or Listing Services-type data bases.

An independent full-screen virtual terminal is created and dedicated to each active data base, but only one active data base can be in the foreground. An operator on a VDT or CST can only interact with this foreground data base; however, a CST can exchange data and control with all active data bases, foreground or background.

Access permissions are assigned to an entire serving team. ODD (Office Dependent Data) may deny access to an operator whose serving team does not have the necessary login information to establish a session with a particular data base.

The type of external data base to be accessed determines which office data paths are followed and which records are required by ODA. A BRI (Basic Rate Interface) DSL (Digital Subscriber Line) is used to access AMLB-like data bases through an external data base DSL assignment. This requires entries in the OSPSDSL form (5411 Record) for the DSL. With the 5E6 Software Release, a DBA (Data Base Access) T1 (i.e., an X.25 packet-switched interface providing 24 B channels per facility) can also access an external data base. DBA T1 access requires entries in the XAT form (5909 Record).

1.1 ODA Forms

1.1.1 OPDBPARM (5434 Record)

1.1.2 OPEXTDB (5435 Record)

1.1.3 OSPSOPT (5424 Record)

2. TRANSLATIONS REQUIREMENTS

OSPSOPT (5424 Record)

For an OSPS operator to interface with an external data base, the OSPSOPT form (5424 Record) must have the OSPS TA and OPER EXT DB fields set to "Y".

OPEXTDB (5435 Record)

This record allows an operator terminal on the OSC (Operator Service Center) to access one or more external data bases. Terminal access is determined by an entry in the OSPSOP form (5401 Record) and the operator's serving team (derived from the operator's login ID on the OSPSOA form (5403 Record)).

With the 5E6 Software Release, the fields TERM DB KEY, DB NAME and TERM TYPE have been added to support the MDBA feature. The DB NAME field contains a unique data base name. This unique name is defined on the OPDBPARM form (5434 Record). The TERM DB KEY field on the OPEXTDB associates a data base key on the operator terminal with one of 15 possible external data bases. The LOGIN ID and PASSWORD fields identify the login ID and password values used to log an operator into a data base. The LOGIN DELIM and PASSWORD DELIM fields identify a terminating character for the login ID and password strings. The AUTO LOGIN field indicates the auto login procedure is executed whenever a session is established with the data base. If a data base session is to be established whenever an operator logs into to OSPS, the AUTO SESSION field should be set to "Y". The OSPS LOGIN field determines if the operator's login ID should be used to login to the data base. If this field is set to "Y", no entry can be made in the LOGIN ID field. An entry of "Y" in the REVERSE CHARGE field causes the external data base link to be charged for calls to the data base. If "N" is entered in this field, the operator terminal DSL is charged. The TERM TYPE field identifies the type of terminal emulation used for a session interface. If the terminal is a VDT, this field should be set to "BASIC". If the terminal is a CST, this field can contain either "BASIC" or "TEMPLATE".

OPDBPARM (5434 Record)

This record defines the data base and X.25 protocol parameters that allow access to an external data base. The DB NAME entry on this form must be defined in the DB NAME field on the OPEXTDB form. Each DB NAME entry is assigned to a unique data base number identified in the DB NUMBER field. This field has been expanded in the 5E6 Software Release to allow up to 31 external data bases to be defined in Office Dependent Data (ODD).

The DB PKT TN field contains an ISDN telephone number to access an external data base. The number entered in this field is sent through digit analysis to establish a routing path to the desired data base.

The CUGPX field identifies the customer closed user group index. The index is sent to the operator terminal which uses this value to form an X.25 call request packet. Each entry in this field must match an entry in the CUG LIST IDX field of the AMLBDSL form (5447 Record). If either of the SEND WINDOW SIZE, SEND PACKET SIZE, RECEIVE WINDOW SIZE or RECEIVE PACKET SIZE field of the OPDBPARM form has a value other than zero, the FLOW CNTL field of the corresponding AMLBDSL form must be "Y". The FIRST SEARCH STRING and SECOND SEARCH STRING field of the 5434 Record identify the first and second prompt strings sent out by the external data base during a login sequence. The SEND WINDOW SIZE field identifies the sending size of the X.25 level 3 packet window for the terminal. The size of the X.25 level sending packet is identified in SEND PACKET SIZE field. This field identifies the size of the information data block sent to the external data base. The RECEIVE WINDOW SIZE field identifies the receiving size of the X.25 level 3 packet window for the terminal. The size of this packet is identified in the RECEIVE PACKET SIZE field. This field identifies the size of the information data block received from the external data base.

With 5E6, the fields RESTART COUNT, DATA TIMER and RESTART TIMER will assist in fine tuning protocol parameters for each system that employs data base access via ISDN. The parameters involve the timing, sending, acknowledging and restarting of X.25 level 3 timer information sent between the VDT and the 5ESS Switch.

In addition to the forms listed above, the following forms are also used in implementing the MDBA feature.

OSPSDSL form (5411 Record)

The OSPSDSL form (5411 Record) identifies OSPS DSLs (Digital Subscriber Lines), assigns these DSLs to line card ports, and defines data link parameters. This form also defines the parameters of the DSL D channel. Each operator terminal requires an entry in this record. The LCEN field identifies the physical port through which the operator terminal is connected to the switch. The entry for the operator terminal in this form must have SERVICE CLASS set to "TAOPER" regardless of the type of terminal being used (VDT or CST).

For an operator terminal to access an external data base using packet switching, the LVL2 PROF field must be "VDT".

AMLBDSL (5447 Record)

The AMLBDSL form defines the characteristics and parameters to access an external data base. Each terminal allowed access must have an entry of "SX" in the D SERV field to determine the type of ISDN service allowed on the D channel.

Access to an AMLB-type external data base requires several AMLBDSL form entries to provide B-channel packet switching capabilities. The entry for an LCC for an AMLB-like data link must have CLASS OF SERVICE equal to "XDB" (matching the OSPSDSL form) and the D SERV field equal to "ADMIN".

MLHGFD (5604 Record)

The MLHGFD form defines an MLHG feature. To implement the MDBA feature, the FEATURE NAME field on this form should be set to the pre-constructed feature "/MHXPS" or to a user-constructed feature that is similar to "/MHXPS". Also, HUNT TYPE must be "PSUCD", the fields OVERFLW REG, INWATS, CF BUSY and CF VARIABLE must all be "N" and the BEARER field must be "PACKET".

MLHG (5110 Record)

Typically, a unique Multi-Line Hunt Group is defined for each set of external data bases that contain the same information; therefore, the MLHG field on this form would contain a number associated with each unique MLHG. Also, the QUEUING FEATURE and QUEUE MASTER SWITCH field should be blank since queuing is not used when routing to an external data base.

For access to a AMLB-type external data base, the DATA LINK GRP field on the OSPSDSL form must be assigned to a member defined in the MLHG field on the MLHG form.

XAT (5909 Record)

The XAT form defines parameters for access to an external data base over a DBA T1. A seven-digit number is entered in the PKT TN field of this form. The first five digits of this number should match the first five digits of the LISTED TN field on the MLHG form. Also, the PKT MLHG field of this form must match the MLHG field on the MLHG form. An entry in the LCC field on the XAT form must be defined on the LCC form (5306 Record).

LCC (5306 Record)

This record defines routing and service information for a given Line Class Code. For a DBA T1 data link LCC, the CLASS OF SERVICE field must be "XAT" and the TERMINATING TREATMENT field must be "INDIV".

An LCC for an operator terminal (from the AMLBDSL form) must have CLASS OF SERVICE equal to "TAOPER" and TERMINATING TREATMENT equal to "INDIV".

An LCC for an AMLB-like data link (also from the AMLBDSL form) must have CLASS OF SERVICE equal to "XDB" and TERMINATING TREATMENT equal to "INDIV".

DAS (5300-1 Record)

The DAS from the LCC form must be defined in this record. The DAS form assigns preliminary and primary translation tables for digit analysis. The PDIT and LDIT fields on this form should contain entries for an operator terminal DAS that would correspond to these tables.

PDIT (5300-2 Record)

The PDIT field on the DAS form must be defined on the PDIT form for preliminary digit analysis. Also, the DIGITS TO INTERPRET field should contain an entry for the TN from the DB PKT TN field of the OPDBPARM form. The PDIT form must have the following entries for the following fields: the CALL TYPE field must be set to LDIT; the CDI and RTI fields must be blank; the PREFIX field should be "NONE"; DIGITS TO BE DELETED should be "0".

LDIT (5300-3 Record)

The LDIT field on the DAS form is defined in the LDIT form. This form is used for digit analysis of the Data Packet TN. The LDIT form must have the following entries for the following fields: CALL TYPE as "NORMAL"; TYPE CI CALL as "PSNCI"; RTI should be blank; OFFCOD should contain the NXX entry from the OPBDPARM form; the NBR OF DIGITS field should be the same number of digits as the Data Base Packet TN. Also, INCOMING DIGITS should be entered to ensure that unique treatment is provided to the TN from the DB PKT TN field of the OPDBPARM form and CODE INDEX should have a value that serves as a key to the RAR form (5301 Record).

RAR (5301 Record)

This record determines routing. The SCREEN INDEX from the LCC form, the CODE INDEX from the LDIT form and the PREFIX from the PDIT are the keys into the RAR form. The RTI field should be blank, the NXX field must contain the NXX from the DB PKT TN of the OPDBPARM form and the CHGI field should contain a CHARGE INDEX defined on the CGIDX form (5302-1 Record).

HGRPAS (5115 Record)

This record assigns a routing module to a hundreds group (a group of seven-digit numbers that have the first five digits in common). The OFFICE CODE field on this form should contain the NXX of the Data Base Packet TN from the OPDBPARM form.

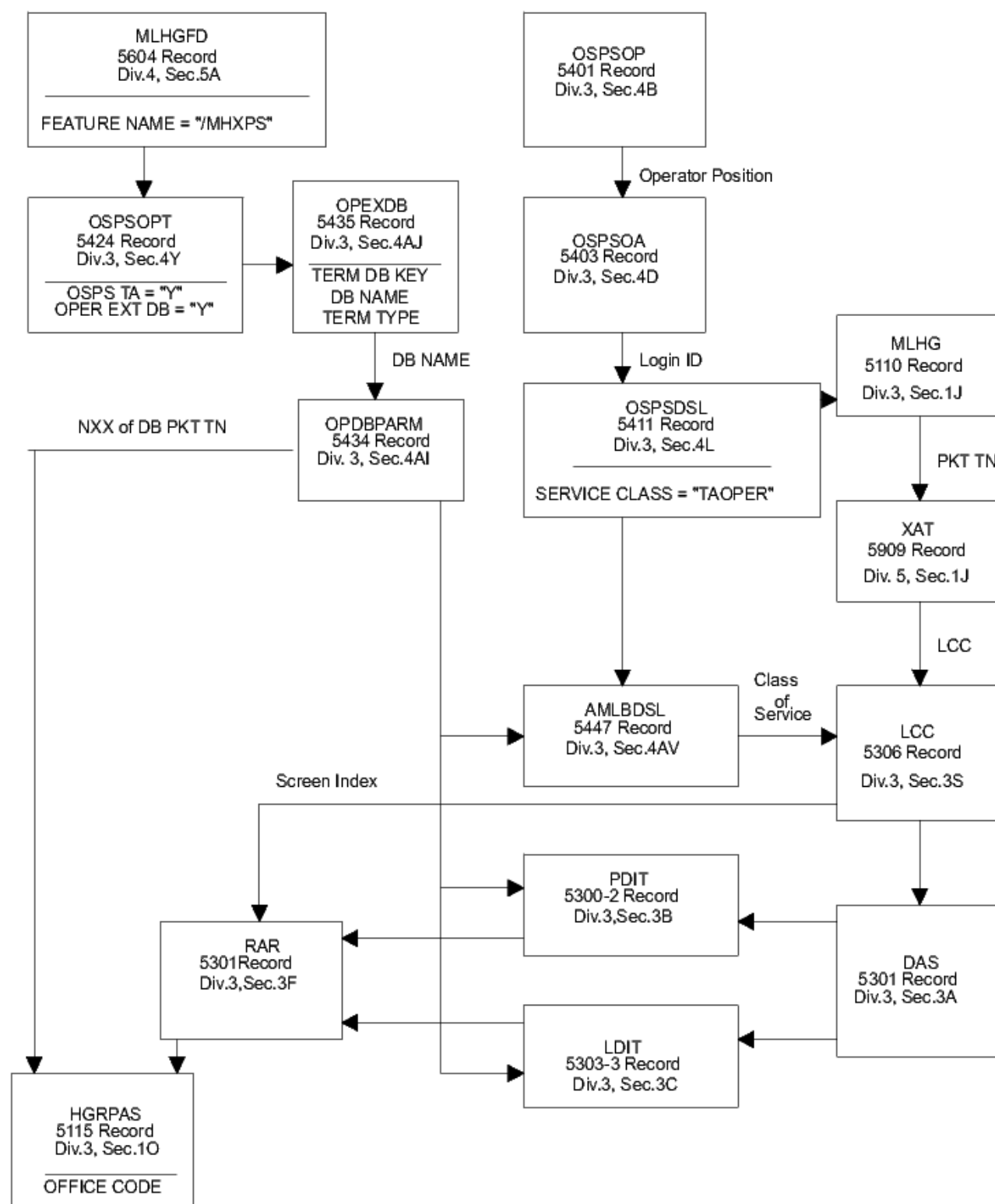


Figure 1 ODA FORM FLOW FOR THE MULTIPLE DATA BASE ACCESS FEATURE

SEC. 3H: OSPS TOLL AND ASSISTANCE FEATURES FOR 5E4(2) SOFTWARE RELEASE

1. INTRODUCTION

OSPS Toll and Assistance provides for operator handling of a call to facilitate collect, person-to-person, calling card and third party billing calls, as well as providing support for automated coin collection, automated calling card service, hotel/motel billing quotation and external rating data bases.

This section provides brief descriptions of the initial capabilities and features which comprise the OSPS TA (Toll and Assistance) features for 5E4(2) Software Release. Each feature is described functionally, from an ODA input form perspective.

All features described in this section are available with the 5E4(2). Division 2, Section 3I describes functionality added to TA for 5E5 and later Software Releases.

2. GENERAL DESCRIPTION

Each OSPS can consist of a maximum of 32 OSC (Operator Services Centers) and 8 FMC (Force Management Centers). An OSC is a physical location comprised of operator positions, service assistant positions, service management terminals and supporting hardware. An FMC is similar to an OSC, but serves to coordinate the OSCs in providing an acceptable grade of service.

2.1 Operator Call Processing

Operators are assigned to serving teams upon login. The ACD (Automatic Call Distribution) function partitions incoming calls into CALL TYPES, enabling the staffed operators to specialize by CALL TYPES and maximize operator efficiency.

OSPS operators are able to perform a variety of functions such as accessing operators in distant manual offices, as well as operators in serving teams within the same OSPS. Operators are able to place a call into the switched network and activate/deactivate their position. Operators can hold calls at their position while consulting with another operator or supervisor or make other calls.

Each OSPS operator position is identified by the combination of an absolute position number and a relative position number. The absolute number (1 through 1023) identifies the position as an OSPS terminal. The relative position number is used to correlate an operator position to a specific OSC. The absolute number and relative position number (used in combination to define an operator position D-port assignment and a position number in an OSC) must be recorded in the data base to provide a "position to port" map for OSC operators and administrators.

An operator is assigned to one of a possible 128 serving teams when logged on at a position and the members of a serving team can be distributed among any or all OSCs.

Calls are entered into queues if no operator is available. An indication is given to all members of a serving team whenever the waiting time of a call exceeds a preset threshold and customer announcements and audible ring are provided. Call origin information (trunk group, dialing sequence, etc.) is automatically indicated to the operator upon position seizure.

Several administrative features are available with OSPS, including monitoring, where OSPS managers may bridge onto a call in progress. Calls can be monitored from these positions in either an undetected or a detected mode.

2.2 Operator Services Center

An OSC (Operator Services Center) is an administrative grouping of operators typically reporting to a "manager of operator services". The operators may work in one or more rooms or multiple OSCs may be defined within one physical room.

OSC offices are equipped with operator positions (VDTs), an OPC (Operator Position Controller), a processing unit, an OAP (OSPS Administrative Processor), a system console, administrative printers and interface circuitry required to allow communications between OSC entities and a 5ESS Switch PSM.

OSPS measurements are periodically provided by 15- and 30-minute traffic reports and 24-hour division of revenue and plant reports. A 15-minute OSPS traffic report and a 24-hour operator report are printed on an administrative printer at an OSC. In addition to the OSPS traffic and operator reports, OSC administrators have access to various status and performance displays. The displays are available at OSPS administrative terminals via the OAP "ospssadm" and "ospsscmd" logins.

2.3 Force Management Center

One or more FMCs (Force Management Centers) are associated with a 5ESS Switch with the OSPS Toll and Assistance feature. A single 5ESS Switch can support up to 8 FMCs. An FMC does not handle calls, but coordinates the OSCs in providing an acceptable grade of service.

An FMC is a physical location comprised of an OAP and system console and may also contain an operator trouble report printer, administrative terminals and printers and a security terminal and printer. The FMC offices are not equipped with operator positions. The FMC communicates with the OSPS through the OPC in one or more OSCs. The FMC collects and analyzes data, such as traffic (call) measurements, serving team and individual operator performance and operator trouble reports. The FMC can send force administration data to the OSPS (through the OPC) to change traffic flow, operator assignments and other parameters.

The OSPS 15-minute traffic report provides performance statistics for the last 15 minutes. The report includes switch-wide totals on a call-queue basis, office totals on FMC ID number basis and processor occupancy on a PSM basis. The statistics include position seizures, various call completions, abandons, average answer delays, average call handling times, overflows, operator occupancy, call handling volume, etc.

The 24-hour operator report provides a summary of the performance statistics for the last 24 hours. The report includes operator call-handling statistics per operator, per serving team, per group manager and per FMC.

The OAP, which must be an AT&T 3B2 computer, is the nucleus of the FMC. The OAP has an internal operating system and application software that permit the FMC to operate independently from the OSPS, except for communication through the OPC. Ports on the OAP provide communication with terminals, printers and remote systems. These peripherals permit independent administration of the OAP and display of reports. The reports include OAP performance, OSPS traffic measurements and operator trouble.

3. OSC/FMC DATA BASE OVERVIEW

The data base must contain administrative parameters for each OSC/FMC defined in the data base. When an OSC/FMC is defined in the database, office administrators must specify these parameters or accept system default values. The OSPS office administrative parameters include the following:

- Display permissions for administrative terminals

- Print permissions for OSPS traffic and operator performance reports
- Transfer permissions for OSC/FMC data
- Residency maps for OSPS serving team members

4. DIGIT ANALYSIS, CARRIERS, AND ROUTING

Digit analysis, carrier selection and routing are three of the basic functions provided by the 5ESS Switch. In setting up the digit analysis and routing data for an OSPS application, several new considerations have to be taken into account. This section will look at some of these facts. It is assumed that the reader is familiar with how digit analysis currently works and how the data used is populated.

The data in the local interpreter defines the valid set of dialed-digits and gives associated routing information. This section summarizes what data is expected for an OSPS and how it differs from a non-OSPS switch.

4.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DAS	5300-1	3	3A	9.1
INDIT	5309	3	3V	9.5
LDIT	5300-3/5	3	3c	9.3
NPAMAP	5414	3	4O	26.1
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
STINFO	5402	3	4C	21.2
TKGRP	5202	3	2A	5.1

4.2 Translation Requirements

TKGRP form (5202 Record) - The starting point for digit analysis is the DAS (Digit Analysis Selector). When a call arrives at an ISP (Intermeditate Switch Point), a TKGRP form contains the DAS and screen index associated with that trunk. On a call for which ISP does digit analysis (e.g., a 0+ call from a non-equal access end office), the trunk's DAS is used. If a call reaches an operator, this same DAS is used for all operator entered numbers, except busy line verification calls.

ISP does not modify the number dialed, so if zero plus seven digits are dialed, the seven-digit number needs to be accepted in the digit analysis data. On the other hand, when an operator enters a directory number, OSPS code will do some preprocessing on that number before digit analysis is done. If the number entered is 7 digits long, the number passed to digit analysis will have an NPA based on the back number prepended. But if an operator enters a 7-digit conference number without a valid back number, then no NPA is prepended.

LDIT form (5300-3/5 Record) - Thus, for an OSPS, a LDIT form must contain data for 7-digit numbers and 10-digit numbers, including those that begin with the home area code. If any N11 numbers will be handled, they must be defined in this data. Because of restrictions on OSPS billing, the CALL TYPE for these N11 numbers should be other than "NORMAL".

Another type of number that uses the same DAS is a route number. An operator entered route number is used to reach another operator or an automated process at a different site. To be accepted, the CALL TYPE for a route number must be either "OPINW" or "AUTINW", for operator inward and automated inward, respectively and must be distinguished from a number that a customer is allowed to dial. The possible formats for domestic route numbers are: NPA-TTC-OSDC, NPA-OSDC, TTC-OSDC and OSDC, where TTC stands for

Terminating Toll Center Code. A route number to an international operator center is of the form 160-CC, while an international route number is of the form CC-OSDC, where CC stands for a 1-3 digit Country Code. Both an NPA and a TTC are 3 digits long, with the first digit of a TTC always zero. An OSDC (Operator Special Dial Code) always starts with a one and can be 3, 4 or 5 digits long. These facts have an impact on what data the digit translators must contain.

If an operator is not allowed to use 4-digit OSDCs, then distinguishing a number of the form NPA-TTC-OSDC from NPA-NXX-XXXX is simple. The LDIT form can separate the two because the former has a length of either 9 or 11 digits, while the latter is always 10-digits long. However, if 4-digit OSDCs are allowed, the situation is more complicated. At least 4 digits need to be translated for each NPA, since a zero fourth digit in a 10-digit number indicates a route number, while any other digit from 2 to 9 indicates a normal directory number. The conflict resolution table on a LDIT form would then need entries for NPA-0 with the number of digits equal to 9, 10 and 11. If the NPA-OSDC form of a route number is also allowed, then a minimum of 4-digit translation is still needed, since a fourth digit of one means that this route number has been found. The LDIT form would then have entries for NPA-1 with the number of digits equal to 6, 7 or 8. See Figure 1 for a summary of this information.

The discussion above depends on not having any NPA, NXX conflicts. If there is such a conflict, it would be impossible to represent both an NPA-OSDC with a 4-digit OSDC and NXX-XXXX. For example, using an OSDC of 1158, does 312-1158 represent a local directory number or is it an inward code to NPA 312? This problem of meaning is decided by how the CALL TYPE is set for this 7-digit number. Numbers of the form TTC-OSDC and OSDC do not present the same problems, although using them does add additional data to the translators in the local and conflict tables.

OSPSOPT form (5424 Record) - When an operator tries to complete a busy line verification call, the DAS and screen index referred to above are not used. The BLV DIGTREE STRT field on the OPSOPT form contains the DAS of interest and the BLV SCREEN IDX field contains the screen index.

STINFO form (5402 Record) - On an operator-initiated call, a conference number or a route number can be entered and routed to without a back number. When this occurs, the DAS and screen index used come from a STINFO form. Note that the SEC DAS found in the STINFO form is used by OSPS Directory Assistance only.

NPAMPA form (5414 Record) - On an operator initiated call with a valid back number, the NPAMAP form is consulted to see what trunk a call from that back number would arrive on. The DAS and screen index associated with that trunk, found on a TKGRP form is used for digit analysis and routing. If the NPAMAP form shows that the entered NPA-NXX is for termination only or if the NPA-NXX is not found, then that number is not allowed as a back number.

OPRTK form (5417 Record) - Assuming the back number is allowed, a OPRTK form is used to determine what the default carrier is, based on the trunk group number, on the NPAMAP form.

INDIT form (5309 Record) - While there is an INDIT form and an LDIT form associated with the DAS for the incoming trunk, it is expected that the INDIT form will be set up to delete no digits and pass control to the primary translator. This is the case because the CALL TYPES handled by OSPS are found only in the primary translator. It is assumed that the preliminary and primary translators contain appropriate routing data when the carrier is the switch owner.

OPRTK form (5417 Record) - A screen index is also found in an OPRTK form. This index is used by ISP and OSPS if a call is to be transferred out to another carrier's operator system.

5. ANNOUNCEMENTS - DSU2-RAF

OSPS Toll and Assistance announcements are provided by DSU2-RAF hardware in which TA announcement firmware has been downloaded. TA announcements are further broken down into Coin Announcements and DTA (Dial Through Announcements).

Coin announcements are provided by DSU2-RAF firmware with CTR (Coin Tone Receivers). DTA announcements are provided by DSU2-RAF firmware with Dial Through Announcement capabilities.

The following sections will cover the hardware and ODA input forms needed to configure an OSPS office with the ability to provide TA announcements.

5.1 OSPS Announcement Hardware

TA announcements are both provided by the DSU2-RAF (Digital Service Unit Model 2 - Recorded Announcement Function) hardware. This hardware consists of the DSU2-RAF circuit board (TN833) and the associated DSU2-RAF memory board (TN1053). It is on the memory board that the announcements are stored. Access to announcements are through predefined trunk groups and associated trunk group members. TA calls that require an announcement are routed to the trunk group associated with the type of announcement needed.

Data for OSPS announcements are divided into three general categories: Announcement Data, RAF Hardware Equipage Data and Routing - Trunking Data. The following sections will describe how data should be populated in each of these areas for TA offices.

5.2 RAF Announcement Data

Announcement Data uses six ODA forms, which are listed below. All six forms must be populated for TA offices.

5.3 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNAPL	5529	3	5AF	8.64
ANNDG	5532	3	5AF	8.60
ANNHD	5531	3	5AE	8.61
ANNTR	5533	3	5AG	8.62
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

5.4 Translation Requirements

ANNAPL form (5529 Record) - The ANNAPL form allows an office to define the SMs requiring TA announcements. SMs in this list must contain RAF hardware and equipage data for DTA and/or COIN. They must also be "LOADED" SMs (i.e., the CONFIGURATION field on the EQIM form is set to "LOADED").

ANNHD form (5531 Record),

ANNDG form (5532 Record),

ANNTR form (5533 Record),

PHRASE form (5534 Record) - The ANNHD, ANNDG and ANNTR forms all use phrase IDs which have been defined on the PHRASE form. Note that ODA will automatically populate a default set of ANNHD, ANNDG, ANNTR and PHRASE forms for OSPS, if the ANNAPL form is populated with OSPS application data.

OSPSOPT form (5424 Record) - The OPSOPT form defines ACCS and SAB-1 announcement options as specified below.

- **BRAND PHRASE** - enter "Y" when a "branding phrase" is to be used to indicate the carrier for a call. When BRAND PHRASE is "Y" a "branding phrase" is given whenever the carrier of a call is the same as the carrier of the office. Enter "N" when no "branding phrases" are to be given. The default value is "Y".
- **INIT THANK YOU** - enter "Y" when a "thank you" announcement for initial credit card validation should be given. The default value is "Y".
- **SEQ THANK YOU** - enter "Y" when a "thank you" announcement for sequential credit card validation should be given. The default value is "Y".

PHRASE form (5534 Record) - Two "Thank You" announcements may be given:

- Header ID 5 - "Thank You" [BRAND PHRASE="N"]
- Header ID 16 - "Thank You for using [branding phrase]" [BRAND PHRASE="Y"]

An office may define its branding phrase to be one of those listed on in Division 3, Section 5AH, the PHRASE form under the application OSPSTA starting with phrase 00183. Therefore, the second phrase of header 16 in ANNHD may change depending on the branding phrase used.

5.5 RAF Hardware Equipage Data

The Equipage Data is populated on two ODA forms which are listed below. Both forms must be populated for TA offices.

5.6 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQRA	5821		35	19.10
EQRAP	5822	8	36	20.10/20.22

5.7 Translation Requirements

EQRA form (5821 Record) - The EQRA form defines the physical location where the DSU2-RAF hardware is located along with the type of application (i.e., DTA, CTR) that will be downloaded by the SM.

EQRAP form (5822 Record) - EQRAP defines the application along with the associated micro-code.

5.8 RAF Routing And Trunking Data

Routing and Trunking Data consist of four ODA forms which are listed below. All forms must be populated for TA offices.

5.9 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FIXRT	5301-1	3	3G	10.1
RTIDX	5303	3	3P	10.2
TKGRP	5202	3	2A	5.1

TRUNK	5204	3	2C	5.5

5.10 Translation Requirements:

FIXRT form (5301-1 Record) - The FIXRT form uses a FIXED ROUTE TYPE of "ROACCS" or "ROCOIN" to obtain the associated fixed route index.

RTIDX form (5303 Record) - The route index is then used on the RTIDX form to obtain the trunk group number needed to access TA announcements.

5.11 Stuffing Pattern

A staggered stuffing method is used to assign the 20 DTA RAF ports or 20 COIN RAF ports. This method involved three stuffing patterns for assigning RAF port (and the associated trunk members). No assignments are made to ports 0 or 31 in either of the three patterns. The purpose of the stuffing patterns is to allow 3 DTA RAF units to only use a total of 2 timeslots at any one time. This is an effort to efficiently use TSI timeslots. The stuffing patterns for assigning RAF DTA and COIN ports are provided below:

5.11.1 Stuffing Pattern 1

2,3,5,6,8,9,11,12,14,15,17,
18,20,21,23,24,26,27,29,30

5.11.2 Stuffing Pattern 2

1,3,4,6,7,9,10,12,13,15,16,
18,19,21,22,24,25,27,28,30

5.11.3 Stuffing Pattern 3

1,2,4,5,7,8,10,11,13,14,16,
17,19,20,22,23,25,26,28,29

6. AUTOMATIC MESSAGE ACCOUNTING RECORD DETERMINATION

OSPS AMA (Automatic Message Accounting) records are generated at the end of a call. The determination of making an AMA record, the CALL TYPE and the structure code is based on the information in the call record, i.e., it is based on what the operator and the customer did on the call.

6.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AMACT	5506	3	5F	10.12
OSPSOPT	5424	3	4Y	8.9
TKGRP	5202	3	2A	5.1

6.2 Translation Requirements

OSPSOPT form (5424 Record) - The normal criteria for making an AMA record are those in effect when

blocked Calling Card Service call recording (OSPSOPT form - BCCSC REC), inward call recording (OSPSOPT form - INW C REC), special antifraud studies recording (OSPSOPT form - ACCSQ REC), sampling (OSPSOPT form - SAMPLE N) or routing number recording (OSPSOPT form - ROUTE REC) have not been turned on.

6.3 Blocked CCS Call Recording

Recording of blocked Calling Card Service calls can be turned on by the TCA (Telephone Company Administration) via Recent Change. This shall result in an AMA record for each Calling Card call blocked because of unsuccessful validation attempts. Calls that are blocked because the Calling Card is a restricted PIN Calling Card and the forward number dialed does not match the Calling Card number are not AMA recorded under Blocked CCS Call Recording.

6.4 Special Antifraud Studies Recording

Per-Calling Card Service query antifraud studies recording can be turned on by the TCA via Recent Change. This shall result in an AMA record for each failed reply to a CCS validation query, i.e., for decimal reply codes 2 (NPA-NXX or RAO-0/1XX is a vacant code), 8 (Billing number not valid for Calling Card Service), 9 (Service denial in effect for valid Calling Card billing number) and 10 (No PIN match for valid Calling Card billing number).

If both types of fraud studies are turned on, at most two AMA records shall be made, one at the failure of the first CCS query and one at the failure of the second and final CCS query. The structure code of the record made shall be determined in the normal way. In all cases, the reason for the failure shall be recorded in the ^Billing Number Failure field and the elapsed time field of these AMA records shall contain zeros. The AMA CALL TYPE shall be Station Special Calling.

6.5 Sampling

One out of N sampling can be activated through Recent Change, where N is a digit from 1 to 99. This means that as long as the OSPS AMA formatter function is called, within each SM, every Nth OSPS call is AMA recorded, regardless of any other considerations. A value of 2 is set in the Service Observed/Traffic Sampled field of the associated AMA record. If a call is not the Nth call, then the decision about whether or not to make a record follows its normal course.

The "Nth" OSPS call is "Nth" with respect to a given SM, but may not be "Nth" with respect to the switch as a whole. However, in the aggregate, the number of sampled OSPS calls would be 1/N times the total number of OSPS calls reaching the switch. Route Number Recording can be turned on by the TCA via Recent Change. This shall result in a Special Service Call AMA record being made for the inward call initiated by the OSPS operator via the ROUTE# key. The number entered in the ROUTE# field shall be recorded in the Special Service Call AMA record. "Inward call" in this case means the call from the OSPS to an external operator system.

If the OSPS operator also enters a special service code (through the BLG CODE key), only one special Service Call AMA record is made.

6.6 Inward Call Recording

Inward Call Recording can be turned on by the TCA via Recent Change. This shall result in a SSC (Special Service Call) AMA record being made for the inward call served either automatically by the OSPS or manually by an OSPS operator. A specific per-office "billing code" or "special service code" is recorded in the SSC AMA record. Any "billing code" entered by an OSPS operator will simply replace this specific per-office value in the

SSC AMA record. The (incoming) inward code is stored in the Originating Number field of the SSC AMA record.

TKGRP form (5202 Record) - A carrier must be specified on a TKGRP form for each incoming trunk that can handle inward traffic from a carrier. This carrier will be used in creating the AMA record when INWARD AMA recording is on.

OSPSOPT form (5424 Record) - INWARD AMA recording is turned on by setting the INW C REC field on the OPSPOPT form to a specified billing code. Any billing code may be used that the office chooses. This billing code will be used on every INWARD call the OSPA receives.

The billing code used for the INWARD calls may be changed by the operator on a per-call basis whether INWARD AMA recording is on or off. If INWARD AMA recording is off, an AMA record will be created for each call where an operator manually enters a billing code. If INWARD AMA recording is on, an AMA record will not be created for any call where an operator manually deletes the billing code.

6.7 Call Type Determination

AMACT form (5506 Record) - Once an AMA record is decided to be made, a CALL TYPE, which is specified on the AMACT form, is determined for the call based on various information.

7. LATA MAPPING

LATA mapping introduces another step in digit analysis at which a dialed number can be classified as interLATA or intraLATA. LATA mapping is based on comparing the LATA number associated with a called number to that for the calling number. It is expected that this will be of use when there is only one local interpreter populated, but it is still desired to determine if a call is interLATA or intraLATA. LATA mapping can be turned on or off and only has an effect when the local interpreter shows a number to be non-carrier interconnect.

7.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LDIT	5300-3/5	3	3c	9.3
NPAMAP	5414	3	4O	26.1
OSPSOPT	5424	3	4Y	8.9

7.2 Translation Requirements

OSPSOPT form (5424 Record) - The LATA MAP field on the OPSPOPT form indicates if LATA mapping is desired or not. When this field is set to "Y", LATA mapping is done by ISP and OSPA on forward numbers only and will only have an impact if the digit analysis data indicates a call is non carrier interconnect.

NPAMAP form (5414 Record) - The NPAMAP form is checked with the back number to determine the originating LATA number. The LATA number used on the NPAMAP form should always be between 2 to 15 if LATA mapping is used. This LATA number is compared with the TERM LATA number for the forward number found on the LDIT form. If the originating and terminating LATA numbers are the same, then the call is treated as intraLATA; otherwise, it is interLATA.

7.3 Other Details

In the local interpreter, a LATA number of 1 represents an area outside of the area served by this OSPA.

If exception area mapping is also done, it takes place after LATA mapping. This means that it is possible for the type of carrier interconnect to come into LATA mapping as non-carrier interconnect, to change to interLATA and then change again to intraLATA by exception area mapping.

If turned on, ISP does LATA mapping before it selects the carrier from an OPRTK form. However, ISP will not do this mapping for calls coming from a conforming end office.

It is expected that this feature will be used in a toll owned OSPS which only has one local interpreter, but which still desires to determine if a call is interLATA or intraLATA.

8. EXCEPTION AREA MAPPING

Exception area mapping is used to determine if a call can be treated as intraLATA even if it crosses LATA boundaries. This occurs when a call originates in an exception area and terminates in a corresponding exception area. This feature may be turned on or off and requires additional data population. It is expected that an OSPS owned by a local carrier is more likely to use this capability than one owned by an interLATA carrier.

8.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EXMAP	5440	3	4BL	26.32
NPAMAP	5414	3	4O	26.1
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9

8.2 Translation Requirements

OSPSOPT form (5424 Record) - The EXCEPT DETRM field on the OPSPOPT form indicates whether or not exception area mapping is desired. A call that originates in one LATA and terminates in another, but that can be treated as if an intraLATA call can be detected by ISP and OSPS via exception area mapping. If the parameter is set to "Y", this mapping is done as part of digit analysis for forward numbers only before deciding that a call is interLATA or non carrier interconnect.

OPRTK form (5417 Record) - Using the trunk group that the call arrived on, the OPRTK form is checked to see if there are any originating exception areas served by that trunk.

NPAMAP form (5414 Record) - If there exception ares, then the back number's NPA-NXX is used as the key to an NPAMAP form to see if the call originated in an exception area. If that back number is in an exception area, then the forward number is used as the key to NPAMAP to see if this call will terminate in an exception area.

EXMAP form (5440 Record) - Finally, if both ends are in exception areas, the EXMAP form is checked with the exception area indexes for the back and forward numbers to see if these are corresponding areas so that the call can be treated as a complete (exception area) call; otherwise, the type of carrier interconnect is not changed.

8.3 Other Details

LDIT form (5300-3/5 Record)

NPAMAP form (5414 Record) - For some numbers, there are two places where a LATA number can be

found: a NPAMAP form and a LDIT form. When LATA and exception area mapping are both done, a sanity check of the LATA numbering is done. If a forward number is found on a NPAMAP form, then the ORIG LATA number in that form is compared to the TERM LATA found on the LDIT form. If these do not match, the inconsistent data is reported to the craft.

OPRTK form (5417 Record) - If ISP does exception area mapping, it occurs before the carrier is selected from an OPRTK form. However, ISP will not do this mapping for calls coming from a conforming end office.

NPAMAP form (5414 Record) - A NPAMAP form need only contain data about the area served by the OSPS and about exception areas that can be routed to from this service area. Data about other areas is not expected.

9. CARRIER SELECTION

To route any call, a carrier must be used. This carrier may be the local exchange carrier, an interLATA carrier or an international carrier. For an OSPS call, the carrier selected depends upon two factors: what connection is being processed and how the data is set up.

9.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CDIM	5300-6	3	3E	9.7
DNNTWK	5419	3	4T	26.20
ICF	5305	3	3R	10.3
OCNTWK	5420	3	4U	26.21
OFCOPT	5509	3	5I	8.1
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9

9.2 Translation Requirements

OPRTK form (5417 Record) - When a call is passed off to OSPS software, the ISP (Intermediate Switch Point) has already selected a carrier for the call, based on the signaling and/or digit analysis, using the carrier data specified in an OPRTK form. If the call is handled without operator intervention (e.g., an Automated Calling Card Service call), then the carrier selected by ISP is the one used and cannot be changed. If the call does reach an operator, the carrier selected by ISP is displayed to the operator. If the operator enters a forward number (or changes the one dialed), digit analysis is done on this new number, still using the carrier displayed to the operator. If that carrier cannot handle the call and if the OPRTK form associated with the incoming trunk shows carrier selection enforcement as off, then a default carrier is tried. The default interLATA and international carrier for a forward number are both specified in the OPRTK form.

ICF form (5305 Record) - The LEC SERVICE field on the ICF form for the carrier must be set to "Y". The default intraLATA carrier for a forward number is the Local Carrier. If carrier selection enforcement is on, then no carrier change will be done.

DNNTWK form (5419 Record) - The carrier, either the local or an interLATA carrier, for an operator entered forward third, back third or conference number is found in a different way. A DNNTWK form is checked, based on the NPA-NXX entered, to see if a specific carrier is wanted for this call. If such a carrier is listed, it will be used. If there is no entry in that form for the NPA-NXX, then the call will try to use the switch owner as the carrier.

OSPSOPT form (5424 Record) - If the third or conference number needs an interLATA carrier and the carrier set above is not of that type, the carrier specified in the CONF field on the OSPSOPT form (conference

carrier) is used. To be used, the carrier selected does not have to have operator services supplied to them by this OSPS (i.e., LEC SERVICE does not have to be set to "Y").

OCNTWK form (5420 Record) - If an operator entered route number is floatable (i.e., the operator can drop off the call and leave the back and route parties talking), then the carrier used must be the same as the one used for the forward number. The carrier for an operator entered non-floatable domestic route number is found in a way similar to the way a third number carrier is selected. First the OCNTWK form is consulted to see if a specific carrier is wanted. If there is no entry, the switch owner is tried.

OSPSOPT form (5424 Record) - Finally, if an interLATA carrier is needed and the carrier set above is not of that type, then the carrier specified in the ROUTE field on the OPSOPT form (route carrier) is used. For an international route number, the carrier specified in the INTL ROUTE field on the OPSOPT form (international route carrier) is used. The carrier selected for a non-floatable route number does not need to have operator services supplied to them by this OSPS.

There are other relationships that exist between CI (Carrier Interconnect) type and the carrier that can be used for a call. Figure 2 summarizes these relationships, including information about where the routing data is found and the difference in meaning for a toll owned versus a locally owned OSPS.

9.3 Other Details

When a call is routing out of an RSM to a carrier, other data must be set so that RSM routing is done. See the description of RSM routing for further details on this.

When a service access code number is entered (e.g., 800-NXX-XXXX), the carrier to use is specified in the digit analysis data. As long as the other requirements for using a carrier are met (carrier valid, LEC SERVICE set to "Y", RSM routing done, carrier selection enforcement not violated), this carrier will be used. A transition forward number (e.g., 950-1XXX) is treated in the same way.

OSPSOPT form (5424 Record) - The OFFICE TYPE and OFFICE CARRIER fields on the OPSOPT form are used in carrier selection and must be set according to who owns the OSPS. If this is a LEC OSPS, then the OFFICE TYPE field on the OPSOPT form should be set to "N" and the OFFICE CARRIER field set to zero; otherwise, OFFICE TYPE should be "Y" and OFFICE CARRIER should be set to the carrier ID of the switch owner.

ICF form (5305 Record) - On an OSPS owned by an interLATA carrier, an ICF form must still be filled out for the switch owner. While the routing data found on that form is not used, the form's presence is still required so that the carrier is known as being valid and so that the operator's display can correctly show it. Routing data when the owner is used comes from the local interpreter. The fields from the ICF form which are used are CARRIER TYPE, ACCESS TYPE, DIG ROUTING, INTRA LATA, CARRIER NAME and LEC SERVICE.

CDIM form (5300-6 Record) - An CDIM form can be used to modify the routing data found in an ICF form. This form can be used to provide a new carrier route index and carrier code index. If DIG ROUTING in the ICF form is set to "Y", then the carrier related routing forms are used in the following order: ICF form first, RSMCAR form next and then the CDIM form; the last two only if appropriate.

10. RSM ROUTING

When an OSPS call originates from a trunk group member on an RSM, the call should complete to another trunk on that RSM. OSPS uses the data on the LDIT form (5300-3 Record), ICF form (5305 Record), and/or the RSMCAR form (5421 Record) to support this.

10.1 LEC Or Interexchange Carrier OSPS Owner

When the carrier for an OSPS call is LEC or the Interexchange carrier that owns the OSPS, routing data from the ICF form or RSMCAR form is not used. The RSM routing of these calls is made possible by assigning a unique screen index to the originating trunks on the RSM, or RSM cluster. The unique screen index is assigned on the TKGRP form (5202 Record). Specific RSM routes can then be defined in the RAR form, based on the code index from the LDIT and this unique screen index.

10.2 Interexchange Carrier Other Than Switch Owner

When the carrier for an OSPS call is an Interexchange carrier other than the switch owner, routing data from the RSMCAR form for this RSM is used in place of the routing data from the ICF form. This allows for RSM specific route and code indexes to be defined. In addition, data can be defined to indicate if the OSPS serves this carrier from the RSM and if intraLATA calls can be completed using this carrier on this RSM. However, the DIG ROUTING, CARRIER TYPE and ACCESS TYPE fields from the ICF are still used. If an RSM is in a different LATA from the host switch, then a separate DAS and LDIT for the RSM should be used.

10.3 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ICF	5305	3	3R	10.3
LDIT	5300-3/5	3	3c	9.3
RSMCAR	5421	3	4V	26.22

10.4 Translation Requirements

RSMCAR form (5421 Record) - This record defines the routing indexes to a carrier from an RSM (Remote Switching Module). When the carrier for an OSPS call is an Interexchange carrier other than the switch owner, routing data from the RSMCAR form for this RSM is used in place of the routing data from the ICF form. When the carrier for an OSPS call is LEC or the Interexchange carrier that owns the OSPS, routing data from the ICF form or RSMCAR form is not used; RSM routing is supported with the LDIT and RAR forms.

LDIT form (5300-3/5 Record) - The LDIT form is used to define all area, office, and service codes in a 5ESS Switch. If an RSM is in a different LATA from the host switch, then a separate DAS and LDIT for the RSM should be used. When the carrier for an OSPS call is LEC or the Interexchange carrier that owns the OSPS, specific RSM routes can be defined in the RAR form based on the code index from the LDIT and a unique screen index.

RAR form (5301 Record) - This form is used to define the routing and charging for each Code Index and Screening Index combination in the 5ESS Switch. When the carrier for an OSPS call is LEC or the Interexchange carrier that owns the OSPS, specific RSM routes can be defined in the RAR form based on the code index from the LDIT and a unique screen index.

11. EXTERNAL TRANSFER

When a call is at the operator's position, it can be transferred to either a turnback announcement or to the operator system of another carrier.

11.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

DIOPR	5418	3	4S	26.25
OPRTK	5417	3	4R	26.26
OSPSCT	5404	3	4E	21.22
RAR	5301	3	3F	10.10

11.2 Translation Requirements

OSPSCT form (5404 Record) - If an operator wants to send a call to a turnback announcement, the keying sequence is transfer key, digit 1, send. The BACK ANNC RTI field on an OSPSCT form contains the route index used to route this call.

The operator can also send a call to an external operator system using the keying sequence of transfer key, digit zero, send. If a valid but unserved carrier is currently displayed to the operator, then the call is sent to that carrier's operator system.

OSPSOPT form (5424 Record)

OPRTK form (5417 Record)

DIOPR form (5418 Record) - If there is not a valid carrier displayed, then the carrier specified in the ICOS field on the OPSOPT form is the carrier which will be used. The route index used to route this call out is found on the RAR form, based on the triple key of prefix, screen index and code index. For a transfer, a prefix of none is always used. The screen index for this transfer is found in the OPRTK form, based on the trunk that the call arrived on. The code index used is based on the carrier that the call is destined for. Using this carrier, the primary code index is found on a DIOPR form.

11.3 Other Details

For transfer to a turnback announcement to work, the route index found above must lead to a 13A announcement machine trunk group.

12. CENTRALIZED AMA CALLS

There are three types of CAMA (Centralized AMA) calls to consider. The first type is a transfer CAMA call, which is a call that needs operator service and arrives from a CAMA office. The second and third types are system CAMA calls. These are routed to the OSPS either over CAMA trunks or over operator trunks. Each of these possibilities is discussed further below.

12.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	3M	26.10
EQDSP	5740	8	21	20.5
OSPSOPT	5424	3	4Y	8.9
TCITG	5422	3	4W	26.23
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

12.2 Translation Requirements Incoming Transfer CAMA Calls

Incoming transfer CAMA calls are calls from a CAMA office to an OSPS that need operator service for CAMA ANIF/ONI calls. Each incoming transfer CAMA trunk consists of two trunks:

- Keying Trunk (Trunk Class "TCIKT")
- Talking Trunk (Trunk Class "TCITT")

Each CAMA office will have two trunk groups to the OSPS for transfer CAMA service; one will have all keying trunks and the other will have all talking trunks. A keying trunk and its corresponding talking trunk should have the same trunk group member number and must terminate on the same SM in the OSPS.

TCITG form (5422 Record) - When an incoming transfer CAMA call arrives, the OSPS returns an alerting tone to the calling party if ALERT TONE is specified as "Y" on the TCITG form for the two trunk groups associated with the CAMA office. There are two different signaling protocols between the CAMA office and the OSPS. If the trunks are analog loop trunks, SIGNAL TYPE should be specified as "1" on the TCITG form. If the trunks are analog E&M trunks, SIGNAL TYPE should be specified as "2". If the trunks are digital trunks, SIGNAL TYPE can be either "1" or "2" depending on the CAMA office end. If the CAMA office is a 5ESS Switch, the SIGNAL TYPE should be "2".

ACDCTP form (5412-A/D Record) - For this call to reach an operator, there must be an entry for transfer CAMA in an ACDCTP form. This entry associates a call queue with transfer CAMA calls. The entry must have an ORIGIN CALL of "XFER", a PREFIX of "NULLP", a COIN indicator of "N" and a CARRIER of "DC". Based on the call queue, a serving team to handle the call is selected.

TCITG form (5422 Record) - If the OSPS operator enters a trouble number while handling an incoming transfer CAMA call, the OSPS will transmit a 7-digit NXX-YYYY to the CAMA office, where NXX is specified in OTR OFFICE on the TCITG form for the associated trunk groups. YYYY is the associated trunk group member number.

EQDS2P form (5740 Record) - The SM that terminates an incoming transfer CAMA trunk should have a DSU 2 - LDSUF unit and it should have a number of CAMA tone decoder circuits in both service groups of the DSU 2 - LDSUF unit of the same SM. CAMA tone decoder circuits are specified with circuit type of "LDSU2CTD" on an EQDS2P form. CAMA tone decoder circuits are used to decode the tone from a CAMA to identify whether the call is due to ANIF or ONI.

12.3 Other Details

Incoming Transfer CAMA calls should not terminate on a SM which has only a DSU 1 since a DSU 1 cannot provide CAMA tone decoder circuits.

13. SYSTEM CAMA CALLS ON CAMA TRUNKS

System CAMA calls on CAMA trunks are CAMA calls from a local office to a CAMA office. Incoming CAMA trunks are identified with the TRKCLS field set to "CAMAANI" or "CAMAONI" on a TKGRP form. CAMA calls are billed by the CAMA office. In order to bill a call, the calling number is required. Operator service is required to obtain this calling number from the calling party if the calling number is not available to the CAMA office. If the incoming CAMA trunk is marked as "CAMAANI", operator service is required for a call from this trunk if there is an ANIF (Automatic Number Identification Failure) or the call originates from a multiparty telephone. If the incoming CAMA trunk is marked as "CAMAONI", the operator is required for all calls, since the local office is unable to forward the calling number to its CAMA office.

When OSPS and CAMA are in the same 5ESS Switch, operator service for system CAMA calls on CAMA trunks can be provided by OSPS operators in the switch. This can be activated by setting OSPS TA to "Y" and TRANS OFC to "N" on the OSPSOPT form. When a CAMA call that requires operator service is received, CAMA software uses the values entered in these two fields to see whether OSPS operators in the switch can provide operator service. If so, it transfer control to the OSPS software. When an OSPS operator enters the calling number, OSPS software verifies that the calling number's NXX is specified on the TKGRP form before accepting the calling number.

For this call to reach an operator, there must be an entry for system CAMA on an ACDCTP form. This entry associates a call queue with system CAMA calls. The entry must have an ORIGIN CALL of "SYS", a PREFIX of "NULLP", a COIN indicator of "N" and a CARRIER of "DC". Based on the call queue, a serving team to handle the call is selected.

13.1 Other Details

If this feature is not activated, operator service for system CAMA calls on CAMA trunks shall be provided by an external operator system over outgoing transfer CAMA trunks. The outgoing transfer CAMA trunks are identified with the TRKCLS field set to "CAMOPKEY" or "CAMOPTLK" on a TKGRP form. But when the operator service for these calls are provided by OSPS operators in the same switch, there is no need to have outgoing transfer CAMA trunks.

14. SYSTEM CAMA CALLS ON OPERATOR TRUNKS

CAMA calls are sometimes routed across operator trunks instead of CAMA trunks for economic reasons. OSPS handles four types of system CAMA calls that are routed on operator trunks:

1. System CAMA calls with good ANI
2. System CAMA calls that are ANIF or ONI
3. Calls that are possibly System CAMA, but definitely ANIF/ONI with a 1+ prefix
4. Calls that are possibly System CAMA, but definitely ANIF/ONI with no prefix

The ACDCTP form is used to determine the call queue. There must be an entry with the CALL ORIGIN set to "SYS" to represent system CAMA and the value for CARRIER is either "LEC" or "IC", COIN ("Y" or "N"), an OSPS ID of "0" and PREFIX of "1" to represent how the call was dialed. Based on this valid CALL TYPE (or queue), a serving team to handle the call is selected.

15. DARK CALLS

A DARK call is a call that ISP has handed off to OSPS (i.e., ISP is resident with OSPS) after an ANI (Automatic Number Identification) transmission failure has occurred. The station type of the calling party or the dialed prefix cannot be determined because of the transmission failure. OSPS attempts to identify the station type and dialed prefix for these calls based on trunk markings in the ODD (Office Dependent Data). As a result, the calls may arrive at OSPS-TA positions minus station type information (the station type is "UNKNOWN") or minus the dialed prefix or minus the station type and dialed prefix. Most commonly, DARK calls (calls minus dialed prefixes or station types) arrive on DP (Dial Pulse) supercombined or combined trunks.

15.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	3M	26.10
OPRTK	5417	3	4R	26.26
PRONXX	5413	3	4N	26.13
TRUNK	5204	3	2C	5.5
VALOFFC	5423	3	4X	26.24

15.2 Translation Requirements

When a DARK call is received by OSPS, the treatment of the call is dependent on the trunk type. The following are descriptions of treatments given to DARK calls detected on various trunk types.

- Dedicated - The prefix is determined in OSPS by the examining the trunk type such as dedicated dial 0, dedicated dial 0+, dedicated 1+.
- Combined (DIAL TYPE on the OPRTK form is "COMB") -
 - Station type - The station type can be determined by looking at the ACQS screening (ACQS ID on the OPRTK form) and the COIN (COIN on the OPRTK form) attributes for the given trunk. If the ACQS screening is set to dedicated (ACQS ID on OPRTK is "DED"), the station type will be set to ACQS. Else if the COIN indicator is set to "Y" on OPRTK, the station type will be set to "COIN". Else the station type is set to "NON-COIN".
 - 0- The absence of dialed digits determines that the prefix is 0-
 - 0+ and 1+ The presence of digits could indicate 0+ or 1+ traffic so no prefix will be displayed to the operator
- Super_combined (DIAL TYPE on the OPRTK form is "SUP") -
 - Station type - The station type cannot be determined since the trunk carries both COIN and NON-COIN traffic. However, if the trunk is dedicated to ACQS (ACQS ID is "DED") traffic, the station type will be set to "ACQS"
 - 0- The absence of dialed digits determines that the prefix is 0-
 - 0+ and 1+ The presence of digits could indicate 0+ or 1+ traffic so no prefix will be displayed to the operator

ACDCTP form (5412-A/D Record) - In order for the DARK calls to reach OSPS and receive the proper treatment, the ACDCTP form must contain entries for each of the following conditions:

CALL ORIGIN = ISP
 PREFIX = NULLP
 COIN = Y,N
 OSPSID = 0
 CARRIER = IC, LEC

OPRTK form (5417 Record) - The START PULSE field on the OPRTK form must contain a default start pulse. If the call is to be turned back by ISP, this field should set to "TURNBACK"; otherwise, it is routed with the default start pulse if OSPS is external to ISP. If ISP is resident with OSPS and a start pulse is provided, the call will then be recognized by the internal OSPS as a DARK call. The CALL TYPE displayed on the VDT is a valid station type determined from the DIAL TYPE and COIN attributes on the OPRTK form or UNKNOWN (if the station type is indeterminate).

VALOFFC form (5423 Record) - When a back number is entered on an ANIF call, the VALOFFC form is checked to see if the NXX of the back number is valid for the trunk upon which the call arrived.

OPRTK form (5417 Record) - The OPRTK form is checked to make certain that the NPA entered is correct.

PRONXX form (5413 Record) - If there are protected NXXs served by the incoming trunk, the PRONXX form is checked for the true NPA. If none is found on the PRONXX form or if there are no protected NXXs, then the NPA must be found on the OPRTK form.

16. DELAY CALLS

Delay calls are calls that are placed from OSPS-TA positions connecting both back (calling) and forward (called) parties. These calls are placed at the request of a subscriber who initially calls an OSPS-TA operator and requests that the call be placed at a later time. The OSPS-TA operator then places the call at the appropriate time. The area that Delay calls can originate from are restricted on the basis of the NPA-NXX combination of the back party.

16.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
NPAMAP	5414	3	4O	26.1
OPRTK	5417	3	4R	26.26
TKGRP	5202	3	2A	5.1

16.2 Translation Requirements

NPAMAP form (5414 Record) - If the TERM ONLY field on a NPAMAP form (for the NPA-NXX of the back number) is set to "Y", then DELAY calls with that particular NPA-NXX as the back number are not allowed. Otherwise, the TGN must be non-zero and that TGN must have an entry on the OPRTK form for the call to proceed. The call is treated as if it had arrived on that trunk.

16.3 Other Details

OPRTK form (5417 Record) - The Digit Analysis Selector and the screen index used in routing this call are those associated with the trunk group specified on the OPRTK form and are found on the TKGRP form.

17. INWARD SEIZURES

An inward seizure occurs when an operator uses a route number to contact another operator. This second operator is known as the inward operator. When an OSPS hosts the inward operator, certain digit analysis data must be set to detect an inward seizure and then to possibly route the call.

17.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	3M	26.10
LDIT	5300-3/5	3	3c	9.3
OFCOPT	5509	3	5I	8.1
TKGRP	5202	3	2A	5.1

17.2 Translation Requirements

TKRGP form (5202 Record) - On an inward seizure, this OSPS is being used to complete a call or to provide some service for another operator. When a call of this type arrives at a switch, digit analysis is done using the

DAS specified on the TKGRP form for the incoming trunk.

LDIT form (5300-3/5 Record) - The CALL TYPE field of the LDIT form must be set to either "OPINW" or "AUTINW" so that the call is recognized as an inward seizure. "OPINW" is used for operator inward and "AUTINW" for automated inward.

ACDCTP form (5412-A/D Record) - Once the call is determined to be inward, the ACDCTP form is used to determine the call queue that the call belongs to. To handle inward calls, there must be a record with ORIGIN CALL of "INW", a PREFIX of "NULLP", an OSPA ID of "0", a COIN indicator of "N" and a CARRIER of "DC". Based on the call queue given, a serving team and ultimately an operator is chosen. Other entries may be needed to handle recalls. For a detailed discussion of CALL TYPE determination, refer to ECTD (Expanded CALL TYPE Determination) in this section.

For some seizures, the operator enters a forward number and tries to complete the call. To route the call, digit analysis is done on the number entered by the inward operator. The DAS and screen index used are the ones associated with the incoming trunk group. The number entered will only be accepted and routed if the office owner can handle the call.

OSPSOPT form (5424 Record) - If the OFFICE TYPE field on the OFCOPT form is set to "N", then this is an OSPA owned by a local carrier and the call must be routed with the local carrier. If OFFICE TYPE is set to "Y", then the carrier specified in the OFFICE CARRIER field on the OFCOPT form is the carrier used.

17.3 Other Details

While the digit analysis data for the inward call was used to detect this type of seizure, the routing data that also came from digit analysis is not used.

18. RESIDUAL CALLS

Residual Calls are specialized operator calls such as conference, mobile or marine calls handled by a SOST (Special Operator Services Traffic) operator. The OSPA operator cannot complete these calls because they require special operating procedures.

18.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LDIT	5300-3/5	3	3c	9.3
OSDC	5439 Record	3	4AN	27.4
OSPSOPT	5424	3	4Y	8.9

18.2 Translation Requirements

OSDC Form (5439 Record) - The OSDC form provides the possible residual codes associated with various SOST (Special Operator Services Traffic) operators.

LDIT form (5300-3/5 Record) - LDIT form must be populated with the digit analysis translation data required to accept and route residual calls.

OSPSOPT form (5424 Record) - When the ROUTE REC field on the OSPSOPT form is set to "Y", an AMA record is made whenever a residual connection is established. A record is made whenever any Route number connection is established.

18.3 Other Details

If digit analysis translates less than the complete residual code, the routing of these will be the same as many other route numbers. This occurs because the first several digits of the residual codes are the same as those for many route numbers. However, an office may choose to put the entire residual code on a LDIT form if different routing is desired.

19. AUTOMATED CALLING CARD SERVICE

The information about ACCS (Automated Calling Card Service) is divided into 3 parts: announcement specific data, access specific data and restriction data.

19.1 ACCS Announcements

A set of standard announcements have been specified for ACCS. All announcements should be the same for each OSPS office with the exception of branding announcements which have been provided for AT&T and five individual LECs (Local Exchange Carriers).

19.2 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNDG	5532	3	5AF	8.60
ANNHD	5531	3	5AE	8.61
PHRASE	5534	3	5AH	8.63
OSPSOPT	5424	3	4Y	8.9

19.3 Translation Requirements

ANNHD form (5531 Record)

ANNDG form (5532 Record) - As mentioned above, all ACCS announcements should be compatible among OSPS sites, with the exception of the one phrase (announcement 16) which specifies the branding announcement for that site. The announcement selection mechanism used for ACCS is the same one which was defined for OSPS-Directory Assistance in the 5E3 Software Release. It is assumed that announcements 1-15 and 17-26 in the ANNHD and ANNDG forms are the same in all OSPS sites.

The unique branding announcement for each site is announcement 16 from the ANNHD form. A specific announcement is available for AT&T and five individual LECs.

PHRASE form (5534 Record) - The data required to populate announcement 16 for a given switch owner is shown in Division 3, Section 5AH, PHRASE form, under the application OSPSTA.

OSPSOPT form (5424 Record) - Several office parameters specified on the OSPSOPT form determine whether branded announcements are applied to an ACCS call. First, the INIT THANK YOU field is examined to determine if any acknowledgement announcement is given to the calling (back) party. If no acknowledgement is specified, the call is outpulsed immediately. If an acknowledgement announcement is specified, the BRAND PHRASE field is examined to determine if a branded announcement should be given. If no branded announcements are to be given, the caller hears announcement 5 ("Thank You") from the ANNHD form. If branded announcements are specified, the indicated carrier for the call is compared to the OFFICE CARRIER field on the OSPSOPT form. If they match and the call is not a Directory Assistance call, Announcement 16 is played to the caller. If they match but the call is determined to be a Directory Assistance call, then the DABRAND field is examined to determine if Directory Assistance calls should be branded. If so, the call is given announcement 16. Otherwise, announcement 5 is given to the caller (back) party. Finally, if

the indicated carrier does not match with the carrier specified in OFFICE CARRIER, then announcement 5 is played to the back party.

The switch owner may choose not to brand any calls. In this case, announcement 16 should be populated as with APPL of "OSPSTA", PHRASES of "52,0" and ANNOUNCEMENT of "THANK YOU"

20. ACCS DSU2-RAF

A DSU2-RAF (Digital Services Unit 2-Recorded Announcement Facility) is used during the processing of ACCS (Automated Calling Card Service) calls. The main purpose of this hardware device is to generate announcements on an output port with the simultaneous decoding of signals on an input port. The announcement is disabled when the first digit signal is decoded. All circuits on a DSU2-RAF belong to a designated trunk group. Several RAFs can belong to the same trunk group, provided they are the same type of RAF. For example, ACCS uses RAFs having the DTA (Dial-Through Announcement) capability. Therefore, all RAF circuits having the DTA capability used by ACCS belong to the same trunk group and this trunk group must not be shared by other types of DSU2-RAFs.

20.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQRA	5821		35	19.10
EQRAP	5822	8	36	20.10/20.22
FIXRT	5301-1	3	3G	10.1
OSPSOPT	5424	3	4Y	8.9
QUFD	5617	4	18a	12.40
RTIDX	5303	3	3P	10.2
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

20.2 Translation Requirements

The data associated with the DSU2-RAF falls into two distinct categories: hardware data and routing data.

EQRAP form (5822 Record) - The EQRAP form is used to set up the hardware data associated with the number of RAFs to be engineered for the office. Much of this data is defined when the hardware is installed. After this data is defined, the DSU2-RAF routing data may be defined.

FIXRT form (5301-1 Record) - When a 0+ call requiring ACCS treatment is received at the OSPS, routing to a DSU2-RAF occurs. The routing takes place based on the FIXED ROUTE TYPE of "ROACCS" specified on a FIXRT form. This is used in the standard way, leading to RTIDX and TKGRP forms.

QUFD form (5617 Record) - If a DSU2-RAF port is not available, queuing for an available port takes place. The BRCS (Business and Residential Custom Services) Modular Queuing II feature is used for the queuing mechanism. This feature requires data in a QUFD form.

OSPSOPT form (5424 Record) - A call will remain on the queue for the time in seconds designated in the DSU2 Q TIME field on the OPSPOPT form. If a call is still on queue after the number of seconds specified in the DSU2 Q TIME field, the call is routed to an operator.

20.3 ACCS Access Options

If the calling (back) party dials an OSPS call using a 0+ prefix, there are optional announcements which can be played to the caller, as well as an option which indicates that the call should be routed to an operator. This

flexibility is provided via two separate mechanisms. The ACCS Special Treatment Table and two office options are used to indicate which option is to be selected.

20.4 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACCST	5428	3	4AC	26.40
OSPSOPT	5424	3	4Y	8.9

20.5 Translation Requirements

ACCST form (5428 Record) - When a 0+ call is received at the OSPS, if the call is not screened against calling card service, the ACCST form is checked, based on the calling (back) NPA-NXX entered, to determine the handling of the call. Possible values in the ACCST form include route the call to an operator ("OP"), provide a tone-only protocol to the caller ("TONE") or provide tone and announcement protocol to the caller ("TANN").

If the calling (back) number is not found on the ACCST form, default treatment is applied to the call depending on the type of originating station. If the originating station type is coin or a hotel/motel establishment (ACQS (Automatic Charge and Quotation Service)), the call treatment is determined by the ACCS 1 entry on the OSPSOPT form. Treatment of all other originating station classes is determined by the ACCS 2 field. The default value for coin and hotel/motel lines is set to (OAPR TN ANN - tone and announcement). The default value for ACCS 2 (all others) is set to OAPR TONE - tone only. A value of 'route to operator' is not allowed for these default parameters.

It is assumed that calls originating from most stations will use the default parameters. The ACCST form is used to provide a different option to those customers who do not want the standard ACCS service option.

21. ACCS Restrictions

ACCS customers are restricted from using certain called numbers when dialing ACCS sequence calls. In addition, the switch owner has the ability to allow or block calling card replies when the data base could not be accessed to determine the validity of the calling customer's calling card.

21.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9
SEQUEST	5429	3	4AD	26.41

21.2 Translation Requirements

SEQUEST form (5429 Record) - The switch owner may choose to block completion of ACCS calls to certain special directory numbers when dialed as a sequence call. This selection is performed via the SEQUEST form. Individual numbers which may be blocked include the following:

- Service Access Codes (700, 800 or 900)
- Directory Assistance Numbers (411, 555-1212 or NPA-555-1212)
- The universal repair service bureau number "611" and the universal emergency number "911."

OSPSOPT form (5424 Record) - Whenever the Billing Validation Application data base cannot be accessed to determine the validity of an ACCS calling card (initial or sequence call), an indeterminate response is returned to the OSPS. The switch owner has the option of specifying whether the call should be allowed to complete (assuming an unrestricted PIN (Personal Identification Number)) or whether the call should be blocked. This choice is made by examining the BILL BLOCK field on the OSPSOPT form.

22. AUTOMATIC CHARGE QUOTATION SERVICE

ACQS (Automatic Charge Quotation Service) is a feature which gives OSPS the ability to direct billing information (time and charge quote) to a centralized system for sent-paid calls originating from specific line numbers or directly to a specified printer/computer at the originating site.

An ACQS client can be a hotel, hospital, motel, law office, etc. The ACQS client will receive a time and charge quote upon termination of a call originating from a line at the ACQS client site. The quote will be sent by the 5ESS Switch OSPS in one of three manners:

1. The quote will be electronically transmitted to a HOBIC/HOBIS (Hotel Billing Information Center or System), where an operator will then verbally transmit the information to the ACQS client. This is referred to as voice quote.
2. A Network Auto Quote will be electronically transmitted to a HOBIC or HOBIS, where an operator will then verbally transmit the information to the ACQS client. This will appear as a voice quote to the ACQS client.
3. The quote is electronically transmitted directly to the ACQS client over a leased line to a printer/computer. This is referred to as an auto quote.

22.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACQS	5425	3	4Z	26.11
OSPSDSL	5411	3	4L	21.30
OSPSOPT	5424	3	4Y	8.9

22.2 Translation Requirements

ACQS form (5425 Record) - When a call is made from an ACQS client where the charges must be calculated and reported back within a short time, ACQS service is used. When a call comes to OSPS, an attempt is made to determine if it is from one of these ACQS clients. All 10-digit line numbers of these clients are listed on the ACQS form. If a line number is on this form, it is assumed that it is from one of these clients and requires ACQS service. This form provides additional information such as whether it is a true hotel, the true billing number, if any, the number to call or send the quote to, whether it uses auto quote service or voice quote service and whether it is a manual PBX (manual PBX's may or may not require this service depending on what is indicated to the OSPS operator).

OSPSOPT form (5424 Record) - At the end of a call, a query is sent out to the data base, either RTRS or CFR, to determine the charges for the call. If the query fails, the ACQS FAIL field on the OSPSOPT form indicates whether a record of the call is to be sent to HOBIC/HOBIS or whether the call is to go free.

NOTE: The ACQS form must not be entered unless an OSPSOPT form has been submitted and the OSPS TA field has been specified as "Y".

If there is a heavy load, quotes may be queued. The HOBIS/C TIME field on the OSPSOPT form indicates the maximum length of time in minutes that a quote should be held in the buffer before a credit record is made and further attempts to send the record are discontinued. The HOBIS/C ALARM field specifies the software alarm threshold for the number of HOBIC or HOBIS messages that will be buffered before an alarm is given. The Q CHK TIME field indicates the amount of time to wait before checking whether the software alarm threshold of buffered messages is still in effect or not and to send out a message indicating the current status.

In order to send a quote out to a centralized location (HOBIS or HOBIC) and, perhaps, to the site (AUTOQUOTE), there must be links which connect the switch to these locations. These links are attached to one SM, indicated in the ACQS SM field. The switch must be connected to either a HOBIS or a HOBIC: the choice is indicated by the HOBIS/C field.

In the case of HOBIC, the DUP HOBIC field is set to indicate if there are both voice quote ttys and record ttys.

OSPDSL form (5411 Record) - In the process of sending quotes out over the links, the OSPDSL form is checked to obtain information about the links and ports. In the case of AUTOQUOTE, this form contains information about the digital to analog port relationship.

23. AUTOQUOTE DSL

The AUTOQUOTE Service feature gives the OSPS the capability to send time and charge quotations, for calls originating at specified line numbers, directly over switched connections to remote printers/computers located on the customer premises. The hardware configuration required to support the remote autoquote printers includes the establishment of autoquote DSLs. Typically there are at least two AUTOQUOTE DSLs defined, although there can be a maximum of 16 AUTOQUOTE DSLs defined per 5ESS Switch. Each AUTOQUOTE DSL must be on the same SM and that SM must be the same SM that supports HOBIS or HOBIC DSLs. The number of AUTOQUOTE DSLs required is based on the amount of AUTOQUOTE traffic expected to be handled (the 5ESS Switch has a system maximum of 1000 AUTOQUOTE establishments).

23.1 ODA Forms

The following ODA forms are used to define AUTOQUOTE DSLs.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPDSL	5411	3	4L	21.30
OSPSOPT	5424	3	4Y	8.9

23.2 Translation Requirements

OSPDSL form (5411 Record) - A maximum of sixteen AUTOQUOTE DSLs per switch may be defined using the OSPDSL form. They must all have a SERVICE CLASS set to "AQDSL" and they must all be assigned to the same SM, i.e., the SM portion of the LCEN for each DSL must be equal.

OSPSOPT form (5424 Record) - In addition, the SM must be equal to the SM that the HOBIS or HOBIC DSLs are connected, i.e., the SM must equal the ACQS SM option on the OSPSOPT form.

The AUTOQUOTE hardware configuration requires each AUTOQUOTE DSL to terminate on a Z-card. The MATE LCEN specifies the LCEN of the Z-card which must also be located on the same SM as the DSL,

therefore, the SM portion of the MATE LCEN must also equal the SM portion of the LCEN. Note that although the Z-card and the DSL must be on the same SM, they are not required to be on the same ISLU on that SM.

AUTOQUOTE DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

The SCRIN IDX and DAS fields must be set for AUTOQUOTE DSLs. These fields indicate the screening index and Digit Analysis Selector, respectively. They are used to route calls from the DSL termination to the analog ports assigned to the AUTOQUOTE customers.

OSPSOPT form (5424 Record) - The ACQS SM option indicates the SM to which HOBIS or HOBIC DSLs and AUTOQUOTE DSLs are connected.

23.3 HOBIS DSL

The ACQS feature allows the OSPS to direct time and charges quotations for calls originating at specified line numbers to a HOBIS (Hotel Billing Information System).

23.4 ODA Forms

The following ODA forms are used to define HOBIS DSLs.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSDSL	5411	3	4L	21.30
OSPSOPT	5424	3	4Y	8.9

23.5 Translation Requirements

OSPSDSL form (5411 Record) - A maximum of eight HOBIS DSLs may be defined using the OSPSDSL form. They must all have a SERVICE CLASS set to "HOBIS" and they must all be assigned to the same SM, i.e., the SM portion of the LCEN for each DSL must be equal.

HOBIS DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

OSPSOPT form (5424 Record) - The HOBIS/C option on the OSPSOPT form must be set to HOBIS indicating that the OSPS is connected to a "HOBIS" as opposed to a HOBIC. The ACQS SM option must be set to the number of the SM to which the HOBIS DSLs are connected.

23.6 HOBIC DSL

The ACQS feature allows the OSPS to direct time and charges quotations for calls originating at specified line numbers to a HOBIC (Hotel Billing Information Center).

23.7 ODA Forms

The following ODA forms are used to define HOBIC DSLs.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSDSL	5411	3	4L	21.30

OSPSOPT	5424	3	4Y	8.9

OSPDSL form (5411 Record) - There are two types of HOBIC DSLs. One type supports HOBIC "voice quote" TTY (teletypewriters) and the other supports HOBIC "record" teletypewriters.

The DSLs for "voice quote" TTYs are assigned a SERVICE CLASS of "HOBICV". The DSLs for "record" TTYs are assigned a SERVICE CLASS of "HOBICR".

A maximum of eight "voice quote" TTY DSLs and eight "record" TTY DSLs may be defined per SM using the OSPDSL form. All the DSLs, for both "voice quote" TTYs and "record" TTYs, must be assigned to the same SM, i.e., the SM portion of the LCEN for each DSL must be equal. Note that since the DSLs must all be on the same SM, the maximums listed above also pertain to the switch.

HOBIC DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

OSPSOPT form (5424 Record) - The HOBIS/C option on the OPSOPT form must be set to "HOBIC" indicating that the OSPS is connected to a HOBIC as opposed to a HOBIS. The ACQS SM option must be set to the number of the SM to which the HOBIC DSLs are connected. If "record" TTY DSLs are defined, then the DUP HOBIC option should be set to "Y" (Yes); otherwise, no time and charge quotes will be sent to the "record" TTYs.

24. AUTOMATED COIN TOLL SERVICE

This section is divided into 2 parts: the first describes the ACTS (Automated Coin Toll Service) announcements and the second discusses the feature in general.

24.1 ACTS Announcements

A set of announcements is provided for the Automated Coin Toll Service. The announcements are for 1+ Fully Automated ACTS Coin Calls and for the ACTS Coin Test Call. All announcements should be identical across all OSPS offices except for branding announcements 105 and 107. Branding is provided for AT&T and for five individual LECs (Local Exchange Carriers).

24.2 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
ANNDG	5532	3	5AF	8.60
ANNTR	5533	3	5AG	8.62
OFCOPT	5509	3	5I	8.1
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

24.3 Translation Requirements

ANNDG form (5532 Record) - All ACTS announcements should be identical across different OSPS sites except for the branding announcements (105 and 107). The construction of each announcement header and trailer requires that inflection and phrase data be populated using the PHRASE form and the ANNDG form.

ANNHD form (5531 Record) - Announcement headers 101 to 120 should be specified using ANNHD.

ANNTR form (5533 Record) - Announcement trailers 101 to 104 should be specified using ANNTR.

OSPSOPT form (5424 Record) - Branding announcements are defined by announcement headers 105 and 107. Announcement header 105 gives a branding announcement without credit, and header 107 gives a branding announcement with credit. The branding announcements are given only during the Initial Contact seizure phase of a 1+ ACTS Fully Automated coin call. The BRAND PHRASE filed on the OPSOPT form allows branding to be activated or deactivated for all 1+ ACTS traffic originating on a given SM.

The type of branding which is given is controlled by changing the PHRASE ID in announcement headers 105 and 107. For example, the following two announcements use Northwestern Bell as the branding phrase. The branding phrase is 126.

Entry	Definition
APPL	OSPSTA
HDR	105
PHRASES	121,,122,,126
ANNOUNCEMENT	"Thank you for using Northwestern Bell."
APPL	OSPSTA
HDR	107
PHRASES	121,,122,,126,,118, 16500,,100,,120
ANNOUNCEMENT	"Thank you for using Northwestern Bell." "You have # credit towards overtime." (# = amount of credit)

To change the branding to AT&T, a dedicated phrase (67) is used; the results are as follows.

HGRID(Z_SINGLE)	Definition
Entry	OSPSTA
APPL	OSPSTA
HDR	105
PHRASES	67
ANNOUNCEMENT	"Thank You for using AT&T."
APPL	OSPSTA
HDR	107
PHRASES	67, 118, 16500, 100, 120
ANNOUNCEMENT	"Thank You for using AT&T." "You have # credit towards overtime." (# amount of credit)

ANNHD form (5531 Record) - The ANNHD form is used to change the above announcement headers.

ANNTR form (5533 Record) - Announcement trailers 101 to 104 are defined using the ANNTR form. These trailers are used in the ACTS Coin Test Call.

24.4 ACTS DSU2-RAF

Automated Coin Toll Services uses a Digital Services Unit 2 - Recorded Announcement Facility to provide announcements and to decode dual frequency coin deposit tones. The announcements are provided on an output port and the coin tones are decoded on an input port. Announcements are aborted upon decoding the first signal from a deposited coin. Coin tones are decoded and reported to the terminal process monitoring the DSU2-RAF. Access to DSU2-RAF ports with Coin Tone Receivers is via a RAF port group. The RAF port group can contain RAF ports from different switches. There is a restriction that all RAFs in a service group must be either DSU2-RAF-COIN or DSU2-RAF-DTA (Dial Through Announcement); DA RAFs cannot belong to the same service group.

24.5 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQRA	5821		35	19.10
EQRAP	5822	8	36	20.10/20.22

FIXRT	5301-1	3	3G	10.1
RTIDX	5303	3	3P	10.2
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

24.6 Translation Requirements

The DSU2-RAF data are divided into two groups: data associated with the DSU2-RAF hardware and data used in routing.

EQRA form (5821 Record)

EQRAP form (5822 Record) - The EQRA and EQRAP forms are used to set up the hardware related data for a DSU2-RAF-COIN.

FIXRT form (5301-1 Record)

RTIDX form (5303 Record)

TKGRP form (5202 Record)

TRUNK form (5204 Record) - DSU2-RAF-COIN trunking and routing data is defined using the TKGRP, TRUNK, FIXRT and RTIDX forms. Routing to a DSU2-RAF-COIN occurs for 1+ACTS Fully Automated coin calls and for 0+/0- ACTS Partially Automated coin calls. A fixed route index which points to a RAF port group is used for routing. The FIXRT and RTIDX forms define routing to the RAF port group, while the TKGRP and TRUNK forms define the RAF ports belonging to the RAF port group.

Unlike the routing for DSU2-RAF-DTA (Dial-Through-Announcement) which is used by ACCS, DSU2-RAF-COIN routing does not use queuing.

25. ACTS General Description

25.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

25.2 Translation Requirements

OSPSOPT form (5424 Record) - The following fields on the OPSOPT form are used to enable/disable the Automated Coin Toll Service and to control its operation.

- ACTS - Activation of Automated Coin Toll Service in a switch
- INI TIMER - Period for coin timeout during initial contact with the customer
- OVT TIMER - Period for coin timeout during interim overtime charge-due seizures
- INT C TIMER - Period for intercoin timeout during a charge-due seizure
- INI RAT FL - Option when a CFR/RTRS rating failure occurs during the initial contact period of an ACTS call
- EOC RAT FL - Option when a CFR/RTRS rating failure occurs during the end-of-call period of an ACTS call
- LRG CHG THR - Threshold value at which an ACTS coin call is marked as a large-charge call

- C TSTS CALL - ACTS coin station test call number

The ACT field activates or deactivates the Automated Coin Toll Service in a 5ESS Switch. The value of "Y" indicates that coin station calls originating in the switch can be automated using ACTS. A value of "N" indicates no ACTS activation.

If a RTTS/CFR (Real Time Rating System/Centralized Flexible Rating) initial contact rating query fails, then the INI RAT FL field determines the action taken by ACTS. If INI RAT FL has a value of "OPR", then the call is routed to an operator. With the value of "ANN", an announcement is given. Similarly, the EOC RAT FL field determines the action taken for a failure during an RTRS/CFR end-of-call rating query. If EOC RAT FL is set to "OPR", the call is routed to an operator. Otherwise, the value of "FREE" allows the call to terminate without further charges.

The LRG CHG THR field determines the threshold at which a coin call is marked as a large-charge call. The default value is 60 nickels (\$3.00).

During a 1+ ACTS Fully Automated coin call, the coin timeout periods are determined by the INI TIMER, OVT TIMER and INT C TIMER fields. During an initial contact seizure, the coin timeout period after an announcement is determined by the value of INI TIMER. After an announcement, a customer has the value of (INI TIMER) * 0.5 seconds before coin timeout occurs during an initial contact seizure. During an interim or end-of-call charge-due seizure, after an announcement a customer has the value of (OVT TIMER) * 0.5 seconds before coin timeout. If the customer makes a partial deposit, then intercoin timeout occurs if no further deposit is made in the (INT C TIMER) * 0.5 second interval immediately after the last coin deposit. All three of these fields are set in units of 0.5 seconds. The INI TIMER and INT C TIMER have default values of 11 (5.5 seconds) and the OVT TIMER has a default value of 16 (8.0 seconds).

The C TST CALL field defines the ACTS coin station call number. Its default value is "959-1230".

26. ALLIANCE TELECONFERENCING

ATC (Alliance Teleconferencing®) is available in 5E4(2) and later Software Releases. The feature allows a 5ESS Switch equipped with OSPS (Operator Services Position System) to establish a conference connection between a number of parties. This conference can be set up by either the customer or the Alliance Teleconferencing Operator.

ATC calls are recognized when they are received on operator trunks and are signaled to the AT&T network using CCS7 ISDNUP (Common Channel Signaling System Number 7 Integrated Services Digital Network User Part) capabilities. The calls are routed in the DEV (Direct Egress Voice) domain.

ATC uses a teleconferencing bridge, at a distant NSC, that allows many parties to be present on the same call. The ATC capability consists of two services: "Add-On" teleconferencing and "Meet-Me" teleconferencing.

Add-On teleconferencing allows a customer to originate a teleconference and add conferees (through a 5ESS Switch with OSPS capabilities). The originator is billed for the bridge charges and all participant's legs. Billing is actually done at the NSC; a billing record is kept at the 5ESS Switch for access verification.

Meet-Me teleconferencing is scheduled on a reservation basis (by dialing an 800 number) through a dedicated operator who provides a number for a conference controller to call at a reserved time and another number for the other conferees to call at a reserved time. The conference originator specifies a billing option when the conference is reserved; the conferees may be billed for their individual leg charges or all charges may be billed to the originator.

The dialing plan for Add-On and Meet-Me calls is 0+700-45Y-XXXX. The 0+ prefix causes local offices to route Alliance calls on the operator trunks to the OSPS. The Y digit distinguishes between the two services, Add-On and Meet-Me. The Y digit is equal to 6 for Add-On; the Y digit must not equal 6 for Meet-Me.

Alliance teleconferencing calls arriving at the OSPS switch will be screened for valid ANI (Automatic Number Identification) and also to see whether the originating area is allowable (based on NPA-NXX combinations).

26.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ATC	5446	3	4AT	27.40
DAS	5300-1	3	3A	9.1
FIXRT	5301-1	3	3G	10.1
INDIT	5309	3	3V	9.5
LDIT	5300-3/5	3	3c	9.3
RAR	5301	3	3F	10.10
RTIDX	5303	3	3P	10.2

26.2 Translation Requirements

The routing for an Alliance call will be explained by first looking at the Meet-Me call. This will show how the CCS7 trunk group is built. The Add-On call will be explained next, using the information gained from the Meet-Me call routing.

26.3 Meet-Me Translation Requirements

The customer dials an Alliance Meet-Me call by dialing 0-700-45X-XXXX. The last digit of the NXX determines which of the 4 NSCs the customer wishes to use:

NXX	Definition
NXX of 452	Chicago NSC
NXX of 453	White Plains NSC
NXX of 454	Dallas NSC
NXX of 455	Reno NSC

The local office strips off the leading 0 prior to sending this call to the OSPS. The call arrives at the switch with a 0+ prefix (STP or ST3P). The ATC codes, 700-452, 700-453, 700-454 and 700-455 are translated via the DAS/INDIT/LDIT combination used by the normal "FIOPR" incoming trunk groups.

TKGRP form (5202 Record) - Taking the DAS from the incoming TKGRP form, use the DAS form to get the INDIT and LDIT for the call. These forms (INDIT and LDIT) will be the same ones used for normal routing translations of other calls on the switch.

INDIT form (5309 Record) - The INDIT form is first examined to ensure that the call should be translated in it.

LDIT form (5300-3/5) - The LDIT form then provides the ROUTE INDEX and CDI. On the LDIT form, CALL TYPE = "MEETME" TYPE OF CI CALL = "NONCI", NBR OF DIGITS = "10", CODE INDEX should be a number UNIQUE for ATC and ROUTE INDEX should be a number pointing to the CCS7 trunk group for the assigned Alliance node.

Using the SCR from the incoming trunk and the unique ATC CDI from the LDIT form as keys, examine the RAR form. On the RAR form, the "0" prefix points to "REORDER", the "1" points to "REORDER" and "NONE" points to "REGL".

RTIDX form (5303 Record) - The final form, RTIDX, uses the ROUTE INDEX from the LDIT as the key and the call should be pointed at the outgoing CCS7 trunk. The DIGITS TO BE DELETED field should be "4", PREFIX DIGITS should be "7000" and SIGNALING PROTOCOL should be "TRAD". This allows the 5ESS Switch to outpulse 700-05X-XXXX to the 4E-HUB. The 4ESS must translate these digits in the DEV domain and route this call in the POTS domain.

26.4 Add-On Translation Requirements

The customer dials an Alliance Add-On call by dialing 0-700-456-XXXX. The XXXX value determines the NSC as follows:

XXXX	Definition
1001	Reno NSC
1002	Chicago NSC.
1003	White Plains NSC.
1004	Dallas NSC.

The local office strips off the leading 0 prior to sending the call to the OSPS and the call arrives with a 0+ prefix (STP or ST3P). The DAS/INDIT/LDIT combination assigned to the incoming "FIOPR" trunk group should translate the 700-456-XXXX in the assigned LDIT form.

LDIT form (5300-3/5) - On the LDIT form, CALL TYPE is "ADDON", TYPE OF CI CALL is "NONCI", NBR OF DIGITS is "10", CODE INDEX is a number UNIQUE for ATC and the ROUTE INDEX points to a "dummy" trunk group. This "dummy" trunk group has no members and appears only on the TKGRP form where it is used to convert the 700 number to an 800 number.

RTIDX form (5303 Record) - The RTIDX form for this "dummy" trunk group should have DIGITS TO BE DELETED set to "6", PREFIX DIGITS set to "800050" and SIGNALING PROTOCOL of "TRAD". This will set the call up for a translation in the OSO (Original Screening Office) using the now dialed number of 800-050-XXXX.

The OSO translation will return a 702 number (as 702-047-1001) for the Reno NSC, a 312 number (as 312-001-1692) for the Chicago NSC, a 914 number (as 914-000-7823) for the White Plains NSC and a 210 number (as 210-987-5191) for the Dallas NSC. The returned number could also be 205-987-5191 if it is after the normal time the NSCs are in service, such as Saturday and Sunday. These returned numbers, using a domain of DEV, will be run through digit analysis again starting as DAS 89. DAS 89 should point to INDIT 89 containing individual Digits 0 to 9 pointing to LDIT 89. LDIT 89 should include Digits 0 to 9 with all except Digits 2, 3, 7 and 9 pointing to CALL TYPE of "VACANT". Digits 2, 3, 7 and 9 should show CALL TYPE of "NORMAL", TYPE OF CI CALL of "NONCI", CODE INDEX which is UNIQUE for ATC, NBR OF DIGITS of "10" and a ROUTE INDEX number pointing to the CCS7 Trunk Group for each NPA involved (312, 214, 702, 205 and 914).

The Route Indexes for the 312 NPA is handled differently than the other 4 NPAs. For 214, 702, 205 and 914 numbers the RTIDX forms should show DIGITS TO BE DELETED set to "0", PREFIX DIGITS left blank and SIGNALING PROTOCOL of "TRAD". For 312, the RTIDX form must have DIGITS TO BE DELETED set to "3" and PREFIX DIGITS set to "981". Thus, the outpulsed number of 312-001-1692 is changed to 981-001-1692. The Next Route Index for all of these Route Indexes should point to "REORDER".

RAR form (5301 Record) - The RAR forms for all of these NPAs is accessed by using the SCR of the original incoming trunk and the CDI of the LDIT form. The RAR form should have "REGL" in the RTI field for a prefix of "NONE".

FIXRT form (5301-1 Record) - Alliance calls that experience ANI-failure will be routed to an announcement using the fixed routing type of "ATCANIF" that must be populated on a FIXRT form.

Non-billable Add-On calls (originating from coin, hotel/motel, multi-party or stations from which paid billing is not permitted), ATC calls identified as ONI and ATC calls originating from a restricted NXX are routed to an announcement. The fixed routing type of "ATCINT" must be populated in a FIXRT form to accommodate these conditions.

The ATC form is a new form created for the Alliance feature. It provides for restrictions to be placed on originating NXXs for Add-On or Meet-Me calls. Some or all of the NXXs within an NPA can be restricted for either of the two ATC types of call. When these restrictions exist for the originating NXX, Alliance calls will be routed to an announcement using the aforementioned fixed routing type of "ATCINT", entered on a FIXRT form.

27. AUTOMATED MULTI-LEAF BULLETIN

The AMLB (Automated Multi-Leaf Bulletin) capability is available with 5E4(2) and later Software Releases. AMLB is an on-line query system that contains frequently used information, of an emergency or general nature, which may be used by an operator to complete a customer's call. Some of the information maintained in the AMLB consists of hospital telephone numbers, emergency service telephone numbers and area codes.

The AMLB capability also extends the functionality of the OSPS VDT (Video Display Terminal) to include emulation of commercial terminal and packet switching DTE (Data Terminating Equipment) functions. A VDT user connected to ISDN (Integrated Services Digital Network) packet switching facilities can communicate with remote systems such as data base computers. With 5E4(2) and later Software Releases, OSPS uses the AMLB capability to access a multi-leaf bulletin data base. However, the capability can be extended to access other systems accessible via ISDN packet switching.

An AMLB data base computer is connected to the OSPS switch via an ISDN DSL (Digital Subscriber Line). When the data base page is invoked on the operator's VDT, the VDT emulates a commercial terminal supported by the data base computer. The VDT, physically connected to the OSPS switch on an ISDN DSL, communicates with the AMLB data base computer using ISDN packet switching features to transport packets between the VDT and the data base computer.

27.1 AMLBDSL Port

The AMLB (Automated Multi-Leaf Bulletin) feature provides an interface to an on-line data base, i.e., reference data base. Using the VDT, an OSPS operator can display pages of information used to complete calls or to answer customer inquiries. This information might include dialing codes, inward operator route codes, emergency numbers, telephone company business office numbers, etc., This section describes the office data and related ODA forms used to define an AMLBDSL.

27.2 ODA Forms

The following ODA forms are used in defining an AMLBDSL.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AMLBDSL	5447	3	4AV	21.34
ISDNOPT	5941	5	5B	8.1
LCC	5306	3	3S	4.1
MLHG	5110	3	1J	3.5
MLHGFD	5604	4	5A	12.18
OPDBPARM	5434	3	4AI	27.30
OPEXTDB	5435	3	4AJ	27.31
OSPSDSL	5411	3	4L	21.30
OSPSOPT	5424	3	4Y	8.9

PSISM	5920	5	3A	22.13

27.3 Translation Requirements

The AMLB feature makes use of the BRCS MLHG (Multiline Hunt Group) feature to access a port to the AMLB data base. The AMLBDSLs must be assigned to a preconstructed MLHG feature definition.

MLHGFD form (5604 Record) - A switch that is ordered with the AMLB feature should already have an entry in the MLHGFD form with a FEATURE NAME equal to "/MHXPS", therefore, an entry into this form is not necessary. The HUNT TYPE field must be set to "PSUCD", indicating that the hunting algorithm for the AMLB MLHG is packet switching uniform call distribution. The OVERFLOW REG, INWATS, CF BUSY and CF VARIABLE fields must be set to their default value of "N" (No) for AMLB. The BEARER field must be set to "PACKET", indicating packet switched calls will be routed to the AMLB MLHG.

MLHG form (5110 Record) - The MLHG form is used to define more information related to the AMLB MLHG. A unique MLHG is typically defined for each set of AMLB data bases that contain the same information. The MLHG FEATURE field must be identical to the FEATURE NAME field in the MLHGFD form, e.g., "/MHXPS". AMLB does not make use of the MLHG queuing feature, therefore, the QUEUING FEATURE and QUEUE MASTER SWITCH fields should be left blank.

The LISTED TN is the listed telephone number of the AMLB MLHG. This TN is used by the operator positions to dial up the associated AMLB. The HIGHEST LISTED TN field is typically left blank for an AMLB MLHG. The RAX field indicates the Rate Center that will be used for routing and charging calls made to the AMLB.

The remaining fields on this form should be left blank or retain their default values for an AMLB MLHG.

LCC form (5306 Record) - For AMLB, two instances of the LCC form are used to define LCC (Line Class Codes). One entry defines a LCC for the AMLBDSLs and the other entry defines the LCC for the operator position DSLs that will be originating packet switched calls to the AMLB data base.

For the AMLBDSL, the Line Class Code field should be assigned the character string "MLB". The RATE AREA field must be assigned the same value that was assigned to the RAX field in MLHG. The CLASS OF SERVICE for the AMLBDSL is "XDB" and the TERMINATING TREATMENT is "INDIV".

RAR form (5301 Record) - The SCREEN INDEX must be assigned a valid screening index that exists on a RAR form. The LINE SCREENING field should be assigned the default value of "N" and the INSEP and DESEP should remain blank.

DAS form (5300-1 Record) - A valid DAS from the DAS form should be assigned to the DIGIT ANALYSIS SELECTOR field to be used in routing and charging calls to the AMLB data base.

The differences between the operator position DSL entry and the AMLBDSL entry are: (1) "OPR" is assigned to the Line Class Code field and (2) "TAOPER" is assigned to the CLASS OF SERVICE field.

OSPSDSL form (5411 Record) - OPSDSL is used to assign a D-channel of a DSL to a line card port connected to an AMLB. The LCEN (Line Card Equipment Number) field specifies the SM, (R)ISLU, LGC and Line Card to which the AMLB DSL is connected. An AMLB may be connected to an ISLU or RISLU. A SERVICE CLASS of XDB must be assigned for AMLBDSLs. The FIRMWARE CLI field must be left blank for AMLBDSLs. The ISCN field defines the location of the DSL in the PSU (Packet Switching Unit).

The DSL NAME ID field must match the MLHG field in the MLHG field on the MLHG form which corresponds to the entry made for the AMLB. Each AMLBDSL must be assigned a unique DSL NAME RL associated with a particular DSL NAME ID. The DSL NAME RL field is populated to indicate the MLHG member, which is

typically assigned in sequential order for multiple AMLBDSLs.

The DPIDB, D TIMESLOT and QTR TS fields may only be assigned values when the AMLBDSL is connected to an ISLU. They must be left blank if the AMLBDSL is assigned to an RISLU. If the fields are left blank and the LCEN corresponds to an ISLU, then ODA will assign appropriate values to these fields. The rules for populating these three fields are defined in the OSPSDSL form portion of this section.

The remaining fields on this form should be left blank for AMLBDSLs.

AMLBDSL form (5447 Record) - AMLBDSL is used to assign D-channel packet switching capabilities to operator position DSLs and B-channel packet switching capabilities for accessing AMLBDSLs. This form must be completed for each AMLBDSL and each operator position DSL that will be used to access an AMLB data base.

The LCEN entered on AMLBDSL must match an LCEN entered on the OSPSDSL form that has a CLASS OF SERVICE of "XDB". D SERV must be set to "ADMIN".

Each PKT TN entered for an AMLBDSL will automatically become a member of the Multiline Hunt Group defined for the AMLB. Typically, the NXX for each of these TNs is set to 999 when the OSPS is not located in an end-office or central office. These TNs are also used for billing purposes and routing.

The PKT RAX and PKT LCC entered for an AMLBDSL must match the AMLB entry in LCC, i.e., PKT RAX must equal RAX in LCC and PKT LCC must equal Line Class Code in LCC.

The following fields are typically populated accordingly for an AMLBDSL. PKT SUST must equal "N". HIGH PVC LCN is left blank. IN LCN LOW and IN LCN HIGH are populated as follows. Typically, for a COMPIS (Computerized Position Information System) AMLB data base, the IN LCN LOW is set to 1 and the IN LCN HIGH is set to 16. This allows 16 logical channels per AMLB data link. With two DSLs to the data base, this allows 32 logical channels and thus a maximum of 32 operators accessing the data base simultaneously.

For the CSIDP (Call Servicing Information Delivery Platform) feature for 5E8 and later, the following fields are typically populated accordingly for an AMLBDSL. PKT SUST must equal "N". HIGH PVC LCN is left blank. IN LCN LOW and IN LCN HIGH are populated as follows. Typically, for a CSIDP AMLB data base, the IN LCN LOW is set to 1 and the IN LCN HIGH is set to 48. This allows 48 logical channels per AMLB data link. (For more information on CSIDP, see Division 2, Section 4C13.)

Typically, for an OFDB (Office Records Data Base) AMLB data base, the IN LCN LOW is set to 1 and the IN LCN HIGH is set to 80. This allows 80 logical channels per AMLB data link. With two DSLs to the data base, this allows 160 logical channels and thus a maximum of 160 operators accessing the data base simultaneously. IN LCN BARRED must be "N". 2W LCN LOW and 2W LCN HIGH are left blank. OUT LCN LOW and OUT LCN HIGH are left blank. OUT LCN BARRED is set to "Y". For the AMLB application, the maximum size of packets exchanged between the operator position and the data base is 128 bytes, therefore, the SEND and RCV PKT SIZE fields must be 128. The IECF DNIC field is left blank. The SEND and RCV PKT WINDOW SIZE fields should be set to 3. This will allow a maximum of 3 packets to be sent to the data base while waiting for an acknowledgement from the data base indicating that the first outstanding packet was successfully received. The WNDZ field should be set to 7, which is the maximum number of frames to be sent to the data base while waiting for an acknowledgement from the data base indicating that the first outstanding frame was successfully received. The N2 field should be set to 3, which is the number of re-transmissions that will be attempted for an unacknowledged frame. The T1 field should be set to 30, which is the number of tenths of seconds that the OSPS will wait before attempting to retransmit an unacknowledged frame. SEND and RCV THRUPUT CLASS should be set to 19200.

The CUG (Closed User Group) parameters should be set as follows. A CUG consists of two parts, a DNIC

and an ICN. The DNIC refers to the Data Network Identification Code and currently may be set to any valid value as long as every AMLBDSL is assigned the same value. The ICN refers to the International CUG code and is typically set to 1 for AMLB, since AMLB is the only CUG on an OSPS switch. The IDX field is a sequential numbering of each CUG assigned to the DSL. IDX for the first CUG should be assigned a value of 1 and so forth. Since there is typically only one CUG for AMLB, only one entry is made in the CUG list. Also, since there is typically only one CUG for AMLBDSLs, the PREFER CUST IDX and HIGHEST CUST IDX fields are set equal to the IDX field.

The OUT ACCESS field indicates whether calls are allowed to be originated from an AMLBDSL to a CUG other than the CUG defined for the AMLBDSLs. This is typically set to "N" for AMLBDSLs. The IN ACCESS field indicates whether calls that originate from a CUG other than the CUG defined for the AMLBDSLs are allowed to terminate to an AMLBDSL. This is typically set to "N" for AMLBDSLs. Since operator positions are assigned to the same CUG defined for the AMLBDSLs, access to the AMLB data base will be restricted to those positions.

The FLOW CNTL, THRUPUT IND, REV CHARGE, FAST SELECT and INTERCOM ADD IND fields are typically set to their default values of "N" for AMLB DSLs.

The B1 ISCN, B RELPIDB and B TIMESLOT fields should be set so that they are consistent with the OSPS hardware configuration.

27.4 Operator Position DSL for AMLB

The LCEN entered on AMLBDSL must match an LCEN entered on OSPSDSL that has a CLASS OF SERVICE of "TAOPER". D SERV must be set to "SX".

The PKT RAX and PKT LCC entered for a position DSL must match an entry in LCC, i.e., PKT RAX must equal RAX in LCC and PKT LCC must equal Line Class Code in LCC.

The following fields are typically populated accordingly for a position DSL. PKT SUST must equal "Y". HIGH PVC LCN is left blank. IN LCN LOW and IN LCN HIGH are left blank. IN LCN BARRED must be "Y". 2W LCN LOW and 2W LCN HIGH are left blank. OUT LCN LOW and OUT LCN HIGH are set to one (1). OUT LCN BARRED is set to "N". The SEND and RCV PKT SIZE fields must be 128. SEND and RCV THRUPUT CLASS should both be set to 19200. IECP DNIC field is left blank. The SEND and RCV PKT WINDOW SIZE fields should be set to 3.

The FLOW CNTL field must be set to "Y" if the SEND WINDOW SIZE, SEND PACKET SIZE, RECEIVE WINDOW SIZE and RECEIVE PACKET SIZE fields on the OPDBPARAM form are not zero. It should also be set equal to the value of FLOW CNTL that is assigned to the AMLBDSLs.

The remaining fields, PREFER CUST IDX, HIGHEST CUST IDX, CUG LIST DNIC, CUG LIST ICN and CUG LIST IDX should be set equal to the values associated with the AMLB DSL entry to which the position will interface.

PSISM form (5920 Record) - PSISM must be populated only when positions that will be used to access the AMLB data base are connected to a SM other than the SM to which the AMLBDSL is connected. This form defines a dedicated path from an ISCN (Integrated Services Channel Number) in one SM to an ISCN in another SM for packet switching. Populate one PSISM form for each SM pair. For example, if the AMLBDSL is connected to SM 15 and the position DSL is connected to SM 17, then an entry must be made such that SM equals 15 and MATE SM equals 17. MASTER must be set to "Y".

ISDNOPT form (5941 Record) - This form defines the global office options associated with ISDN Packet Switching. Typically, the default values for all required fields are sufficient for AMLB.

OPDBPARM form (5434 Record) - The OPDBPARM form is used to define the interface parameters to the external data base (e.g., AMLB). Interfaces to 15 different types of external data bases may be defined and are uniquely identified by the DATA BASE INDEX field.

The DB PKT TN field identifies the packet switching telephone number used to access the external data base. It must be set equal to the LISTED TN field in the MLHG form associated with the Multi-Line Hunt Group defined for accessing the external data base.

CUGPX assigns a Closed User Group index to the external data base and must be equal to the value of the PREFER CUST IDX field that was assigned to the external data base DSLs on the AMLBDSL form (typically 1 for AMLB). The DB NAME field allows for labeling the external data base with an alphanumeric name.

The FIRST SEARCH STRING identifies the prompt that is returned from the external data base after the data base answers (e.g., "login:"). The SECOND SEARCH STRING identifies a possible second prompt returned from the external data base after a response from the switch to the FIRST SEARCH STRING (e.g., "password:"). If either string is left blank, the switch does not look for a string after the data base answers and, therefore, does not reply with a login or password.

SEND WINDOW SIZE, SEND PACKET SIZE, RECEIVE WINDOW SIZE and RECEIVE PACKET SIZE fields identify the X.25 level 3 protocol parameters used to transmit data to the external data base. These fields are typically left zero (default value) for AMLB. They must be left zero if the external AMLB data base is an ORDB. However, they may be non-zero if the external AMLB data base is a COMPIS. If they are non-zero, then they must equal the corresponding values of the SEND PKT WINDOW SIZE, SEND PKT SIZE, RCV PKT WINDOW SIZE and RCV PKT SIZE fields on the OSPSDSL form assigned to the external data base DSLs, i.e., DSLs with D SERV equal to "ADMIN". Also, if these four fields are non-zero, then the FLOW CNTL field on the AMLBDSL form must be set to "Y" for each AMLBDSL (D SERV = "ADMIN") and each operator position DSL (D SERV = "SX") that will be used to access the AMLB data base. Conversely, if these four fields are left zero, then the FLOW CNTL field on the AMLBDSL form must be set to "N", which is the case for the ORDB AMLB data base.

OPEXTDB form (5435 Record) - The OPEXTDB form is used to define which external data base a serving team may access and the interface parameters used by the team in establishing a session with the data base.

The OSC NBR and SERVING TEAM fields identify the OSC and serving team for which data base access is being defined. The DB NBR field must be set to "1", since currently a serving team may be assigned access to only one external data base. The DATA BASE TYPE field identifies which external data base the serving team may access. This field must match an entry in the DATA BASE INDEX field from the OPDBPARM form.

The LOGIN ID, LOGIN DELIM, PASSWORD and PASSWORD DELIM fields are used when the switch automatically logs in an operator on the serving team to the external data base, i.e., AUTO LOGIN is set to "Y". The LOGIN ID and LOGIN DELIM fields specify the switch response to the FIRST SEARCH STRING field as defined on the OPDBPARM form. The PASSWORD and PASSWORD DELIM fields specify the switch response to the SECOND SEARCH STRING field as defined on the OPDBPARM form. If the OSPS LOGIN field is set to "Y", then the operator's login ID will be used instead of the LOGIN ID field whenever the switch automatically logs the operator into the data base.

If the AUTO SESSION field is set to "Y", then a session with the AMLB data base will be established whenever the operator logs into an operator position. If AUTO LOGIN is set to "Y" and AUTO SESSION is set to "Y", then a session will automatically be established and the operator will be automatically logged in. If AUTO LOGIN is set to "N" and AUTO SESSION is set to "Y", then a session will be automatically established and the operator will have to manually log into the AMLB data base.

If the AUTO SESSION field is set to "N", then a session with the AMLB data base will not be established until the operator depresses the MAIN DB key on the operator's position. In this case, the operator will have to manually log in if AUTO LOGIN is set to "N" or the switch will automatically log in the operator if AUTO LOGIN is set to "Y".

The REVERSE CHARGE field is typically set to its default value of "N" for AMLB. If it is "Y", then the data base DSL entries in the AMLBDSL form (DSERV = "ADMIN") must have the REVERSE CHARGE field set to "Y" to allow reverse charging.

OSPSOPT form (5424 Record) - The OPER EXT DB field must be set to "Y" indicating that operators are able to access an external data base.

28. BUSY LINE VERIFICATION

BLV (Busy Line Verification) is a domestic feature that permits an operator, using a special, privately owned verify network, to determine whether a telephone line is actually busy or not. This type of call is generally made at the request of a caller who has tried repeatedly and unsuccessfully to reach a line and received busy tone. The operator is able to verify that a line is busy by listening for conversation through a scrambler circuit. In addition, the operator is able to break in on the line to deliver an emergency notification. Prior to the operator breaking in on the line, an intrusion tone is given to the customers who will be interrupted.

28.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BLVEX	5442	3	4AQ	27.11
BLVNPA	5441	3	4AP	27.10
CCCOPT	5432	3	4AG	21.99
DAS	5300-1	3	3A	9.1
INDIT	5309	3	3V	9.5
LDIT	5300-3/5	3	3c	9.3
OSPSOPT	5424	3	4Y	8.9
PDIT	5300-2	3	3B	9.2
RAR	5301	3	3F	10.10
RTIDX	5303	3	3P	10.2
TKGRP	5202	3	2A	5.1
TRUNK	5204/5271-2	3	2C	5.5

28.2 Translation Requirements

This section outlines translation requirements.

28.3 Defining Verifiable Number Plan Areas

BLVNPA form (5441 Record) - For each NPA that can be verified by the OSPS office, the NPA must be assigned on a BLVNPA form. A maximum of 16 NPAs may be specified. For every NXX in the NPA, a status must be specified. The NXX status may be verifiable (i.e., all line numbers in the NXX can be verified) or non-verifiable (i.e., the NXX is not verifiable from this office). If the NXX is verifiable but some line numbers (exclusions) are excluded from verification, those exclusions must be specified on the BLVEX form.

BLVEX form (5442 Record) - Exclusions can be ranges of line numbers or single lines. A maximum of 200 entries (a range or a single line represent one entry) can be specified on BLVEX. Each NPA, however, is limited to a maximum of 96 exclusion entries.

28.4 BLV Trunk Selection and Routing

BLVNPA form (5441 Record) - For each verifiable NPA, a unique BLV routing code must be established. Routing codes can range from 000 to 199. The BLV routing code is specified on a BLVNPA form. The routing code replaces the NPA digits of the forward number before the number is passed to the terminating terminal process for outpulsing.

The routing code and the NXX-XXXX (last 7 digits of the 10-digit forward number) are passed to digit analysis so that a BLV trunk can be selected for routing the BLV call. A digit tree must be created to recognize the BLV routing codes plus 7 digit numbers. This requires the use of the DAS, PDIT, LDIT and INDIT forms.

DAS (5300-1 Record) - The OSPS office option BLV DIGTREE STRT should be set to the DAS (Digit Analysis Selector) specified on the DAS form for BLV use. The OSPS office option BLV SCREEN IDX should be set to the screening index used for BLV. Note that for a POTS call, the DAS and screening index are normally obtained from the trunk or line data associated with the back number. For BLV calls, the digit analysis functions use these OSPS office options as their starting values.

28.5 BLV Trunk Assignments

The TKGRP, TRUNK and RTIDX forms are used to define BLV trunks. Trunks for this feature are considered as outgoing and have their TRKCLS field set to "BVTOLLCM" or "BVINTOLL" on a TKGRP form. These trunks are selected for use based on the routing information found in the previously described digit analysis.

28.6 Miscellaneous BLV options

CCCOPT form (5432 Record) - The EI THRESHOLD IND field on the CCCOPT form indicates whether or not to print a message on the security printer if the operator stays in the EI (Emergency Interrupt) mode longer than a specified limit. The EI limit is defined in the EI LIMIT field on the CCCOPT form.

OSPSOPT form (5424 Record) - The ability to turn on or off the BLV feature in the OSPS office is provided. This is done via the BLV field on the OPSOPT form.

28.7 BLV Craft Test Calls

The craft is able to test BLV trunks from an operator's position before the trunks are actually put in service. No new data other than the above is required. The feature activation field (BLV) may be off. To make a BLV craft test call, the position must be made busy, then a loop accessed. A back number is entered, but completing the back connection is not required. A forward number is entered. The normal operator verify procedures can then be followed from this point on.

28.8 Queuing for BLV Trunks

The ability to queue for BLV trunks is provided. It uses the BRCS queuing mechanism modified to handle BLV. Queuing is defined when the BLV trunk group is assigned. The rules for using the BLV queuing are as follows:

1. BLV trunk queuing should not be used when the 5ESS Switch is performing as a tandem office and only passing the BLV call through the network. Queuing should not be used when the OSPS originates BLV calls and is on a node in the BLV network.
2. BLV queuing should only be used when there are a minimal number of BLV trunks providing access to the BLV network for one OSPS office. It should also be done when the OSPS is not on a BLV network node.

3. Since most OSPS offices will probably be on a node in the BLV network, BLV queuing should seldom be used.

29. CUSTOM INFORMATION DISPLAY

The CID (Custom Information Display) is used to associate text with a trunk group number. This text indicates special services associated with the trunk group, such as an operator greeting for all calls on a trunk group.

29.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LECTEXT	5444	3	4AS	27.20
TGNLEC	5443	3	4AR	27.21

29.2 Translation Requirements

When a call is sent to an OSPS operator position, the trunk group number is searched for in the TGNLEC form. If it is found, then the LECTEXT form is used to retrieve the CID text for the TGN. This text is displayed in the detail window of the VDT and informs the operator of special services for the TGN.

30. EXTERNAL DATA BASE MESSAGE HANDLER

The EDBMH (External Data Base Message Handler) is the software within the OSPS that provides the interface between the Call Processing software and data bases external to the OSPS. Currently, its interfaces are with the BVA (Billing Validation Applications), NCD (Network Call Denial) and CFR (Centralized Flexible Rating) data bases which reside on the CCS network. In addition, it interfaces with the RTRS (Real-Time Rating System) data base which is connected to a SM with ISDN capabilities.

The BVA data base is used for the validation of calling cards, collect numbers and billed-to-third numbers. The NCD data base is used to prevent billing of AT&T carried calls to delinquent customers. The CFR data base and the RTRS database are used for the rating of calls in real-time.

30.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

OSPSOPT form (5424 Record) - Much of the EDBMH software is controlled via OSPS office options, which are listed below:

- RATE DB
- OSPS TA
- SAMPLE SQD
- RATE (TIME, MIN QRY, ALARM THR, OVLD TIME 1)
- CC (TIME, MIN QRY, ALARM THR, OVLD TIME 1)

- BNS (TIME, MIN QRY, ALARM THR, OVLD TIME 1)
- NCD (TIME, MIN QRY, ALARM THR, OVLD TIME 1)

30.2 Translation Requirements

The options listed above are grouped together according to their functionality. Options within the same group serve the same purpose but control separate query types. The groups of options are used as follows:

TIME (Timeout Options) - This set of options is used to indicate the timeout period for the specific query types. That is, the EDBMH software will wait for the specified amount of time for a response from the data base. If it does not receive a response within the specified time, it will notify the Call Processing software of the failure. The action taken by Call Processing in failure situations is dependent upon the query type and CALL TYPE. Responses received from the data base after the timeout period are ignored by the EDBMH software.

- **WARNING:** This option is also used to determine how long Query IDs will be in use for every query sent. Therefore, specifying a timeout period greater than the default values may result in a shortage of Query IDs during high traffic periods.

Overload Timing Controls Options (OVLD TIME 1) - This set of options is used to indicate the overload timing period for the specific query types. This option is defined only for those query types that use linear cutback controls (cutback N out of 8 query attempts). Query types that use call gapping controls (send 1 query every N1 seconds for a duration of N2 seconds), do not have this type of option.

This option indicates the longest period of time that any one non-zero overload indicator sent back from the data base will be in effect. If the data base sends back a non-zero database control, those controls will be in effect for the specified overload period or until another non-zero overload control is received, whichever comes first.

Alarm Minimum Query Options (MIN QRY) - This set of options is used to indicate the minimum number of query attempts for a specific query type that must have been made in a 15-minute period before query alarm calculations will be performed. This is used to protect against alarm activations during low traffic periods in which a few query failures could result in alarm threshold violations. This option along with the next option are used by the EDBMH Query Software Alarm processing.

Alarm Threshold Options (ALARM THR) This set of options indicate the minimum threshold value for each query type for query software alarm calculations. If the query success rate falls below the specified threshold and the minimum number of queries has been satisfied for that 15-minute period (see above option), an alarm is sounded and a message printed at the MCC.

Rating Data Base Option (RATE DB) - This option indicates whether the OSPS is to communicate with the CFR data base or the RTRS database for its real-time rating information. The OSPS office can only communicate with one of the two rating data bases.

OSPS Toll and Assistance Option (OSPS TA) - This option indicates whether the OSPS toll and assistance is on. The global EDBMH software is triggered only when this option is on.

Sampling Rate For Supplemental Query Data (SAMPLE SQD) - This option is used as a threshold for requesting a Supplement Query Data message from an SM when the total number of successful BVA queries is equal to or greater than the value of this option.

30.3 EDBMH with DLN equipped

OSPSOPT form (5424 Record) - The following EDBMH options will also be populated in the DLN when the office is equipped with the hardware. Their usages are the same as mentioned above.

- RATE DB
- OSPS TA
- SAMPLE SQD
- RATE (TIME, OVLD TIME 1)
- CC (TIME, OVLD TIME 1)
- BNS (TIME, OVLD TIME 1)
- NCD (TIME)

WARNING: Since the DLN is external to the 5ESS Switch, the current design for updating any office option in this hardware imposes a delay of 15 minutes at most before the new data can be used.

31. INTERMEDIATE SWITCH POINT

The ISP (Intermediate Switching Point) Capability serves two functions in the 5ESS Switch: 1) It provides a means to route operator calls to an appropriate OSPS; 2) If the 5ESS Switch contains an OSPS internally, then calls can be handed-off or calls can be routed to an outgoing trunk group destined for an OSPS associated with the carrier identified. Thus, ISP can function with or without an OSPS resident to a 5ESS Switch.

If there exists an OSPS on a 5ESS Switch, then ISP provides the front-end processing required for handling OSPS calls (e.g., digit collection, determining CALL TYPE, passing trunk characteristic information, etc.). If there is no OSPS on the 5ESS Switch, then ISP will route calls to the appropriate OSPS based on the carrier (i.e., intraLATA, interLATA or international).

31.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACQS	5425	3	4Z	26.11
DIOPR	5418	3	4S	26.25
EXMAP	5440	3	4BL	26.32
NPAMAP	5414	3	4O	26.1
OFCOPT	5509	3	5I	8.1
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
RAR	5301	3	3F	10.10
TKGRP	5202	3	2A	5.1

31.2 Translation Requirements

The ISP uses two input forms and three office options for a majority of its processing. However, it accesses five other ODA records and four office options that are either shared with OSPS or used in general call processing. Details on the forms and options are discussed below.

OPRTK form (5417 Record) - The OPRTK form contains a number of attributes to identify the characteristics of the incoming Trunk Group. The key to this relation is the TGN (Trunk Group Number) which must be defined on a TKGRP form. The OPRTK form also contains the carrier ID used for routing intraLATA, interLATA and international OS calls. The carrier is determined by ISP and that carrier ID is then used as an index into the next record.

DIOPR form (5418 Record) - The DIOPR form contains routing information for a particular carrier ID (key). It also provides data to determine if all CALL TYPES will be handled by the same OS (could have restricted CALL TYPES). If no call restrictions are present for a carrier ID, then the primary code index and overlap outpulsing indicator will be used to route the call. If the primary code index is "0", this means the call will be handed off to an internal OSPS and not routed externally to the 5ESS Switch.

Listed below are the possible restrictions that can exist on a carrier ID.

- Coin
- ACQS Auto Quote
- ACQS Voice Quote
- Non Coin 950-WXXX
- Coin 0+ 950-WXXX
- Coin 1+ 950-WXXX
- Teleconferencing

If a particular CALL TYPE is restricted and ISP determines that the restrictions apply to the call, the code index and overlap outpulsing indicator is overwritten by an alternate value and the call is routed normally.

ACQS form (5425 Record) - The ACQS form is used by ISP to determine if a hotel back number is Auto Quote or Voice Quote. This is necessary only if hotel calls have traffic restrictions for a particular carrier.

NPAMAP form (5414 Record)

EXMAP form (5440 Record) - LATA Mapping and Exception Area Mapping may also be done by ISP. If turned on, the data used in this mapping must be defined in a NPAMAP form and a EXMAP form. ISP shares these relations with OSPS.

RAR form (5301 Record) - A RAR form is used by ISP to determine the route index for a call to route to an external OS. The keys to this form are the code index, prefix and screening index. The code index used is the one found in the DIOPR form. The screening index comes from the OPRTK form.

TKGRP form (5202 Record) - The TKGRP form is used to define ISP incoming trunks. For ISP software to be entered, the TRKCLS field on this form must be "FIOPR".

31.2.1 Office Options

There are a total of six office options used by ISP. The names and functions are described below.

31.2.2 OSPSOPT form (5424 Record)

- OSPS TA - Set to indicate if OSPS is integrated on the switch.

- LATA MAP - Defined as a boolean value identifying if LATA mapping is to be performed.
- EXCEPT DETRM - Defined as a boolean value identifying if exception area determination is to be performed.

31.2.3 OFCOPT form (5509 Record)

- ISP DIGITS - Ranges from 2 to 31 and determines the initial number of digits to collect prior to the beginning overlap outpulsing.
- OVERLAP SIZE - Ranges from 1 to 15 and determines the number of digits to collect when performing the overlap outpulsing function.
- FAIL ID - Set to the carrier ID for MFJ (Modified Final Judgement) trunks where ANI (Automatic Number Identification) transmission failure occurs and carrier cannot be determined.

31.3 Other Details

The ISP uses standard digit translation for its digit analysis. The major difference is that ISP overwrites the code index received from digit analysis and inserts the code index from the DIOPR form. All other routing data remains the same.

32. ORIGINATING LINE SCREENING

OLS (Originating Line Screening) restricts classes of charge billed to by specified back numbers. It also indicates special operator treatment to be given to users of specified back numbers via text displayed to the operator. Furthermore, OLS is where lines are flagged as coin lines and where a back number can be flagged so that all calls from that back number are operator-handled. True billing numbers are stored in OLS tables.

32.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FIXRT	5301-1	3	3G	10.1
LINESCRN	5416	3	4Q	26.2
NPAMAP	5414	3	4O	26.1
OPRTK	5417	3	4R	26.26
SCRNCODE	5415	3	4P	26.3

32.2 Translation Requirements

NPAMAP form (5414 Record) - Because the quantity of OLS data is too great to be stored on each SM, the data is divided among all SMs used for OSPS traffic by assigning all OLS data for an NPA-NXX to a SM. This assignment is specified in a NPAMAP form. The SM specified on a NPAMAP form cannot be a RSM.

OPRTK form (5417 Record) - Whenever a call arrives on a trunk specified in the OPRTK form as ANI-Search, Dedicated-Screened or possibly carrying coin traffic or is signaled with an ANI-7 digit, the back number is checked against OLS records. First, the NPA-NXX of the back number is used to find the SM on which any OLS data for the back number is stored by searching the data specified in the NPAMAP form.

LINESCRN form (5416 Record) - Once the SM has been determined, OSPS sends a query to that SM to

retrieve any data that may be in the LINESCRN form for the back number. The data found can indicate:

- billing restrictions,
- whether to always route the call to an operator position,
- whether the call receives ACCS (Automated Calling Card Service) treatment,
- the originating station type,
- whether the back number is a coin phone,
- whether there is a true billing number to replace the back number,
- or whether the back number is restricted from SAB (Subaccount Billing).

SCRNCODE form (5415 Record) - If the call is sent to an OSPS operator position, the screen code associated with the back number is searched for among the SCRNCODE forms and the class of charge restrictions and associated text are used to deny or allow classes of charge and to inform the operator of the restrictions.

FIXRT form (5301-1 Record) - 1+ calls that are OLS-screened against the PAID class of charge are routed to an announcement using the fixed routing type of "OLSPD" that is populated in the FIXRT form. If routing to the announcement fails, the call is sent to reorder. Any call for which no data is found is treated as not OLS-screened.

33. OPERATOR TROUBLE REPORTS

This section will address operator trouble reports. The first topic presented is setting up the data for any trouble report, while the remaining two parts discuss specific types of reports.

33.1 OTR (Operator Trouble Reports)

OTRs generated from a VDT are printed on the OTRP (Operator Trouble Report Printer) that is connected to an OAP located at an OSC (Operator Service Center) or FMC (Force Management Center). Certain OTRs can also be forwarded to an EOAS (External OTR Analysis System) from a properly equipped FMC. The data for the OTRs and the location of the OAP must be properly defined through the following ODA forms.

33.2 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OPARM	5400	3	4A	21.1
OSPSOA	5403	3	4D	21.4
OSPSOPT	5424	3	4Y	8.9
OTRVLD	5410	3	4K	21.6

33.3 Translation Requirements

OTRVLD form (5410 Record) - When an operator enters a trouble code to generate an OTR, the trouble code is matched to the corresponding OTR ID in an OTRVLD form, if it exists. The trouble code that has been matched successfully is then checked to determine if the IN USE field is set to "Y". If so, the remaining data from the OTRVLD form is checked as follows: the MCC field to determine if the OTR is to be printed on

the ROP, OKTR (Operator Keyed Trouble Report) to determine if it is to be printed on the OTRP, the OFFICE TYPE and OFFICE NUMBER to determine which office the report is to be sent to. The OFFICE TYPE and OFFICE NUMBER match with data supplied in the OPARM form to determine where the OAP is located. It is possible that the OAP is connected to a PSM other than the one from which the OTR was generated.

33.4 Interflow Considerations

On Interflow calls operator-keyed trouble reports are output at the "receiving OSPS," i.e., the OSPS at which the operator VDT resides. The validity of the trouble code is checked at the receiving OSPS. The position ID field is that of the operator's VDT position.

33.5 Other Details

OPARM form (5400 Record) - The OAP must be defined as an FMC or an OSC. This should correspond to the OPARM form and can be defined by running 'sysgen' on the OAP. If it is not defined correctly, then the OAP will not log into the switch successfully.

Only offices defined as FMC will be equipped with a link to an EOAS (External OTR Analysis System). OSCs are only capable of printing OTRs on the OTRP while FMCs can print the OTRs and forward valid OTRs to an EOAS.

OSPSOA form (5403 Record) - OTRs that are to be forwarded to an EOAS, such as NOTIS or NSCS, must have trouble codes between 010 and 099 and be generated by an operator with an ALL NUMERIC login ID, defined on an OSPSOA form. Trouble codes entered on the VDT that are two-numeric digits will have a leading zero attached to the code, thus, "10" is the same as "010".

OTRs in the range of 010 - 099 can be marked so that they are not printed on the OTRP. All other numeric and alphanumeric OTRs that are defined will always be printed on the OTRP. OTRs that are marked for non-printing, by setting OTRP to "N", are still sent to the OAP even though they will not be printed. All OTRs can be defined so that they are not printed on the ROP.

33.6 Coin Fraud/Coin Credit Operator Keyed Trouble Reports

Coin Fraud and Coin Credit OKTRs (Operator Keyed Trouble Reports) are used to generate reports whenever an operator handles a request for credit on a coin call or believes there was fraud on a coin call, e.g., blue box usage to generate tones.

Whenever an operator enters a coin fraud or coin credit trouble number in the Trouble Number field on the VDT, OSPS generates a record on the OAP.

33.7 Automatic Operator Trouble Reports for ANI Failure Calls

OTRs (Operator Trouble Reports) may be automatically generated within the OSPS for ANI (Automated Number Identification) failure calls. This will log each ANI failure that arrives at an OSPS operator position at the OAP OTR printer and/or the MCC ROP. The trouble code used in each case will be '090'.

33.8 Interflow Considerations

For Interflow calls the trouble reports for code "090" are output at the "sending OSPS," i.e., the OSPS at which the call is initially handled. If an operator keys in a trouble code of "090", the trouble report is handled the same as for automatically generated trouble reports. The position ID field of the trouble report with code "090" contains the position number of the Interflow channel at the sending OSPS.

OSPSOPT form (5424 Record) - If the ANIF TRBL RPT field on the OPSOPT form is set to "Y", then "090" trouble reports will be generated for each ANI failure call. If it is set to "N", then no "090" trouble reports will be automatically be reported.

33.9 Other Details

This trouble report is created each time a back number is keyed in by the operator, so it is conceivable that more than one trouble report may be generated per ANI failure.

Trouble code "998" is to be used in case the Back Party on the call is TALKING to the operator but the operator's display shows that the Back Party is on-hook. When entered at the operator position, this trouble code will cause the operator's display to be updated showing the Back Party as off-hook.

Trouble code "999" is to be used in case the Forward Party on the call is TALKING to the operator but the operator's display shows that the Forward Party is on-hook. When entered at the operator position, this trouble code will cause the operator's display to be updated showing the Forward Party as off-hook.

- **WARNING:** Trouble codes "998" and "999" should only be used for the purpose stated above. If these trouble codes are used for any other purpose, there could be harmful side effects, i.e., incorrect billing and asserts.

34. REAL TIME RATING SYSTEM

To handle any calls requiring immediate calculations of time and charges, a real time rating data base is needed. RTRS (Real Time Rating System) receives queries sent from the switch regarding a specific call and sends back a reply containing the chargeable time and the charges for the call.

34.1 ODA Forms

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
NXXZN	5427	3	4AB	26.12
OSPSDSL	5411	3	4L	21.30
OSPSOPT	5424	3	4Y	8.9
TMZN	5426	3	4AA	26.14

34.2 Translation Requirements

OSPSOPT form (5424 Record) - There are two RTRS links connected to the RTRS data base(s) used to send and receive queries. The two links may be connected to one RTRS data base or to two separate RTRS data bases. These links are connected to one ISDN SM in the 5ESS Switch. The RTRS SM field on the OPSOPT form must be set to indicate to which SM these links are attached so all queries can be sent out over them. For RTRS to function, the RATE DB field on the OPSOPT form must be set to indicate that the data base is "RTRS", not CFR (Centralized Flexible Rating).

If there is a load on the system or the RTRS data base, queries may be queued before they can be sent out. The (RATE) TIME field on the OPSOPT form is set to the time that the query may be queued before a timeout is assumed for that query and a failure is returned to the system.

If there is a heavy load on the RTRS data base, the database may return in one of its query replies a cutback parameter from 1 to 7. This parameter indicates the number n of 8 queries which are to be cut back for a certain period of time. This time is indicated in the (RATE) OVLD TIME 1 field of the OPSOPT form.

NXXZN form (5427 Record) - In the process of sending out a data base query to retrieve charge information, the start time of the call must be sent. The time at the customer location may, however, differ from that of the switch. In order to calculate the time at the customer's location, the TMZN form and the NXXZN form are used.

TMZN form (5426 Record) - Based on the originating NPA, the TMZN form indicates which of 3 time zones the majority of the customers reside in and if there are exceptions, that is, if all customers in the NPA are not in the same time zone. The NXXZN form shows the exceptions to the majority of customers, based on the originating number's NPA-NXX combination.

There may be up to 3 time zones served by a switch. The 3 possibilities are prime time (the same time as the switch), an alternate 1 time and an alternate 2 time. The difference between alternate 1 time and the time of the switch is found in the A1 ZONE field on the OSPSOPT form and, correspondingly, the difference between alternate 2 time and the switch is found in the A2 ZONE field on the OSPSOPT form.

OSPSDL form (5411 Record) - OSPS interfaces to the RTRS via DSLs. Typically, 2 DSLs are established between the OSPS and RTRS data base(s); therefore, 2 entries in the OSPSDL form are made. Both DSLs are actively used to send rating queries to and receive responses from the RTRS data base(s). Both DSLs must be connected to the same SM, thus the SM portion of the LCEN entered for both DSLs must be equal. Each RTRS DSL must have a SERVICE CLASS equal to "RTRS".

The DSL NAME ID and DSL NAME RL fields are used to define the external names used to reference the DSLs. If a maintenance message pertaining to a RTRS DSL is printed on the ROP, these 2 fields are used to identify the DSL.

In the case where only one RTRS DSL is defined, the DSL NAME RL must be an even number, e.g., 2. In the case where 2 RTRS DSLs are defined, the DSL NAME RL values must be consecutive, with the even DSL NAME RL value equal to the odd value minus one, e.g., 2 and 3 or 4 and 5. For additional information on RTRS DSLs and the use of the DSL NAME ID and DSL NAME RL fields, please refer to Division 3, Section 4L.

RTRS DSLs may be connected to a RISLU or ISLU. In the case where they are connected to an ISLU, the DPIDB, D TIMESLOT and QTR TS fields must be assigned values.

35. TERMINATING CODE SCREENING

TCS allows the Telephone Company Administration (TCA) to restrict selected originating station classes from making collect or credit card calls to certain NPAs, NPA-NXXs or Country Codes. For automated credit card calls, TCA has the option to route the call to an operator position or to give the calling party reorder. There can also be special TCS text printed on the VDT screen if a forward number is called to give special instructions on how to handle the call.

35.1 ODA Forms For TCS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TCSCC	5438	3	4AM	27.3
TCSNPA	5437	3	4AL	27.2
TCSTEXT	5436	3	4AK	27.1

35.2 TCS Feature Assignment

This section outlines the steps for assigning the feature.

35.3 Credit Card Calls

The first step in deciding if a call is TCS restricted is based on the forward number. For a domestic number, the TCSNPA form is checked. An entire NPA can be screened or screening can be done based on an NPA-NXX basis. If there is an entry for an entire NPA and another for a particular NXX within the same NPA, the screening for the entire NPA takes precedence. For an international number, the TCSCC form is checked, based on the Country Code of the forward number. If an entry is found, the call has TCS data.

The second step is based on the screen code found in either the TCSNPA or TCSCC form. If the screen code is zero, the call is not considered TCS restricted. The screen code must be non-zero for any TCS restrictions to be enabled.

Next, the originating station class of the call is determined. All calls are grouped into three categories: public phones, hotel phones and non-public non-hotel phones. For automated and operator-assisted credit card calls, the screen code determined in step two is used to find the corresponding entry in the TCSTEXT form. The originating station class field is checked for TCS restrictions and, if the field is set to "Y", the call is TCS restricted.

The fourth step deals with routing and messages. For an automated call that is TCS restricted, the reorder field in the matching entry in the TCSNPA form is looked at. If the field is set to "Y", the back party will receive reorder. If the field is set to "N", the call will route to an operator with a TCS error message in the loop data window of the VDT screen. For an operator-assisted call, a TCS error message will appear in the loop data window of the VDT screen.

35.4 Collect Calls

Steps one and two apply as well for collect calls. The third step is irrelevant since originating station classes have no effect on TCS restricted collect calls.

The next step is to find the matching entry in a TCSTEXT form, using the screen code of step two. If no code is found, TCS restrictions do not apply for collect calls. If a code is found, check the ALL DENY COLLECT field. If it is set to "Y", all collect calls will be TCS restricted. If it is set to "N", check the STATION ONLY DENY COLLECT field. If this is set to "Y", station collect calls will be TCS restricted, but not person collect. If both fields are "N", no collect calls are TCS restricted to this forward number.

If the collect call is TCS restricted, an error message will appear in the loop data window of the VDT screen.

35.5 TCS Text

No matter if a call is TCS restricted or not, a call may have TCS text associated with it. Find the screen code of the forward number as in steps one and two above. Next, use this code to find a matching entry in a TCSTEXT form. If the code matches a value in the screen code field, the characters in the TEXT field comprise the TCS text. Any time a call is at an operator position and there is a forward number that has TCS text associated with it, the TCS text will appear on the screen page of the VDT.

35.6 Other Details

If the data appears to be set up correctly and the calls are not properly TCS restricted, you might want to check the OLS data and the hotel data if you are making a hotel call. These screening checks are done before the TCS checks.

DIGIT ANALYSIS DATA

The following tables summarize how data for numbers of the form NPA-NXX-XXXX, NPA-TTC-OSDC and NPA-OSDC can be put into the Local Digit Interpretation Record and the Conflict Resolution Record. In the tables, INCOMING DIGITS and NUMBER OF DIGITS represent the actual dialed digits. RECORD means either enter this in the LDIT record only or in the LDIT and the CONFLICT record. MEANING indicates whether this number is vacant, is a route number or is a normal directory number

The table below shows the minimal amount of data that would be set up if 4 digit OSDCs are not used and if the NPA-OSDC form of a route number is not used.

INCOMING DIGITS	NUMBER OF DIGITS	RECORD	MEANING
NPA	9	CONFLICT	ROUTE
NPA	10	CONFLICT	NORMAL
NPA	11	CONFLICT	ROUTE

The following table shows the minimal amount of data that would be set up if 4 digit OSDCs are used while the NPA-OSDC form of a route number is not used.

INCOMING DIGITS	NUMBER OF DIGITS	RECORD	MEANING
NPA0	9	CONFLICT	ROUTE
NPA0	10	CONFLICT	ROUTE
NPA0	11	CONFLICT	ROUTE
NPA1	10	LDIT	VACANT
NPA2	10	LDIT	NORMAL
NPA3	10	LDIT	NORMAL
NPA4	10	LDIT	NORMAL
NPA5	10	LDIT	NORMAL
NPA6	10	LDIT	NORMAL
NPA7	10	LDIT	NORMAL
NPA8	10	LDIT	NORMAL
NPA9	10	LDIT	NORMAL

The next table shows the minimal amount of data that would be set up if both 4-digit OSDCs and the NPA-OSDC form of a route number are used.

INCOMING DIGITS	NUMBER OF DIGITS	RECORD	MEANING
NPA0	9	CONFLICT	ROUTE
NPA0	10	CONFLICT	ROUTE
NPA0	11	CONFLICT	ROUTE
NPA1	6	CONFLICT	ROUTE
NPA1	7	CONFLICT	NORMAL or ROUTE
NPA1	8	CONFLICT	ROUTE
NPA2	10	LDIT	NORMAL
NPA3	10	LDIT	NORMAL
NPA4	10	LDIT	NORMAL
NPA5	10	LDIT	NORMAL
NPA6	10	LDIT	NORMAL
NPA7	10	LDIT	NORMAL
NPA8	10	LDIT	NORMAL
NPA9	10	LDIT	NORMAL

The case above with two meanings occurs when there is an NPA, NXX conflict. Since only 1 choice can be made as to the meaning, this generally would represent a 7-digit local directory number.

Figure 1 DIGIT ANALYSIS DATA

This table shows the relationship between carriers and the type of Carrier Interconnect for a call

CI Type	CI Type VS Carrier Compatibility			
	OSPS Owner			
	LOCAL Carrier		TOLL Carrier	

	LEC	IC	LEC	IC (owner)	IC (other)
NONCI	C (1)	NC	NC	C (1, 4)	NC
INTRA	C (1)	C (2, 5)	C (1)	C (1, 4, 5)	C (2, 5)
COMP	C (1)	C (2)	C (1)	C (1, 4)	C (2)
PRIV	C (1)	C (2)	C (1)	C (1, 4)	C (2)
INTER	NC	C (2)	NC	C (1, 4)	C (2)
IDDD	NC	C (2)	NC	C (1, 4)	C (2)
WZ1	NC	C (2)	NC	C (1, 4)	C (2)
SAC	C (1)	C (1, 3, 4)	C (1)	C (1)	C (1, 3, 4)
TRANS	NC	C (2, 6)	NC	C (1, 4, 6)	C (2, 6)

LEGEND:

CI Type - The type of carrier interconnect determined by digit analysis or as set by LATA mapping/ exception area mapping.

C - Compatible NC - Not Compatible

Notes:

- 1 - Routing data from INDIT/LDIT used
- 2 - Routing data from carrier related forms (ICF, RSMCAR, CDIM) used
- 3 - Routing data may be modified by RSMCAR data
- 4 - Routing data may be modified by CDIM data
- 5 - Only allowed if INTRA IND on ICF form is set to YES
- 6 - Only allowed if ICF form indicates carrier accepts this type of access

For a carrier to be used for a forward or floatable route number, the LEC SERVICE field of the ICF form must be set to YES.

Figure 2 CARRIER INTERCONNECT AND ROUTING DATA

SEC. 3I: OSPS TOLL AND ASSISTANCE FEATURES FOR 5E5 AND LATER SOFTWARE RELEASES

1. INTRODUCTION

OSPS Toll and Assistance provides for operator handling of a call to facilitate collect, person-to-person, calling card and third party billing calls, as well as providing support for automated coin collection, automated calling card service, hotel/motel billing quotation and external rating databases.

This section provides brief descriptions of the various capabilities and features which were added to the OSPS Toll and Assistance features for 5E5 and later Software Releases. Each feature is described functionally, from an ODA input form perspective.

2. DA TO VDT CALLS

This feature allows a DA (Directory Assistance) call to be directed to a VDT position. The call queue can be determined based on either the incoming trunk group number or the digit received or neither. DA calls come from MF (Multifrequency), DP (Dial Pulse) and Seizure Only trunks. If rerouting is not in effect, an operator request is generated and the call is routed to a position. Re-routing of a DA call occurs when the serving team that handles DA calls are actively being interflowed to another switch. DA calls will not be interflowed; instead they will be rerouted to another switch.

(For 5E7 and later please also refer to Directory Assistance Call Completion in Division 2, Section 3C on Listing Services Features.)

2.1 ODA Forms

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	3M	26.10
ACDPOL	5412-B/C/E/F	3	4M	26.10
INFLDEST	5448	3	4AW 21.27	
OBSTS	5408	5	1F	23.13
OSPSCT	5404	3	4E	21.22
RAR	5301	3	3F	10.10
RTIDX	5303	3	3P	10.2

2.2 Translation Requirements

ACDCTP form (5412-A/D Record)

ACDPOL form (5412-B/C/E/F Records) - The result of a standard digit analysis using 5300 series ODA records for a DA call is a destination type of DA2VDT. The initial digit analysis is done on the incoming digits dialed for the DA2VDT call. The destination type is passed to call processing so that special handling can be performed for the routing of this call. The ACDCTP and ACDPOL forms are used to determine the CALL TYPE (or call queue) of this call. Refer to the expanded CALL TYPE determination information in Division 3 Section 4M for the use of these forms. The keys to the ACDCTP form are:

Entry	Definition
CALL ORIGIN	This is "DA2VDT" for the call.
PREFIX	This is the prefix digit dialed
COIN	This is the coin indicator ("Y" or "N").
CARRIER	This is the carrier handling the call.
OSPS ID	This is the Sending OSPS identifier for received Interflow calls only. All other calls have the default value of "0".

The DISPLAY INDEX field on the ACDCTP form or the DISPLAY field on the ACDPOL form (whichever is used as final ECTD result) is used to index into an OBSTS form for the text which will be displayed on the VDT.

INFLDEST form (5448 Record) - If DA re-routing is active, then the Destination ID (DEST ID), the incoming TGN (Trunk Group Number) and the digit analysis destination index (INC CDI) are used as keys to an INFLDEST form. The result is a new Outgoing Destination Index (OUTGO CDI) and a Destination Name (DEST NAME).

OSPSCT form (5404 Record) - The serving team is then determined from an OSPSCT form.

RAR form (5301 Record) - The OUTGO CDI and the screen index from incoming trunk group digit analysis are the keys to a RAR form. The output from the RAR form is the RTI (Route Index).

RTIDX form (5303 Record) - The RTI is in turn the key to a RTIDX form. The output from the RTIDX form is the TGN for this call to the new destination. The call is then handled by that destination office (DEST NAME) as if it were a new incoming call.

3. NON - INTERMEDIATE SWITCH POINT CALLS

This feature allows a NON ISP (Intermediate Switching Point) call to be directed to a VDT position. The call queue can be determined based on either the incoming trunk group number or the digit received or neither. NON ISP calls come from MF (Multifrequency), DP (Dial Pulse) and Seizure Only trunks. CCS (Common Channel Signaling) and ISP trunks are not supported.

3.1 ODA Forms

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	3M	26.10
ACDPOL	5412-B/C/E/F	3	3M	26.10
INFLDEST	5448	3	4AW	21.27
OBSTS	5408	5	1F	23.13
OSPSCT	5404	3	4E	21.22
RAR	5301	3	3F	10.10
RTIDX	5303	3	3P	10.2

3.2 Translation Requirements

The result of a standard digit analysis using 5300 series ODA records for a NON ISP call is a destination type of "OPNIT". The initial digit analysis is done on the incoming digits dialed for the NON ISP call. The destination type is passed to call processing so that special handling can be performed for the routing of this call.

ACDCTP form (5412-A/D Record)

ACDPOL form (5412-B/C/E/F Records) - The ACDCTP and ACDPOL forms are used to determine the CALL TYPE (or call queue) of this call. Refer to the expanded CALL TYPE determination section for additional information on use of these forms. The keys to the ACDCTP form are:

Entry	Definition
CALL ORIGIN	This is "NIT" for NONISP call.
PREFIX	This is the prefix digit dialed.
COIN	This is the coin indicator ("Y" or "N").
CARRIER	This is the carrier handling the call.
OSPS ID	This is the Sending OSPS identifier for received Interflow calls only. All other calls have the default

 value of "0".

The DISPLAY INDEX field on the ACDCTP form or the DISPLAY field on the ACDPOL form (whichever is used as final ECTD result) is used to index into an OBSTS form for the text which will be displayed on the VDT.

INFLDEST form (5448 Record) - If DA re-routing is active, the Destination ID (DEST ID), the incoming TGN and the digit analysis Destination Index (INC CDI) are used as keys to an INFLDEST form. The result is a new outgoing Destination Index (OUTGO CDI) and a Destination Name (DEST NAME).

OSPSCT form (5404 Record) - The serving team is then determined from an OSPSCT form.

RAR form (5301 Record)

RTIDX form (5303 Record) - The OUTGO CDI and the screen index from incoming trunk group digit analysis are the keys to a RAR form. The output from the RAR form is the RTI (Route Index). The RTI is in turn the key to the RTIDX form. The output from a RTIDX form is the TGN for this call to the new destination. The call is then handled by that destination office (DEST NAME) as if it were a new incoming call.

4. INTERNATIONAL CALLS - FULLY CODED ADDRESSING

International Calls are calls placed from one world numbering zone to another world numbering zone. The data described below allows for calls from an OSPS office within the United States to be placed to another world numbering zone.

In the 5E5 Software Releases, the FCA (Fully Coded Addressing) feature was added to allow International outbound calls to be routed over CCS trunks with a one-stage signaling protocol. FCA can also route over non-CCS trunks using the traditional two-stage protocol. When the OSPS FCA feature is activated, all of the OSPS International Outbound calls will use the reserved FCA digit tree for digit analysis instead of the trunk group digit trees.

4.1 ODA Forms

The ODA forms used for populating ODD for International Calls are, for the most part, the same ODA forms used in populating ODD for normal POTS calls. The exceptions are the IDDD (5307 Record), OSPSOPT (5424 Record) and TCSCC (5438 Record) forms. Forms to be discussed are:

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	3M	26.10
ICF	5305	3	3R	10.3
IDDD	5307	3	3T	9.6
LDIT	5300-3/5	3	3c	9.3
OFCOPT	5509	3	5I	8.1
OSPSOPT	5424	3	4Y	8.9
PDIT	5300-2	3	3B	9.2
RAR	5301	3	3F	10.10
RSMCAR	5421	3	4V	26.22
TCSCC	5438	3	4am	27.3

4.2 Translation Requirements

ACDCTP form (5412-A/D Record) - New international prefixes (01 and 011 for "01+" and "011+" calls, respectively) have been added to the ACDCTP form. Figure 3 contains a sample of the ACDCTP form with international data.

ICF form (5305 Record) - Given the carrier selected for the call, the ICF form provides a possible new code

and route index for international calls, coming from the INTL CDI and INTL RTI fields, respectively.

IDDD form (5307 Record) - The IDDD form accomplishes the same function for international calls. Since the customer dials the CAC after the prefix, it is this code that is entered as the key on the IDDD form.

When digit analysis is done on an operator entered international forward or international route number, a prefix of "011+" is always used. The only time the "01+" prefix is used is when ISP does digit analysis on an international number signaled from a non-conforming end office.

The value for the minimum number of digits field, MNDE, should be the minimum length of the appropriate Country Code plus the national number. In a local office, this can be as small as 7. For the IDDD form associated with an incoming ISP trunk, another value for MNDE must be considered. The alternate value is the Country Code plus 3, since an OSPA operator can enter an international route number with as few as 4 digits (e.g., a 1-digit Country Code plus route number 121). If operators are not allowed to enter and route to international route numbers, then MNDE should be set to the same value as was used in the local office, otherwise the alternate value should be used. The maximum number of digits field, MXDE, should continue to be set to the sum of the Country Code plus the maximum length of the national number.

LDIT form (5300-3/5 Record) - For domestic calls, the LDIT form is used to populate the possible incoming digits (after the prefix) that may be dialed by the customer.

OSPSOPT form (5424 Record) - The FCA feature is only available in AT&T TOLL offices. The OFFICE TYPE field on the OFCOPT form must be set to "Y" for Toll offices. The OFFICE CARRIER field must be set to "288" to indicate that this is an AT&T office. The FCA feature is activated by setting the FCA ON field on the OPSOPT form to "Y".

PDIT form (5300-2 Record) - The PDIT form allows an end office to enter the possible International prefixes that customers may dial in making International calls. OSPA allows "0-", "01+" and "011+" international prefixes. "01+" is synonymous to the "0+" domestic prefix. "011+" is synonymous to the "1+" domestic prefix. Since "0-" applies to domestic as well as international, an office would usually already have this prefix in a PDIT form.

"01+" and "011+" may have to be added. Entries of the form "01X" and "011X" should be entered as DIGITS TO INTERPRET on a PDIT form to handle the "01+" and "011+" prefixes, where "X" is the first digit of the CAC (Country Access Codes) that are to be defined. The CALL TYPE field should be set to "LDIT". PREFIX should be set to "1" for "011+" and 0 for "01+" prefixes. The DIGITS TO DELETE field should always be "0". Figure 3 contains a sample of this form with international data.

RAR form (5301 Record) - Given a screen index, a code index and a prefix, the RAR form provides routing and charging information. Rating and Routing data for calls dial with a "01+" prefix is provided in the 0+ PFX fields of this form. Rating and Routing data for calls dial with a "011+" prefix is provided in the 1+ PFX fields of this form. Rating and Routing data for calls placed by an OSPA operator is provided in the NO PFX fields on this form.

RSMCAR form (5421 Record) - The CODE INDEX and ROUTE INDEX should continue to be set in the normal way. These values are the initial routing indices and may be changed by the data in the ICF or RSMCAR forms.

Figure 3 contains a sample of the IDDD form with international data.

If the call is being routed out of a RSM, an RSMCAR form is used to provide RSM specific data. This data is not used if the OSPA is owned by a consolidated carrier and if the carrier is the same as the owner.

The IDDD form has been modified for FCA to include a CALL TYPE field. The IDDDPFX field and the TYPE CI CALL field have been modified to allow new values for FCA. The IDDDPFX field has been modified to require a blank to be entered as a prefix for FCA calls. TYPE CI CALL field has been modified to require a "NONCI" value for FCA calls. The CALL TYPE field must have "IDDDFCA" for FCA calls. Figure 3 contains a sample of the IDDD form with international data for FCA.

TCSCC form (5438 Record) - The TCSCC form is used to populate data for the International feature and the Terminating Code Screening feature. The Country Code field should be populated with the Country Codes entered on the IDDD form. A PAIRED Country Code is assigned for each Country Code on this form. The remaining fields are related to TCS screening restrictions on the given international CACs. Refer to the TCS information in this section for more on these fields. Figure 3 contains a sample of the TCSCC form with international data.

5. TERMINATING CODE SCREENING ENHANCEMENTS

TCSE (Terminating Code Screening Enhancements) is available with 5E7 and later Software Releases and provides two major enhancements to the 5E4(2) TCS capability. It provides restrictions for collect calls based on both the originating NPA and the terminating code. (Only the terminating code was used in TCS.) It also provides screening for calling card calls based on the originating NPA (Numbering Plan Area), terminating code (i.e., country code, NPA, and or NPA-XXX), and originating station class (i.e., public, hotel, or non-hotel/non-public). (Only the terminating code and originating station class are used in TCS.)

Text for the operator displays is selected on the basis of both the originating NPA and terminating code. (Only the terminating code is used in TCS.) The number of available TCS screening codes is increased to 128.

This capability allows the telephone company to have different calling card and collect call terminating screening treatment and unique operator displays for the various originating NPAs served by the OSPs. In addition it increases the number of displays that can be used for informing operators of billing restrictions and/or special procedures for fraud prevention or traffic problems.

5.1 ODA Forms For TCSE

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TCSCC	5438	3	4AM	27.3
TCSNPA	5437	3	4AL	27.2
TCSTEXT	5436	3	4AK	27.1

5.2 TCSE Translation Requirements

Figure 8 shows the form flow for TCSE.

TCSCC form (5438 Record) - This record contains the terminating screen codes for Country Codes and is used for the international feature and the TCS feature. For TCSE, ORIGINATING NPA LISTS field was added. It contains the originating NPA of the back number. If "ALL" is entered for any originating NPA on this form, no other originating NPA entry is allowed. When retrofitting from 5E6 to 5E7, the originating NPA, NP1 of row 1 will be set to "ALL".

TCSNPA form (5437 Record) - This record contains the terminating screening codes for NPA-NXXs. The ORIGINATING NPA LISTS field contains the originating NPA of the back number. If "ALL" is entered for any originating NPA on this form, no other originating NPA entry is allowed. When retrofitting from 5E6 to 5E7, the originating NPA, NP1 of row 1 will be set to "ALL".

TCSTEXT form (5436 Record) - This record contains the text and restrictions associated with TCS as it appears on the VDT (Video Display Terminal). The SCRIN CODE field has been increased to 0 - 127.

6. TERMINATING CODE SCREENING RELEASE 3

TCS R3 (Terminating Code Screening Release 3) enhances the TCS feature to allow denial of third number billing calls to specified NPAs or Country Codes based on originating station type. TCS R3 also adds the ability to restrict non-blocked collect calls so that they may be completed only by manual operator outpulsing.

6.1 TCS R3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9
TCSTEXT	5436	3	4AK	27.1

6.2 TCS R3 Modified Forms

OSPSOPT form (5424 Record) - This form defines the OSPS office global parameters. Only one OPSOPT form can be entered per office. For 5E8 and later, the TCS PUB IND field indicates if the "Public ?? " indicator should be displayed for collect calls requiring manual outpulsing for the TCS feature.

TCSTEXT form (5436 Record) - The screen code is used to find the corresponding entry in the 5436 Record for automated and operator-assisted class of charge restriction. This form contains the text and restrictions associated with TCS as it appears on the VDT (Video Display Terminal).

For screening collect calls to a forward number, the field ALL was renamed DENY ALL, STATION ONLY was renamed DENY STATION, and a third field RESTRICT was added to indicate if non-blocked collect calls should be restricted to manual operator outpulsing.

Under the heading DENY THIRD NBR (TH), the following fields determine TCS for billing to a third number: PUBLIC, HOTEL, and OTHER.

7. CUSTOMER ACCOUNT SERVICES

The CAS (Customer Account Services) feature is available with 5E5 and later Software Releases. There are several releases of CAS. Each is discussed separately, however the information in the earlier releases generally applies to later releases.

7.1 CAS Release 1

The CAS 1 feature provides automated and operator-assisted support for the new AT&T Calling Card and also provides the ability to query the new CAS database via the CCS network. The AT&T calling card can be given automated treatment, operator treatment or inward treatment.

The AT&T CAS card can be used for intraLATA and interLATA calls. Calls can be restricted based on geographic location, both domestically and internationally (this is a feature of the external database, not the switch). The CAS cards are issued by the AT&T Special Long Distance Services and they conform to the CCITT format. They are validated in the AT&T CAS database using CCIS6/DCIS6 signaling. Inward validation is supported in addition to ACCS (Automated Calling Card Services) and operator handling. If a card cannot be identified in the credit card identification tables (TCCID form) or if only 14 digits are dialed, the card is assumed to be a LEC (Local Exchange Carrier) card.

Contract and Inverse Contract tables are used to indicate whether a billing contract exists for an AT&T call to be charged to a Local Exchange Carrier card, or a contract exists for a LEC call to be charged to an AT&T card.

If a check into a Contract Table (AT&T card - LEC carrier) fails, the customer is either routed to an operator or given an announcement prompting for entry of an LEC card number. If the check fails a second time on the same call, the customer is asked to hang up and arrange other billing, after which the call is dropped. The translation requirements section below provides additional information on how to specify which call treatment the customer will receive (CON TO OPR field on the OSPSOPT form).

If an Inverse Contract Table (LEC card - AT&T carrier) check fails, the customer is either routed to an operator or given an announcement prompting for entry of an AT&T card number. If the check fails a second time on the same call, the customer is asked to hang up and arrange other billing, after which the call is dropped. The translation requirements section below provides additional information on how to specify which call treatment the customer will receive (INCON TO OPR field on the OSPSOPT form).

7.2 CAS Release 1 Call Processing

When a "0+" call is received at the OSPS, the standard ACCS call screening against the calling card service is applied to the call. If the customer is allowed to use a CAS Calling Card, the calling card digits are collected by the Operator system. For CAS 1, only the AT&T Calling Card (CAS) is supported. After the first 7 digits are collected (CAS ON is "Y"), the data from the TCCID form is checked (in "0-" calls, all calling card digits are collected from the customer but only the first 7 are used for credit card identification). The TCCID data contains all of the non-LEC cards (CAS, CCC or TEL) that are recognized by the switch.

If the calling card can be identified, call processing will collect the remaining required digits (total digits = no. of issuer digs + no. of account digits + no. of check digits + no. of PIN digits). The maximum acceptable number of total digits is 32. If the calling card cannot be identified or if 14 digits are entered followed by a timeout, call processing will assume it is a 10+4 LEC card and process it accordingly.

After all of the card digits are collected, the Contract Tables (from the CASCON form) or the Inverse Contract Tables (from the CASICON form) are checked to verify that the call is allowed to complete. If the call is blocked based on the contents of the Contract or Inverse Contract tables, call processing will check the CON TO OPR or INCON TO OPR values on the OSPSOPT form. If these are set to "Y", the caller will be routed to an operator who can provide the caller with more information. Otherwise, after a second failed attempt, the call is terminated with an announcement.

If the call is allowed, a CAS query is formatted and the query is sent to the external database. The CAS TIME field on the OSPSOPT form determines the maximum time the call processing will wait for a reply from the external database. If an indeterminate reply is received, the INDT BLK value on the OSPSOPT form decides if the call is blocked.

If the calling card used was found to be an LEC card and the Contract check allows the call, the "standard" ACCS calling process is performed with the following exception: if the carrier is AT&T, the NCD OFF value on the OSPSOPT form is checked to verify if an NCD query is generated.

7.3 CAS Release 2

The CAS 2 feature provides the additional recognition of CCC (Commercial Credit Cards) and non-CAS CCITT Telecommunication cards (89C) for the CAS feature. The CCC cards must conform to the ISO (International Standards Organization) and ANSI (American National Standards Institute) standards.

CAS cards are validated in the AT&T CAS database using CCIS6/DCIS6 signaling, while other TEL

(Telecommunication) cards and CCC (Commercial Credit Cards) must be manually validated by an operator. All card numbers can be keyed by the customer in response to the ACCS prompt or given to the operator. Calls requiring manual validation are routed to the operator after card recognition. Fourteen-digit cards, which are assumed to be the current Telecommunication cards, can be validated in the Billing Validation Application (BVA) or LIDB (Line Information Data Base). These cards are handled the same as in CAS 1. AT&T CAS cards continue to be handled as in CAS 1.

7.4 CAS Release 2 Call Processing

When CCC ON is set to "Y", the values in ZERO TIME OUT and DIGS TIME OUT on the OSPSOPT form are used in setting up the interdigit timing for the digit collection process. PROMPT TIME will set the timing interval from bong tone to initial digit reception for customer 0+ ACCS calls, with timeout sending the call to operator position. CAS, CCC and TEL card types will be supported, but the card must be manually validated if it is a non-CAS card (i.e., CCC or TEL). Other than this, the call processing process is as described for CAS 1.

7.5 CAS Release 3

CAS 3 provides the following enhancements to the existing CAS 1 and CAS 2:

- Automatic validation of AT&T CAS cards and commercial credit cards.
- Automatic validation of 89C cards using ICCV (International Credit Card Validation) CCS7 TCAP Protocol for cards that do not reside in the AT&T CAS database.
- Subaccount billing for AT&T "cards" - callers who bill their calls to cards that are pre-subscribed to CDBS (Customer-Defined Bill Segmentation) services. The subaccount number, which is contained in a CAS database reply, is then recorded by OSPS in the AMA record for the call.
- Prompt for a PIN (Personal Identification Number) when a potentially valid card number is entered except for the PIN. On automated calling card calls an announcement is given to the caller. On operator-handled calls a display is given to the operator.

7.6 CAS Release 4, Carrier Specific Routing

CSR requires the use of the CAS Release 3 card recognition and, for outgoing routing, FCA (Fully Coded Addressing) and CCS7 call signaling.

The CSR provides carrier selection for international calls billed to an international carrier's credit card, based on the issuer of the card and the destination country. If an international call is terminating in the "home" country of the card issuer and this country has multiple carriers, the call is routed to the network of the card issuer. If the call encounters a busy condition, then depending on the agreement with the card issuer, it may be overflowed by the GATEWAY office to another carrier's network in that country.

The OSPS is required to detect that CSR applies to a particular call and to select the foreign carrier for the call in the destination country. OSPS also indicates whether the selected carrier is mandatory or the call can be overflowed to another carrier. This data is signaled by the OSPS to a TOLL office via an outgoing CCS7 IAM message. The TOLL office then routes the call to an appropriate ICS (International Switching Center). Based on the CSR attributes, the ISC office routes the call to an appropriate carrier's network in the destination country.

If the CSR feature is activated for an office, the CSR ATTR ID field on the OSPSOPT form is set to "Y", and

the CSR ATTR ID field on the TCCID form must be a non-zero value, i.e. a CSR ATTR ID number must be associated with the TCC number. The CSR feature requires that OSPS provides three attributes, the card vendor country code, the international administration identifier, and the CSR preference indicator. The card vendor country code is then compared to the country code of the forward number. If the call is to be routed to the TOLL office using CCS7 signaling, then the Administration ID and the CSR Preference ID are transferred to the TOLL office. The CSRATTR form is checked for these three attributes.

7.7 ODA Forms For CAS

The following forms are new or changed for CAS.

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
CASCON	5455	3	4BD	27.53
CASICON	5456	3	4BE	27.54
CSRATTR	5475	3	4CA	27.58
DSAPP	5537	3	5AK	8.17
OSPSOPT	5424	3	4Y	8.9
PHRASE		3	5AH	8.63
TCCATTR	5473	3	4BY	27.56
TCCID	5454	3	4BC	27.55

7.8 CAS Translation Requirements

The following fields were added to the OSPSOPT form for the 5E5 Software Release under the heading of CAS (for CAS 1) and COMMERCIAL CREDIT CARD (for CAS 2):

Fields under CAS

- TIME
- MIN QUERY
- ALARM QRY
- CAS ON
- INDT BLK
- PIN ONLY
- NCD OFF
- CON TO OPR
- INCON TO OPR

Fields under Commercial Credit Card (CAS 2)

- CCC ON
- PROMPT TIME
- ZERO TIME OUT

- DIGS TIME OUT

Please refer to Division 3, Section 4Y for more detailed information concerning the required population of these OSPSOPT CAS global fields. For 5E7 and later, the OSPSOPT form was reorganized. Please refer to the Table of Contents in the front of the section for these fields.

7.9 CAS Release 1 Translation Requirements

CASCON form (5455 Record) - For 5E5 and later this form is used to create the Contract Table which defines the contract status for LEC calls charged to an AT&T card. The form is keyed by the NPA and the status is indicated by entering "A" (allowed), "D" (denied) or "P" (partially allowed) for that NPA. If "P" is entered then those NXXs which are not allowed are specified by entering an "N" in the corresponding NXX List.

CASICON form (5456 Record) - This form is used to create the Inverse Contract Table which defines the contract status for AT&T calls charged to an LEC Card. The form is keyed by the NPA or RAO (Regional Accounting Office) value. If an RAO value is entered, the status is indicated as either "A" (allowed) or "D" (denied). If an NPA is entered, the status can be "A" (allowed), "D" (denied) or "P" (partially allowed). If "P" is entered (for NPA only), those NXXs in the NPA which are not allowed, are specified by entering a "N" in the corresponding NXX List.

OSPSOPT form (5424 Record) - There are nine new fields on the OSPSOPT form. The CAS ON global must be set to "Y" to turn the CAS feature on. When "Y" is entered, at least one entry must be made in the CASCON form and the CASICON form, i.e., a contract table must exist. The TIME field is used to specify the time to wait for a CAS query reply (in tenths of seconds). Since the level of query traffic that can be handled decreases as the holding time increases, extreme care should be used when increasing the value above the default value of 20 (i.e., 2 seconds). A timeout will result in call processing handling the call as determined by the entry in the INDT BLK field. The INDT BLK entry will indicate whether the call should be blocked if the card query response is indeterminate. A "Y" means the calls are blocked.

The MIN QUERY entry is used to define the minimum CAS query attempts required in a quarter hour before CAS software alarm calculations are performed. The ALARM THR field entry sets the successful query percentage. If the percentage falls below this threshold an alarm is activated. The PIN ONLY value indicates whether the customer can dial a 4-digit PIN only for calling cards (pre-authorized collect feature). The operator may enter a 4-digit PIN, regardless of the value entered here. The NCD OFF entry indicates whether the NCD (Network Call Denial) query for the call is turned off. If "Y" is entered here, CAS ON must be set to "Y".

The CON TO OPR field determines whether the caller is routed to an operator when a contract table check violation is detected by call processing. The contract table check is performed when the caller uses an AT&T CAS Calling Card on a LEC carried call. The INCON TO OPR determines whether the caller is routed to an operator when an inverse contract table check violation is detected by call processing. The inverse contract table check is performed when the caller uses a LEC calling card on an AT&T carried call.

The following ACCS fields also require population on the OSPSOPT form: DABRAND, BRAND PHRASE, ACCS 1, ACCS 2, INIT THANK YOU. Refer to the ACCS information in this section, as well as Division 3, Section 4Y.

The ACCS (automated call processing only) ODA forms ANNHD, ANNDG, ANNTR, PHRASE, ACCST and SEQUEST have not been changed by this capability.

TCCID form (5454 Record) - The OSPS Telephone Credit Card Identification form is used for identifying

telephone calling cards other than the 14-digit LEC card. The ISSUER ID DIGS field defines the digits in the Issuer ID number. The CARD TYPE field identifies the type of TCC (Telephone Calling Card) and for the CAS 1 feature, the only acceptable value is "CAS". The ACCT NBR represents the number of digits in the TCC account number field and the CHECK NBR is either 0 or 1 to represent the number of check number digits as calculated by the Luhn algorithm. If the Luhn check digit is separate from the account number, then the CHECK NBR field should be set to "1", otherwise it should be set to "0". The PIN entry defines the number of digits in the PIN (Personal Identification Number).

7.10 CAS Release 2 Translation Requirements

CASCON form (5455 Record) - There is no change in the use of this form from CAS 1, except that the contract tables in CAS 2 are searched for CCC and TEL cards in addition to CAS (AT&T) cards. That is, all "non-LEC" cards must go through a contract table check if the call is LEC carried.

CASICON form (5456 Record) - There is no change from CAS 1 in the use of this form.

OSPSOPT form (5424 Record) - In addition to the nine OPSOPT CAS fields described in the CAS 1 section, there are four new fields added for CAS 2. These are shown on OPSOPT form under the heading - Commercial Credit Cards. CCC ON is the field which turns this feature on, i.e., OSPS can be used to process CCC (Commercial Credit Cards) and other non-AT&T telecommunication cards (TEL). The fields CAS ON and OSPS TA must be set to "Y" before CCC ON can be set to "Y".

The PROMPT TIME field indicates the timing interval from the bong tone to initial digit reception for customer 0+ ACCS calls. Timeout will send this call to an operator position. ZERO TIME OUT will set the timing interval for all card types to route to an operator position when the initially dialed card number is a 0 after the bong tone. The DIGS TIME OUT entry defines the inter-digit timing interval for all card types, from the first non-zero digit after the bong until the last of a maximum of 32 digits are received. Timeout is the end of the calling card number entry process. Entries into these 3 fields will have no affect unless the CAS 2 feature is activated (CCC ON must be set to "Y").

TCCID form (5454 Record) - The CAS 2 feature uses the TCCID form in the same manner as is described for CAS 1 with two exceptions. One is that the card types supported are as follows:

- CAS (AT&T calling card)
- CCC (commercial cards)
- TEL (telecommunication cards other than AT&T)

The other is that if the card type is "CCC" and there are a variable number of account digits for that Credit Card, then the field ACCT NBR should be left blank.

7.11 CAS Release 3 Translation Requirements

Figure 7 shows the ODA form flow for CAS 3.

DSAPP form (5537 Record) - For 5E7 and later, "CCS7" and "ICCV" enumerations were added to the APPLIC field. "CCS7" signaling goes to a CAS/NCP (Network Control Point) database. "ICCV" signaling goes to a foreign database.

OSPSOPT form (5424 Record) - The fields under the CAS R3 Title were added for 5E7 and later. They are the following:

CAS R3 ON - Is the CAS 3 feature enabled in this office?

OFFICE ADMIN ID - Is used on ICCV queries to identify originating administration (AT&T) to foreign card databases

CCS7 ALARM THR - Software alarm query threshold for CCS7

ICCV ALARM THR - Software alarm query threshold for ICCV

CCS7 MIN QUERY - Minimum number of CAS TCAP queries for CCS7

ICCV MIN Query - Minimum number of ICCV TCAP queries

RECOGNIZE 10P4 - Recognize 10 + 4 cards in the card recognition table

TCCATTR form (5473 Record) - For 5E7 and later, new card attributes are required for CAS 3. The TCCATTR form identifies a set of credit card attributes for a card identification number that can be used by many different card types. The attributes are the following: the calling card type, the signaling type, the length of time for a query timeout, whether time and charges be should given for this call, whether calling card should be allowed if a query can't be sent to the database, and whether 891 should be prepended to the card number.

Every CARD ATTR ID entered on the TCCID form must have a corresponding TCCATTR form with the same CARD ATTR ID. If the CARD TYPE on TCCATTR is "CCC", the AACT NBR on the TCCID form must be 0.

TCCID form (5454 Record) - For 5E7 and later, CARD ATTR ID and TRANS TYPE attributes were added. The CARD ATTR ID should match a CARD ATTR ID on the TCCATTR form. The TRANS TYPE identifies the signaling type.

7.12 CAS Release 4 And CSR Translation Requirements

Figure 9 shows the ODA form flow for CAS 4 and CSR.

CSRATTR form (5475 Record) - This form defines the Card Vendor Country Code, CARD VENDOR CC, the Administration ID indicating the foreign carrier for the call, INTL ADMIN ID, and the PREFERENCE ID indicating if the call can be overflowed to another carrier.

OSPSOPT form (5424 Record) - The field CSR ON must be set to "Y". In addition, CAS Release 3 is required for the CSR feature.

TCCID form (5454 Record) - The CSR ATTR ID field must contain a non-zero value, i.e. a CSR ATTR ID number must be associated with the TCC (Telephone Credit Card) number. The CSR ATTR ID is the key into the CSRATTR form where the Card Vendor Country Code is checked to see if it matches the Country Code of the Forward number, and the Administration ID number and CSR Preference ID are entered.

8. ENHANCED OPERATOR CUT-THROUGH

The ECUT (Enhanced Operator Cut-Through) feature enhances the existing ACCS (Automated Calling Card Services) by allowing calling card users to request an AT&T operator if an automated entry of a card number results in a card recognition failure or a Contract Table/Inverse Contract Table lookup failure. This feature is intended to help calling card users deal with any difficulties they may encounter in the wake of multiple calling card formats and reciprocal billing agreements between AT&T and the local telephone companies. Previously, the call would have been automatically routed to an operator, or the call would have been abandoned, or the caller would have received an announcement and been disconnected.

8.1 Enhanced Operator Cut-Through Translation Requirements

New And Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
ANNHD	5531	3	5AE	8.61
EQRAP	5822	8	36	20.22
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

8.2 Enhanced Operator Cut-Through Modified Forms

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. The announcement header IDs OSPSTA 56 - 58 were added to the 5E8 and later default data for the Enhanced Operator Cut-Through feature.

EQRAP form (5822 Record) - This form is used to define the RAF (Recorded Announcement Function) circuit packs. New micro-codes for DSU2-RAF Announcement Storage circuit packs were added for 5E8.

OSPSOPT form (5424 Record) - This form defines the OSPS office global parameters. Only one OPSOPT form can be entered per office. For 5E8, the ECUT ON, ECUT TIME, and ECUT ODO fields were added for the Enhanced Operator Cut-Through feature.

ECUT ON indicates if the Enhanced Operator Cut-Through feature is activated. ECUT TIME indicates the interdigit timing after the fourteenth digit of the calling card digit has been collected. ECUT ODO determines if an operator request is automatically generated, or the call is idled with a disconnect announcement when a caller's second attempt to enter a calling card number results in an ECUT card recognition failure.

PHRASE form (5534 Record) - This form defines and describes the phrase IDs that are provided on the DSU2-RAF Announcement Storage circuit packs for each application. For 5E8 and later, phrases 290 - 291 and 304 - 305 default input data were added for Enhanced Operator Cut-Through feature.

9. CUSTOMER ACCOUNT SERVICES - INWARD VALIDATION IDENTIFICATION

CAS - IVI (Customer Account Services - Inward Validation Identification) allows OSPS to use CAS CCS7 TCAP signaling to indicate that this is an inward validation request.

9.1 CAS - IVI Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

9.2 CAS - IVI Modified Form

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. Only one OPSOPT form is submitted for an office. For 5E8, the INW VAL ID field indicates if the CAS - IVI feature is activated. CAS R3 ON must be "Y", for CAS - IVI to be activated.

10. CUSTOMER-DEFINED BILL SEGMENTATION SEQUENCE DIALING

CDBS (Customer-Defined Bill Segmentation) Sequence Dialing enhances the 5E7 CAS R3 CDBS feature and Subaccount Billing for LEC customers by allowing a subscriber to enter a new PIN (Personal Identification Number) on a calling card sequence call. The entry of the new PIN allows the caller to associate each new call with a separate CDBS code, thus eliminating the need to hang up and dial again.

10.1 CDBS-SD Translation Requirements

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
EQRAP	5822	8	36	20.22
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

10.2 CDBS-SD Modified Forms

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. Announcement header IDs OSPSTA 59 and OSPSTA 60 were added to the 5E8 and later default data for CDBS Sequence Dialing.

EQRAP form (5822 Record) - This form is used to define the RAF (Recorded Announcement Function) circuit packs. New micro-codes for DSU2-RAF Announcement Storage circuit packs were added for 5E8.

OSPSOPT form (5424 Record) - This form defines the OSPS office global parameters. Only one OPSPOPT form can be entered per office. For 5E8, the CDBS SEQ field indicates if CDBS has been activated for Sequence Calls.

PHRASE form (5534 Record) - This form defines and describes the phrase IDs that are provided on the DSU2-RAF Announcement Storage circuit packs for each application. For 5E8 and later, phrases 292 - 294 default input data were added for CDBS Sequence Dialing feature.

11. CUSTOMER ACCOUNT SERVICES PURCHASE LIMIT.

For 5E8, CAS PL (Purchase Limit) allows a card holder to preset a spending limit for calls billed to the card. (For 5E9(1), see Enhanced Limits, CAS Card Duration Limit, and CAS Card Volume Limit.) Three Purchase Limit options are available:

1. EWD (Enforced With Disconnect) option disconnects the call once the card balance has been depleted, and no further calls are allowed.
2. EWOD (Enforced Without Disconnect) option does not disconnect the current call once the card balance has been depleted. However, no further calls may be made.
3. NE (Not-Enforced) option does not prohibit any calls, even after the balance has been depleted. However, the customer is notified that the balance is depleted.

Card balances are maintained in the CAS/NCP database, and the card balance at the beginning of the call is returned in the database reply to the OSPS. Every 10 minutes (or the time limit set by the TCA on the OPSPOPT form (5424 Record)) the OSPS must inform the CAS/NCP of the charges accrued against the card by performing RTRS queries and sending update message to the CAS/NCP. A final RTRS query and database message is sent at the end of the call.

11.1 CAS PL Translation Requirements

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
EQRAP	5822	8	36	20.22
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

11.2 CAS - PL Modified Forms

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. Announcement header IDs OSPSTA 61 and 62 were added to the 5E8 default data for CAS PL (Customer Account Services Purchase Limit) feature. For 5E9(1), OSPSTA 158 and 171 were added. For 5E8, PL calls are terminated 30 seconds after a disconnect warning announcement (OSPSTA 91) is played. (This interval was changed for 5E9(1), see Purchase Limit Enhancements for 5E9(1).)

EQRAP form (5822 Record) - This form is used to define the RAF (Recorded Announcement Function) circuit packs. New micro-codes for DSU2-RAF Announcement Storage circuit packs were added for 5E8.

OSPSOPT form (5424 Record) - This form defines the OSPS office global parameters. Only one OPSOPT form can be entered per office. For 5E8, the PL ON field indicates if the Purchase Limit feature has been activated. If "Y" is entered in PL ON, then "Y" must be entered in INV VAL ID.

The OSPS is responsible for providing incremental expenditure updates to the database upon:

- the expiration of an intermediate time limit before the call is terminated.
- the end of 48 hours.
- the termination of the call.
- following a test query.

The intermediate time limit interval is set by the TCA. This time limit is the amount of time, while a call is in progress, which elapses before intermediate updates are sent to the card database for how much has been spent and to indicate to the database that the call is still in progress. For example, if the limit is 10 minutes, at the end of each 10 minutes interval while the call is in progress, the information is sent to update the database. The time limit should be set high enough that a high percentage of the Purchase Limit calls terminate before the time limit expires. The PL TIME field sets the intermediate time limit in 30-second intervals. The default is 20, i.e. 10 minutes.

PHRASE form (5534 Record) - This form defines and describes the phrase IDs that are provided on the DSU2-RAF Announcement Storage circuit packs for each application. For 5E8 and later, phrases 295 - 297, and 306 default input data were added for CAS PL.

12. PURCHASE LIMIT ENHANCEMENTS FOR 5E9(1) AND LATER.

12.1 Feature Description

The new Card Limit features for 5E9(1), Enhanced Limits, Volume Limit, and Duration Limit, required enhancements to the Purchase Limit feature.

12.2 Flat-rate PL Calls

In 5E8 only, the ECDM (End Call Disposition Message) was sent as soon as the forward party answered. For 5E9(1), all card limit calls receive card limit treatment for the duration of the call, except for the calls billed to a Volume Limit only MCIP (Multiple Calls in Process) card. For the VL-MCIP, the ECDM is sent as soon as the forward party answers.

PL does not limit the length of a flat-rate call; the call may proceed indefinitely. Also, PL does not query RTRS

(Real Time Rating System) before sending CDMs. The charge for a flat-rate call is already known from the initial RTRS PL query.

12.3 Calculation of Call Duration

For 5E9(1), the call duration is calculated and saved in the call record.

12.4 Variable Disconnect Warning Interval

In 5E8, the Disconnect Warning Interval, which is the time from the end of the Disconnect Warning announcement to the moment a PL call is forcibly disconnected, was set to 30 seconds. In 5E9(1), the Disconnect Warning Interval can be set from 10 to 90 seconds in increments of 5 seconds, see the WARN TIME field on the OSPSOPT form (5424 Record).

12.5 Initial Period and Courtesy Interval

For 5E8, PL assumed the minimum duration of an initial period was 60 seconds. This insured that the customer could talk for at least 30 seconds before getting a Disconnect Warning announcement. For 5E9(1), the minimum initial period was set to 18 seconds. However, this could result in zero talk time before the Disconnect Warning announcement was played. To prevent this from occurring, a courtesy interval specifies the desired length of time (8 - 99 seconds) customer may talk before getting the Disconnect Warning announcement. (See the COURTSEY INTERVAL field on the OSPSOPT form.) It has a higher priority than the DWI, so that if the allowed time for the call is less than the sum of the courtesy interval plus the Disconnect Warning Interval, the original Disconnect Warning Interval value is discarded and a 10 second interval is used instead. A call which must use the 10-second interval is a Short Allowed Time call.

12.6 Translation Requirements

See Enhanced Limits, Volume Limit, and Duration Limit for the translations requirements for 5E9(1) card limit features.

13. ENHANCED LIMITS

13.1 Feature Description

For 5E9(1) and later, this feature consists of two capabilities: Multiple Calls in Progress and Single Calls in Progress Enforcement. The Multiple Calls in Progress capability allows a card that subscribes to the Purchase Limit or the Duration Limit features to place several balance-affecting calls simultaneously. The Single Call in Progress enforcement ensures that cards that subscribe to this capability place only a single balance-affecting call at a time.

13.2 Multiple Calls In Progress

The Multiple Calls in Progress capability allows a card that subscribes to PL (Purchase Limit) and/or DL (Duration Limit) features to make several balance-affecting calls that may debit charges against the card simultaneously. The card database must record charges against the card and maintain accurate balances for the card. In addition, except when the balance is low, the card database does not allocate the entire balance that is available to a single charge attempt. Instead, it allocates a smaller portion than the total available balance, preserving part of the available balance for future charge attempts that may originate before the current call disconnects.

Since the card database does not grant the entire available limit balance to any one charge attempt on the

card, the OSPS requests additional PL and/or DL balances from the card database, if the enforcement level of the particular limit feature is EWD (Enforced With Disconnect) and the call has not terminated before the initial balance granted by the card database is about to be consumed. The OSPS makes these requests as part of the CDMs (Call Disposition Messages) that it sends periodically to the card database to update the database limits balances while the call is still in progress. If the card database returns an additional balance, the OSPS augments the balance for the call and allows the call to continue for an additional period as represented by the returned balance. The OSPS continues to make these requests to the card database:

- until the call ends;
- or until the card database denies a request for additional balance made by the OSPS;
- or the balance granted by the card database increases the allowed call duration by an amount smaller than the MRT (Minimum Re-query Time);
- or if the maximum time limit (for most PL calls - 48 hours) has been reached.

If the card database denies the request, the OSPS allows the call to continue until the balance is about to be fully consumed and then plays the Disconnect Warning Announcement before possibly forcibly disconnecting the call.

13.3 Single Call in Progress

The Single Call in Progress enforcement capability allows a card to specify that once a call being charged to this card has been attempted and is in progress, other concurrent calls that attempt to charge to this card are not allowed. A card may subscribe to this limit or to this limit and one of the other limits capabilities. A card that does not have any of the other limits is referred to as an SL (Single Limit) card. The card database enforces that multiple simultaneous calls cannot be charged to this card, because it authorizes all charge attempts and it is the only central point that is aware of all charge attempts to a particular card. The OSPS must inform the card database, by means of CDM messages, of the disposition of SL calls.

When the OSPS receives the SCIP (Single Call In Progress) indicator in an "Allow" reply from the card database, it assumes that SCIP enforcement applies to this call. The OSPS attempts to complete the call. If the call completes, the OSPS starts an Intermediate Timer for the call. The first time that the Intermediate Timer fires, provided that the call has not terminated, the OSPS sends an ICDM (Intermediate CDM) to the card database as an indication that the call completed successfully. Periodically after that whenever the Intermediate Timer fires, the OSPS sends an ICDM message to the card database indicating that the call is still in progress. Depending on other limit conditions that apply to this call, the CDM messages may also contain other information such as incremental PL call charges or incremental DL call duration amounts. If the call terminates before the first Intermediate Timer interval, the OSPS does not send any ICDM. The OSPS always sends an ECDM (End CDM) message to the card database to inform it about the final disposition of the call and any information required by other limit features.

13.4 Feature Flow Scenarios

The following scenarios represent examples of how calls are handled subject to enhanced limits handling. The interactions between the caller, the OSPS, the card database and RTRS (Real Time Rating System), along with an indication of the type of announcements played and the typical elapsed time for the call are shown.

For all the following scenarios:

- the Intermediate Timer is set to its default value of 10 minutes.

- the Disconnect Warning Interval is set to its default value of 30 seconds.
- the Query Time is equal to 10 seconds.
- the Minimum Re-query Time is set to its default value of 120 seconds.

13.4.1 Scenario 1

1. The caller goes off-hook on a DTMF (Dual Tone Multifrequency) phone and dials 0 + called number. OSPS recognizes the incoming 0+ call and plays the bong tone prompt and the audible logo to the caller.
2. The caller responds to the prompt by dialing a card number.
3. OSPS recognizes the card number has a valid format, and sends a TCAP BEGIN message to the CAS/NCP (Network Control Point) to validate the card.
4. CAS/NCP (the card data base) recognizes the card number and PIN as valid and that the card subscribes to Duration Limit/Enforced with Disconnect and Multiple Calls in Progress. It determines that the call can be granted an initial duration balance of 14 minutes. It sends a TCAP CONTINUE message to the OSPS indicating valid card, Duration Limit/EWD (Enforced With Disconnect), MCIP (Multiple Calls in Progress), and duration balance of 14 minutes.
5. OSPS receives the CONTINUE message. It plays an announcement to the caller "Thank you for using AT&T" and routes the call.
6. The called party's phone rings.
7. The caller hears audible ring.
8. (Clock time 0:00 minutes:seconds) The called party answers.
9. (Clock time 0:00) OSPS sees that the call is answered, and begins timing the call for 10 minutes, which is the Intermediate Timer value.
10. The caller converses with called party.
11. (Clock time 10:00) The OSPS call timer expires. OSPS sends a TCAP CONTINUE message to the CAS/NCP, containing a first TAP (Transaction Amount Parameter) for Duration Limit indicating that 10 minutes have been used on this call, and a second DL TAP with the "More" bit set requesting an additional 6:40 (20:40 - 14:00).
12. CAS/NCP receives the CONTINUE message and determines that the request for more duration balance can be honored. It sends a TCAP CONTINUE message to the OSPS containing a DL TAP granting the requested 6:40.
13. (Clock time 10:01) OSPS receives the TCAP CONTINUE message with the additional balance of 6:40. It determines that the additional balance granted will allow the call to continue until it has lasted 20:40.

OSPS begins timing the call for 9 minutes 59 seconds (20:40 - 10:01 - 30 seconds - 10 seconds), the total granted duration balance minus the balance already used minus the Disconnect Warning Interval minus the Query Time interval required for requesting more balance before the Disconnect Warning

Announcement is played to the conversing parties.

14. The caller converses with called party.
15. (Clock time 20:00) The OSPS call timer expires. OSPS sends a TCAP CONTINUE message to the CAS/NCP, containing a first TAP for DL (Duration Limit) indicating that an additional 10 minutes has been used on this call, and a second DL TAP with the "More" bit set requesting an additional 10 minutes.
16. CAS/NCP receives the CONTINUE message and determines that the request for more duration balance can be honored. It sends a TCAP CONTINUE message to the OSPS containing a DL TAP granting the requested 10 minutes.
17. (Clock time 20:01) OSPS receives the TCAP CONTINUE message with the additional balance of 10 minutes. It determines that the additional balance granted will allow the call to continue until it has lasted 30:40.

OSPS begins timing the call for 9 minutes 59 seconds (30:40 - 20:01 - 30 seconds - 10 seconds).

18. (Clock time 24:45) The caller and called party hangs up.
19. (Clock time 24:45) OSPS recognizes the end of the call. OSPS sends a TCAP END message to the CAS/NCP, containing a TAP for Duration Limit indicating that an additional 4 minutes 45 seconds has been used on this call.

OSPS releases the network paths and writes an AMA record.

13.4.2 Scenario 2

This scenario illustrates a Purchase Limit/Enforced Without Disconnect call that must request more purchase balance to be able to be established. This call is a person-to-person call to Mexico, and ends before the first intermediate timer expires.

1. The caller goes off-hook on a rotary dial phone and dials 0 + called number.
2. OSPS recognizes the incoming 0+ call. OSPS plays the bong tone prompt and audible logo to the caller.
3. The caller does not respond.
4. OSPS sends the call to an operator.
5. The operator asks caller for call information.
6. The caller tells the card number to operator.
7. The operator enters card number.
8. OSPS recognizes the card number as being of valid format, and sends a TCAP BEGIN message to the CAS/NCP to validate the card. It changes the operator display to indicate that billing validation is proceeding (displays "BLG CHECK").

9. CAS/NCP recognizes the card number and PIN as valid. It further sees that the card subscribes to Purchase Limit/Enforced Without Disconnect and Multiple Calls in Progress. It determines that the call can be granted an initial purchase balance of \$5. It sends a TCAP CONTINUE message to the OSPA indicating valid card, Purchase Limit/EWOD, MCIP, and purchase balance of \$5.
10. OSPA receives the CONTINUE message. It formats and sends an Initial PL query to RTRS containing the calling and called numbers and the \$5 purchase balance.
11. RTRS determines that the call requires \$8.50. It formats and sends a reply to OSPA that indicates insufficient balance, and that \$8.50 is required to establish the call.
12. OSPA receives the reply. It sends a TCAP CONTINUE message to the CAS/NCP containing a DL TAP (Transaction Amount Parameter) for Purchase Limit with the "More" bit set requesting an additional \$3.50.
13. CAS/NCP receives the CONTINUE message and determines that the request for more purchase balance can be honored. It sends a TCAP CONTINUE message to the OSPA containing a Purchase Limit TAP granting the requested \$3.50.
14. OSPA receives the TCAP CONTINUE message with the additional balance of \$3.50. It sees that this is sufficient to establish the call. It changes the operator's display to indicate that billing has been validated and that the call may proceed (changes "BLG CHECK" to "BLG OK" and displays "PR OK".)
15. The operator outpulses call from position.
16. OSPA routes the call.
17. The called party's phone rings.
18. The caller hears an audible ring.
19. (Clock time 0:00) The person called answers, and the operator releases the call.
20. (Clock time 0:00) OSPA sees that the call is answered, and begins timing the call for 10 minutes, the Intermediate Timer value.
21. The caller converses with called party.
22. (Clock time 7:13) The caller and called party hang up.
23. (Clock time 7:13) OSPA recognizes the end of the call. OSPA releases the network paths and sends a TCAP END message to the CAS/NCP, containing a TAP for Purchase Limit indicating that \$8.50 has been used on this call. OSPA writes an AMA record.

13.4.3 Scenario 3

This scenario illustrates a Multiple Call in Progress call with combined Purchase Limit/Enforced with Disconnect, Duration Limit/Enforced with Disconnect, and Volume Limit/Enforced card limits features. To continue the call, both purchase and duration balances are requested until no more balance is available, after which the call is forcibly disconnected.

1. The caller goes off-hook on DTMF phone and dials 0+ called number.
2. OSPA recognizes the incoming 0+ call. OSPA plays the bong tone prompt and AT&T audible logo to

the caller.

3. The caller responds to the prompt by dialing a card number.
4. OSPS recognizes the card number as being of valid format, and sends a TCAP Begin message to the CAS/NCP to validate the card.
5. CAS/NCP recognizes the card number and PIN (Personal Identification Number) as valid. It further sees that the card subscribes to Purchase Limit/Enforced with Disconnect, Duration Limit/Enforced with Disconnect, Volume Limit/Enforced, and Multiple Calls in Progress. It determines the call can be granted an initial purchase balance of \$7.00 and duration balance of 11 minutes. It sends a TCAP Continue message with the above information to the OSPS.
6. OSPS receives the Continue message. It then launches an Initial Purchase Limit RTRS query, sending the value of \$7.00 and the calling and called numbers.
7. RTRS calculates the amount of calling time that \$7.00 would buy for this call, which in this case is 13 minutes. It formats and sends the value of 13 minutes in a reply to OSPS, also indicating the call was successfully rated.
8. Because sufficient resources are available for the call, OSPS plays an announcement to the caller - "Thank you for using AT&T" - and routes the call.
9. The called party's phone rings and the caller hears an audible ring.
10. (Clock time 0:00) The called party answers.
11. (Clock time 0:00) OSPS sees that the call is answered and begins a 10:00 intermediate timer. Sufficient balance is available for the call to last beyond the intermediate interval and still leave time to request more balance before the Disconnect Warning Announcement must be given. (11:00 of EWD time - 30 seconds DWI (Disconnect Warning Interval) - 10 seconds Query Time equal 10:20).
12. The caller converses with called party.
13. (Clock time 10:00) The first intermediate timer expires. OSPS determines that not enough time is remaining to cover the full intermediate interval (only 30 seconds before the Disconnect Warning Announcement should be played if no more balance is obtained). Therefore, it proceeds to determine how much additional balance must be granted to this call to allow it to continue undisturbed until another intermediate interval has expired. It determines that the length of call at that time will be 20:40. (10:00 of call time already used + 10:00 for the next intermediate interval + 10 seconds for query time + 30 seconds for DWI = 20:40). OSPS sends a Subsequent Purchase Limit query to RTRS for a call duration of 20:40 to determine the cost if the call lasts that long.
14. RTRS determines that the cost for this call would be \$9.16 and returns that value to OSPS in a reply.
15. OSPS calculates the difference between the money it needs and the money it already has (\$9.16 - \$7.00 previous allocation = \$2.16). It formats a Purchase Limit TAP (Transaction Amount Parameter) requesting \$2.16 more. It formats a Duration Limit TAP to inform the CAS/NCP that 10:00 minutes were used by this call. OSPS calculates how much more duration balance it needs to cover the next intermediate interval (20:40 - 11:00 it had previously equaled 9:40) and formats a Duration Limit TAP requesting 9:40 more. (Note: OSPS cannot yet inform the CAS/NCP how much money has been spent because it doesn't know the cost of the 10:00 minutes transpired so far. It only knows the cost of 13:00 which has not yet been completely used up.) OSPS then sends the TCAP Continue message to the CAS/NCP.

16. CAS/NCP responds, granting an additional \$2.16 for Purchase Limit and 9:40 for Duration Limit in a TCAP Continue message to OSPS.
17. OSPS sees that the balances received equal the balances requested and sets the intermediate timer to expire at 20:00, which is 40 seconds (10 seconds Query Time and 30 seconds DWI) before the call must end given the current balances.
18. (Clock time 20:00) The second intermediate timer expires. OSPS determines that not enough time remains to cover the full intermediate interval (only 10 seconds before the Disconnect Warning Announcement should be played if no more balance is obtained). Therefore, it proceeds to determine how much additional balance must be granted to this call to allow it to continue undisturbed until another intermediate interval has expired. It determines that the length of call at that time will be 30:40. (20:00 of call time already used + 10:00 for the next intermediate interval + 10 seconds for query time + 30 seconds for DWI = 30:40). OSPS sends a Subsequent Purchase Limit query to RTRS for a call duration of 30:40 to determine the cost if the call lasts that long.
19. RTRS determines that the cost for this call would be \$12.06 and returns that value to OSPS in a reply.
20. OSPS formats a Purchase Limit TAP to inform the CAS/NCP that \$7.00 were spent on this call, since the complete 13:00 for the original \$7.00 balance have expired. It then calculates the difference between the money it needs and the money it already has ($\$12.06 - \$9.16$ previous allocation = \$2.90) and formats a Purchase Limit TAP requesting \$2.90 more. It formats a Duration Limit TAP to inform the CAS/NCP that 10:00 more minutes were used by this call. OSPS calculates how much more duration balance it needs to cover the next intermediate interval (30:40 - 20:40 it had previously = 10:00) and formats a Duration Limit TAP requesting 10:00 more. OSPS then sends the TCAP Continue message to the CAS/NCP.
21. CAS/NCP responds, sending less than the requested Purchase balance, only \$2.27 and all of the requested Duration balance, 10:00, in a TCAP Continue message to OSPS.
22. OSPS sees that the Purchase balance received does not equal the balance requested and therefore, in order to determine how long the call can last, launches an Initial Purchase Limit RTRS query with a purchase amount of \$11.43 ($\$9.16$ total previous allocation + \$2.27 = \$11.43).
23. RTRS calculates the time that \$11.43 will buy for this call, which in this case is 28:55. It formats and sends the value of 28:55 in a reply to OSPS, also indicating the call was successfully rated.
24. OSPS determines that Adjusted Remaining Time for the call is greater than the Minimum Re-query Interval and sets the intermediate timer to expire at 28:15, which is 40 seconds (10 seconds Query Time and 30 seconds DWI) before the call must end given the current balances.
25. (Clock time 28:15) The third intermediate timer expires. OSPS determines that there is not enough time remaining to cover the full intermediate interval (only 10 seconds before the Disconnect Warning Announcement should be played if no more balance is obtained). Therefore, it proceeds to determine how much additional balance must be granted to this call to allow it to continue undisturbed until another intermediate interval has expired. It determines that the length of call at that time will be 38:55. (28:15 of call time already used + 10:00 for the next intermediate interval + 10 seconds for query time + 30 seconds for DWI = 38:55). OSPS sends a Subsequent Purchase Limit query to RTRS for a call duration of 38:55 to determine the cost if the call lasts that long.
26. RTRS determines that the cost for this call would be \$14.33 and returns that value to OSPS in a reply.
27. OSPS formats a Purchase Limit TAP to inform the CAS/NCP that \$2.16 more were spent on this call,

the charge for the time between 13:00 and 20:40. It then calculates the difference between the money it needs and the money it already has (\$14.33 - \$11.43 previous allocation = \$2.90) and formats a Purchase Limit TAP requesting \$2.90 more. It formats a Duration Limit TAP to inform the CAS/NCP that 8:15 more were used by this call. OSPS calculates how much more duration balance it needs to cover the next intermediate interval (38:55 - 30:40 it had previously = 8:15) and formats a Duration Limit TAP requesting 8:15 more. OSPS then sends the TCAP Continue message to the CAS/NCP.

28. CAS/NCP runs out of Purchase balance and signifies this by not sending a Purchase Limit TAP. It still has plenty of Duration balance and sends the 8:15 requested.
29. OSPS determines that the Adjusted Remaining Time for the call is less than the Minimum Re-query Interval and determines that the call cannot be continued beyond 28:55. It sets the warning timer to expire at 28:25, which is 30 seconds before the call must end.
30. (Clock time 28:25) The warning timer expires. OSPS plays the Disconnect Warning Announcement "Due to calling card restrictions, this call will be terminated in 30 seconds" to both the calling and called parties. It then sets the disconnect timer to expire at 28:55.
31. (Clock time 28:55) The disconnect timer expires. OSPS then tears down the talking paths between the calling and called parties. OSPS sends a Subsequent Purchase Limit query to RTRS for a call duration of 28:55 to determine the cost of the call now that it is finished.
32. RTRS determines that the cost for this call was \$11.43 and returns that value to OSPS in a reply.
33. OSPS formats a Purchase Limit TAP to inform the CAS/NCP that \$2.27 more were spent on this call. It formats a Duration Limit TAP to inform the CAS/NCP that 40 seconds more were used by this call. OSPS then sends the TCAP ECDM (End Call Disposition Message) to the CAS/NCP and writes an AMA record, disconnect due to PL depletion.
34. The caller goes on-hook.
35. The called party also goes on-hook.

13.5 Feature Assignment

The Enhanced Limits feature must be activated on the OSPSOPT form (5424 Record). In addition, the Card Limit Minimum Re-query time between subsequent requests to the card database for additional courtesy interval balances must be entered.

Announcement Headers, OSPSTA 156 - 160, 171, and 172 for the Purchase Limit, Volume Limit, and Duration Limit, are applicable to this feature. The WARN TIME is set via announcement header OSPSTA 171.

13.6 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. Announcement header OSPSTA 156 - 160, 171, and 172 default input data have been added for the Enhanced Limits feature. Header ID OSPSTA 171 is used to set the display only, WARN

TIME field on view 8.0.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The ENHANCED LIMIT field activates this feature for this OSPS office. The MIN REQUERY field sets the minimum required time between requests to the database for additional balances. The COURTSEY INTERVAL field sets the minimum time before the caller hears the warning announcement.

14. CAS CARD VOLUME LIMIT

14.1 Feature Description

For 5E9(1) and later, the Card Volume Limit feature provides the ability to limit the number of calls charged to a card that has been validated using an AT&T CAS card validation query. With this feature, a card can have a predetermined number of calls that can be charged against that card. The Enforced or the Non-Enforced options are applied when the volume balance has been reached.

See the Enhanced Limits feature for scenarios describing the Volume Limit, Duration Limit, and Purchase Limit.

14.2 Feature Assignment

This feature is activated on the OPSOPT form (5424 Record). Announcement header OSPSTA 157 was added as default data associated with CAS Volume Limit feature announcements.

14.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. Announcement header OSPSTA 157 default input data has been added for the Volume Limit feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The VOLUME LIMIT field indicates if the Volume Limit feature is active for this switch.

15. CARD DURATION LIMIT

15.1 Feature Description

For 5E9(1) and later, the Card Duration Limit feature provides the ability to limit the duration of a card call to an amount specified in the reply to an AT&T CAS card validation query. A card can have a predetermined amount of call duration time that can be debited against that card when it is used to charge a call that can affect this balance. As with the Purchase Limit feature, EWD (Enforced with Disconnect), EWOD (Enforced Without Disconnect), and NE (Non-Enforced) options apply to Duration Limit.

With 5E9(1) and later, a combination of Purchase Limit, Duration Limit and Volume Limit can be subscribed to. The limit that imposes the shortest duration takes precedence with respect to how long a call is allowed to continue. For example, if PL (Purchase Limit) with an NE (Non-Enforced) option and DL (Duration Limit) with EWD (Enforced With Disconnect) both apply to a call, and if the DL/EWD balance is 52 hours, then the

PL/NE limit which allows the call to last for 48 hours (assuming the call is not a free or flat-rated call) takes precedence. If the call has not disconnected in 48 hours, the OSPS forcibly disconnects it at that time, after playing a Disconnect Warning Announcement to the caller.

15.2 Feature Assignment

For both Purchase Limit and Duration Limit for 5E9(1), if the feature is activated on the OSPSOPT form (5424 Record), the Card Disconnect Warning Interval, which is the amount of time after a Card Limit Disconnect Warning Announcement is played before the call is forcibly disconnected, is determined by the time interval found in the Standard Default Input Data for ANNHD form for Header ID "OSPSTA" 171 in the third to last phrase.

A courtesy interval indicates the desired minimum amount of time a customer may talk before hearing the warning disconnect announcement. These global parameters are specified on the OSPSOPT form. For both Duration Limit and Purchase Limit features for 5E9(1), if the desired "courtesy interval" of uninterrupted talking time using the normal WARM TIME cannot be achieved, the call is considered a "short allowed time call" and the call receives a special 10-second "warn time" treatment.

New default data announcement header IDs for Duration Limit feature are "OSPSTA" 156, 159, and 171.

See Paragraph Section 13.4 on Enhanced Limits Feature for scenarios involving the Duration Limit feature.

15.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. New announcement header IDs for the Duration Limit feature are "OSPSTA" 156, 159, and 171.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The new fields for the Duration Limit feature are DURATION LIMIT, WARN TIME, COURTESY INTERVAL, and MIN REQUERY.

16. ALL CARDS FAIL

16.1 Feature Description

The ACF (All Cards Fail) feature is intended to control fraud by preventing a caller from determining a valid card account number for a given PIN by trial and error, or by holding the PIN constant and varying the card account number until the call completes. The ACF feature is triggered by the receipt of certain card validation replies, and will apply on all card calls and for all card types that can be validated automatically by the OSPS through a card validation database using ANSI TCAP, CCS7 TCAP, or ICCV CCITT TCAP protocols.

16.2 Feature Assignment

The ACF capability provides the following four global parameters, which are only accessible from the OSPS OAP security terminal:

- a feature activation parameter

- a parameter that is used to indicate the ACF Fraud Attempts Threshold. The ACF Fraud Attempt Threshold is the number of card validation replies matching the ACF fraud criteria. When this threshold has been exceeded, attempted fraud is to be assumed and PIN/back number pair should be moved from the ACF Fraud Candidate List to the ACF Fraud List.
- a parameter that is used to indicate the ACF Lockout Interval, which is the specified time interval, in minutes, that an entry will be kept on the ACF Fraud List.
- a parameter is used to indicate the ACF Fraud Candidate Interval. The ACF Fraud Candidate Interval is the specified time interval, in minutes, to allow repeated failures before causing a call to be blocked without making a card validation query.

16.3 Translation Requirements

The above parameters cannot be entered on an ODA view; they can only be entered on the Recent Change view 21.99 (OSPS Parameters For Security Terminal). The following fields were added to this view for the ACF feature.

- ACF ON - This field activates the All Cards Fail feature.
- PERMIT TIME - This field indicates the ACF fraud candidate interval, 4 - 20 minutes.
- LOCK OUT TIME - ACF lockout interval 5 - 120 minutes.
- FAILURE THRESHOLD - Maximum ACF fraud attempts per PERMIT TIME, 4 - 30 attempts.

17. CARD CALLING / CALLED NUMBER RESTRICTIONS FOR 5E8.

17.1 Feature Description

For 5E8, the CGNR (Calling Number Restrictions) and CDNR (Enhanced Called Number Restrictions) feature provided the capability to disallow calls originating from a particular calling station and to disallow calls to preselected locations based on the CAS card number. Up to 200 number restrictions are provided, 50 domestic and 50 international for both called and calling numbers.

Prior to this feature, if an automated call was denied due to geographic restrictions, the caller was allowed a second chance to enter a valid card number. With this feature callers do not have a second opportunity. The caller is given a message informing the caller to hang up and arrange other billing. The caller is then disconnected.

For automated sequence calls, if the call is denied due to CDNR, the caller is prompted to enter a new forward number on the first attempt. For a second attempt, the caller is informed to hang up and arrange other billing.

CAS CGNR (Calling Number Restrictions) is an enhancement to the CAS Geographic Restrictions feature which allows restrictions based on the called number. In addition, this feature introduces customer-supplied restrictions on back (calling) numbers.

17.2 Feature Assignment

New announcements are provided for this feature. A new announcement will be given to the caller for initial and sequence calls for calling number restrictions. New displays are given for operator assisted calls.

17.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9
PHRASES	5534	3	5AH	8.63

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. Announcement header IDs for this feature are "OSPSTA" 7, 26, 88, 89, and 90.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The CDNR RESTRICT field should be set to "Y" to activate this feature for 5E8.

PHRASE form (5534 Record) - The form defines and describes phrase IDs which are provided on the DSU2-RAF. New default input phrases have been added to support this feature.

18. CARD CALLING / CALLED NUMBER RESTRICTION FOR 5E9(1) AND LATER

18.1 CAS Calling Number Restrictions Feature Description

For 5E9(1) and later, this feature provides the caller with an opportunity to reach an operator during automated announcement treatment. New announcements are given to the caller for initial and sequence calls for calling number restrictions. These new announcements inform the caller that the entered card can not be used from that particular station. An announcement also gives the caller the option of pressing 0 for operator assistance. If the caller enters anything other than a 0 to reach an operator, an error announcement is given and the caller is disconnected. "#" and "*" are ignored.

A new operator display is also provided to give the operator more information about the call.

The announcements for the 5E8 feature are not used in 5E9(1).

18.2 Scenarios

In each of the following scenarios, after each of the announcements the back party has a choice of hanging up, dialing 0 to go to an operator, doing nothing or dialing some other number. In the scenarios the back party may not do anything until the last announcement. Once the announcement ends, the back party has 5 seconds to enter a zero or be disconnected.

If the back party should choose to dial any number other than zero, the back party will get the following announcement; "Please hang up and dial again. (Pause) The number you have dialed is not correct", followed by disconnect.

Scenario 1 - 0+ CAS Credit Card Call With CDNR

1. The back party places a 0+ call.
2. OSPS plays an RAF announcement "Bong" tone and audible logo.
3. The back party enters a CAS credit card number and PIN number.
4. OSPS sends a CAS CCS7 TCAP message to CAS/NCP.

5. CAS/NCP checks for any restrictions on the card. A Called Number Restriction is found.
6. CAS/NCP sends a TCAP message.
7. OSPA interprets TCAP message with the called number restrictions indication in the message. The following RAF announcement is played. "This call cannot be billed to this card. To arrange other billing please press zero for an operator now."
8. The back party does nothing.
9. After 3 seconds, the "Bong" tone is played.
10. The back party does nothing.
11. After 3 seconds, the following RAF announcement is played. "To arrange other billing please press zero for an operator now."
12. The back party dials 0 within the 5-second timing.
13. OSPA routes the call to operator.
14. The following is displayed on the operator's terminal (for 5E8 and later):

"BLG DENY",

"Card number not allowed with forward

number" (new type 7 error display),

the forward number,

the back number, and

the credit card number in reverse video.
15. The operator and the back party converse.
16. The back party gives a new card number.
17. The operator enters the new card number and PIN.
18. OSPA sends CAS CCS7 TCAP message to CAS/NCP.
19. OSPA displays "BLG CHECK".
20. CAS/NCP checks for any restrictions on the card. None are found.
21. CAS/NCP sends TCAP message.
22. OSPA interprets TCAP message indicating no restrictions.

23. "BLG OK" is displayed on operator's terminal.
24. The operator releases call.

Scenario 2 - 0+ Sequence CAS Credit Card Call With CDNR

This scenario is for a sequence call that has CDNR (Called Number Restrictions). The back party has already had a successful call using a CAS credit card and has pressed the "#" sign, received the prompt message, and is now entering the forward number.

1. The back party enters the forward number.
2. OSPS sends CAS CCS7 TCAP message to CAS/NCP
3. CAS NCP checks for any restrictions on the card. A Called Number Restriction is found.
4. CAS/NCP sends the TCAP message.
5. The OSPS interprets TCAP message with the called number restrictions indicated in the message.
6. The following RAF announcement is played: "This call cannot be billed to this card. Please dial another telephone number now, or to arrange other billing, press zero for an operator now."
7. The back party does nothing.
8. After 3 seconds, an RAF announcement "Bong" tone is played.
9. The back party does nothing.
10. After 3 seconds, the RAF announcement "Please dial now" is played.
11. The back party dials 0 within the 5-second timing interval.
12. OSPS routes the call to an operator.
13. The following is displayed on the operator's terminal (for 5E8 and later):

"BLG DENY",

"Card number not allowed with forward

number." (new type 7 error display),

the forward number,

the back number, and

the credit card number in reverse video.
14. The operator and the back party converse.

15. The back party gives a new forward number.
16. The operator enters the new forward number.
17. OSPS sends CAS CCS7 TCAP message to CAS/NCP.
18. "BLG CHECK" is displayed.
19. CAS/NCP checks for any restrictions on the card. No restrictions are found.
20. CAS/NCP sends TCAP message.
21. OSPS interprets TCAP message indicating no restrictions.
22. "BLG OK" is displayed on the operator's terminal.
23. The operator releases call.

18.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9
PHRASES	5534	3	5AH	8.63

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. New default input values for announcement headers "OSPSTA" 88 - 90 were entered for this feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The CDNR CGNR field specifies whether the Called Number/Calling Number Restrictions feature is active. This feature is an enhancement to the CAS R3 feature and allows identification of a reply code from a card database query that indicates a restriction on the called number.

PHRASE form (5534 Record) - The form defines and describes phrase IDs which are provided on the DSU2-RAF. New default input phrases have been added to support this feature.

19. CUSTOMER-DEFINED BILL SEGMENTATION INTERNATIONAL CREDIT CARD VALIDATION.

CDBS ICCV (Customer-Defined Bill Segmentation International Credit Card Validation) enhances the 5E7 CAS R3 ICCV feature by adding CDBS to ICCV. When OSPS sends an ICCV CCITT TCAP query for a card that subscribes to CDBS, and after the foreign administration database validation is formulated and sent, the OSPS accepts the CDBS code that is returned in that response and records it in the AMA record.

19.1 CDBS-ICCV Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

19.2 CDBS - ICCV Modified Forms

OSPSOPT form (5424 Record) - This form defines the OSPS office global parameters. Only one OPSOPT form can be entered per office. For 5E8, the ICCV CDBS field indicates if CDBS is activated for ICCV Calls.

20. ICCV GEOGRAPHIC RESTRICTIONS

20.1 Feature Definition

For 5E9(1) and later, this feature allows geographic restriction to be placed on PTT (Post Telegraph and Telephone) card-billed calls that originate on an OSPS. It provides announcements, operator displays, and the ability to reach an operator during automated call handling.

This feature enhances the present Geographic Called Restrictions feature, and builds on the ICCV basic validation introduced for ICCV CCITT TCAP signaling protocol.

If a call is charged to a PTT card, the OSPS sends a query to the PTT database. The query contains the called number (if available) and the operation code which informs the database that ICCV CDNR restrictions processing applies to the card. If the call is restricted by ICCV CDNR restrictions, the caller will be given further assistance on operator-handled calls or instructions (via announcement) on automated calls. A caller on an automated call will be able to reach an operator by pressing 0. In addition, on sequence calls, the caller will be able to enter a new called number. Callers on automated initial calls will not be allowed to enter new card numbers on calls that violate geographic restrictions.

20.2 Call Scenarios

See also the scenarios under the Calling/Called Number Restrictions feature, paragraph Section 18.2 .

Scenario 1 - Initial Call with Bail Out to an Operator

The back party places an automated initial call using a PTT card on OSPS. This call attempt violates ICCV CDNR restrictions and the OSPS plays an announcement that instructs the BACK PARTY that the call cannot be billed to the card, and to arrange other billing the caller should press zero for an operator. The BACK PARTY bails out of automated treatment to an OSPS operator by pressing 0. The OSPS uses display indications to inform the operator.

1. The back party places a 0+ call
2. The "Bong" tone and audible logo are played, and the following announcement: "Please dial your card number and PIN or zero for an operator now".
3. The back party enters a PTT card number and PIN.
4. OSPS recognizes the PTT card and sends an ICCV CCITT TCAP validation query to the PTT database.
5. PTT checks for any restrictions on the card, and an ICCV CDNR called number restriction is found.
6. PTT sends a TCAP query reply message to OSPS.
7. OSPS interprets the TCAP reply message with the ICCV CDNR indication in message.
8. OSPS plays the announcement for header ID "OSPSTA" 161 for the first failed attempt because of ICCV CDNR geographic restrictions: "This call cannot be billed to this card. To arrange other billing,

please press zero for an operator now."

9. The back party makes no response within 3 seconds after announcement.
10. The "Bong" tone is played.
11. The back party makes no response within 3 seconds after the "Bong" tone.
12. Announcement for header ID "OSPSTA" 162 is played: "To arrange other billing, please press zero for an operator now."
13. The back party presses 0 for an OSPS operator.
14. OSPS routes the call to an operator.
15. The following information is displayed on the VDT/CST:

"BLG DENY",

the back number,

the forward number,

the back card number in reverse video,

the message: "Card Number not allowed with Forward Number."
16. The operator requests a new card number from the caller.
17. The back party gives a new card number and PIN.
18. The operator enters the new card number and PIN.
19. OSPS sends ICCV CCITT TCAP message to PTT database.
20. "BLG CHECK" is displayed.
21. PTT checks for any restrictions on the card. None are found.
22. PTT sends the TCAP reply message.
23. OSPS interprets the TCAP reply message indicating that no restrictions were found.
24. "BLG OK" is displayed on the operator's terminal.
25. The operator releases call.

Scenario 2 - Initial Call Second Attempt with Disconnect

In this scenario, the back party places an automated ACCS initial call billed to a PTT card. The caller enters an invalid card number the first time and is asked to reenter the number. The caller then enters the correct

number which violates ICCV CDNR geographic restrictions and an announcement is played telling the back party that the call cannot be billed to the card and if they wish to arrange other billing to press 0 for an operator.

1. The back party places a 0+ call
2. OSPS plays the "Bong" tone and the audible logo with the following announcement: "Please dial your card number and PIN or zero for an operator now".
3. The back party enters PTT card number and PIN.
4. OSPS recognizes the PTT card and sends an ICCV CCITT TCAP validation query to the PTT database.
5. PTT checks for any restrictions on the card. An invalid card number is found.
6. PTT sends a TCAP query reply message to OSPS.
7. OSPS determines that the card number was invalid and plays the following announcement: "We're sorry, your card number is invalid. (1 sec pause) Please redial your complete card number and PIN now."
8. The back party enters a PTT card number and PIN.
9. OSPS recognizes the PTT card and sends an ICCV CCITT TCAP validation query to the PTT database.
10. PTT performs a card validation. An ICCV CDNR called number restriction is found.
11. PTT sends a TCAP query reply message to OSPS.
12. OSPS interprets the TCAP reply message indication that ICCV CDNR called number restrictions apply.
13. OSPS plays announcement header ID "OSPSTA" 161 for the second failed attempt because of ICCV CDNR restrictions: "This call cannot be billed to this card. To arrange other billing, please press zero for an operator now."
14. The back party makes no response within the 5-seconds time interval.
15. OSPS updates the call record and disconnects the call.

Scenario 3 - Automated Sequence Call

The back party has already had a successful call using a PTT credit card and has pressed the "#" sign and received the prompt message and is now entering the forward number.

1. OSPS prompts back party for another telephone number with the following announcement: "You may dial another AT&T handled call now."
2. The back party begins entering a new forward number (NPA NXX-XXXX).
3. OSPS recognizes the PTT card and sends an ICCV CCITT TCAP validation query to the PTT database.

4. PTT checks for any restrictions on the card. An ICCV called number restriction is found.
5. PTT sends a TCAP query reply message to OSPS.
6. OSPS interprets TCAP reply message indicating ICCV CDNR called number restrictions.
7. OSPS plays the following announcement for header ID "OSPSTA" 163 for the first failed attempt because of ICCV geographic restrictions: "This call cannot be billed to this card. Please dial another telephone number now or to arrange other billing please press zero for an operator now. "
8. OSPS plays the "Bong" tone announcement.
9. The back party makes no response within 3 seconds after the "Bong" tone.
10. OSPS then plays the following announcement for header ID "OSPSTA" 164: "Please dial now."
11. The back party enters a number other than 0 or valid forward number.
12. The OSPS plays the following announcement for header ID "OSPSTA" 165: "Please hang up and dial again. The number you have dialed is not correct."
13. OSPS updates the record, disconnects the call, then creates an AMA (Table 24) for the condition of ICCV CDNR Restrictions (value 12) when sampling is turned on.

20.3 Feature Assignment

The CDNR feature must be active for the ICCV Geographic Restrictions feature to be active.

20.4 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. New default input values for OSPSTA 161 - 165 have been added for this feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The global parameter GEO RESTRICT activates/deactivates this feature.

PHRASE form (5534 Record) - This form defines and describes phrase IDs that are provided on the DSU2-RAF announcement storage circuit packs for each application. New default input data has been added to support this feature.

21. NON-ENGLISH ANNOUNCEMENTS FOR CARD CALLS.

21.1 Feature Description

The OSPS NACC (Non-English Announcements for Card Calls) feature provides the capability to play announcements in up to four languages other than English (e.g., French, German, Japanese, Spanish) on an automated card call except on inward calls and on calls to an Alliance forward number. The language in

which the announcement will be played is based on the card issuer's chosen language and/or the card holder's requested language. This feature also provides an indication of the language associated with the card on an operator handled call.

21.2 Feature Assignment

See Figure 10 for the feature assignment form flow for the NACC feature.

To set up NACC, the non-English phrases must exist on the RAF packs and be populated in the announcement phrase form, PHRASE form, view 8.63. The non-English announcement phrase IDs to be used with card calls must be populated in the announcement header form, ANNHD form, view 8.61. The non-English phrase should have the same announcement header identifier, as the corresponding English phrase under application type "OSPSTA", but the application type for the non-English language announcement header and phrases should match the non-English language, which is assigned on the LANGTBL form (5483-1 Record). This form should be populated with the data linking the language number and possibly the Language Override Parameter as returned in the card query response message, to the application type and display identifier for the operator position. Also, the PHRLANG form (5483-2 Record) must be populated with the phrases which correspond to the special branding phrases used by the Customized Market Announcements.

The TCCID form, view 27.55 should be updated to show the language, if any, requested by the card issuer (the default language is English).

This feature can be activated on the OSPSOPT form, view 8.9.

21.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNAPL	5529	3	5AC	8.64
ANNHD	5534	3	5AE	8.61
ANNTR	5533	3	5AG	8.62
LANGTBL	5483-1	3	4CI	8.66
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63
PHRLANG	5483-2	3	4CJ	8.67
TCCID	5454	3	4BC	27.55

ANNAPL form (5529 Record) - This form is used to enter the SMs on which the DSU2-RAFs reside and the type of application announcements supported by that RAF. The L2-7 application enumerations were added to this form for 5E9(1).

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. The Non-English Announcement phrases must be entered on this form under the same announcement header ID as English phrases, but with the Language application identifier assigned on the LANGTBL form.

ANNTR form (5533 Record) - This form lists phrases that identify the announcement trailer. The application enumerations L2-7 were added for 5E9(1).

LANGTBL form (5483-1 Record) - This form is available with the 5E9(1) Software Release. An entry in this table maps the language value for a calling card to the announcement application type so that card announcements may be played in the appropriate language for a customer. LANGUAGE is equivalent to the LOP (Language Override Parameter) that may be returned in a calling card query reply from the CAS

(Customer Account Services) NCP (Network Control Point) database. It also associates a language display for the operator position with the language announcement. The language application identifier, ANNC APPL, to be entered on the ANNHD form, is assigned on this form.

Each non-English language available on OSPS should have an entry in this record.

If ACTIVATE is set to "Y" on the LANGTBL form, then the non-English language is used by the OSPS. If it is set to "N", then English announcements are used.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The Non-English Announcement for Card Calls feature is activated on this form via the NACC field. The MAX LOP field indicates the maximum number of LANGUAGE entries on the LANGTBL form.

PHRASE form (5534 Record) - This form defines and describes phrase IDs which are provided on the DSU2-RAF (Digital Services Unit 2-Recorded Announcement Facility) Announcement Storage circuit packs for each application. The non-English phrase identifiers must be entered on this form. Note that the application type on this form is not the non-English identifier; the application type is "OSPSTA" on this form.

PHRLANG form (5483-2 Record) - An entry in this form maps an English language phrase to a corresponding non-English language phrase. For example, the entries in this form map English phrases, such as those used for CMA (Customized Market Announcements) to corresponding non-English language phrases.

TCCID form (5454 Record) - The TCCID form provides identification of telephone calling cards other than the 14-digit LEC (Local Exchange Carrier) card. This identification is used in the CAS (Customer Account Service) features. For 5E9(1) and later, the LANGUAGE field identifies the language in which the card issuer wants card announcements played on card calls. The value entered in this field should match one of the language numbers on the LANGTBL form.

22. ICCV REQUEST FOR CALL DURATION AND CHARGE

22.1 Feature Description

ICCV-CDC (International Credit Card Validation - Call Duration and Charges) is a capability created through a partnering agreement with foreign card administrations. This feature enables the OSPS to send a CDM (Call Disposition Message) at the end of a call, if such a message is requested in the response to an ICCV query by a foreign issuing calling card administration (PTT).

It introduces the concept of the following call types:

- Home Country Call:

A call originated in the U.S. and terminated in a foreign partner country that issued the card. OSPS does not rate the call.

- Domestic Call:

A call originated and terminated within the U.S. using a foreign partner issued card. OSPS rates the call by sending a Subsequent PL (Purchase Limit) query to the RTRS (Real Time Rating System).

- Third Country Call:

A call originated in the U.S. and terminated in a country other than the home country of the card issuer. OSPS rates the call by sending a Subsequent PL query to RTRS.

The CDM contains the start time and duration of the call, the type of call, and, except for calls to the home country of the card issuer, it contains an estimated call charge. It can be used to track and control potential fraud, and estimate the amount of revenue generated through card usage with foreign partners.

22.2 Feature Assignment

See Figure 11 for the feature assignment form flow for the ICCV CDC feature.

Before turning on the ICCV CDC feature, the data that cross references each card issuer to country code, NPA, NPA-NXX for Home Country and Third Country determination must be populated on the NONUSA form (5477-1 Record).

Cards that use ICCV signaling must populate the data that associates a database number with a card issuer on the ICCVDB form (5478 Record). ICCV CDC introduces the use of Call Disposition Messages for ICCV signaling. The craft should verify that the associated foreign database is ready to accept these new CDMs.

If the number is an international number, the Country Code is entered on the IDDD form (5307 Record).

The TCCATTR form (5473 Record), contains the fields that correspond to the card issuer.

CAS R3 must be turned on, i.e. CAS R3 ON field on the OSPSOPT form (5424 Record) must be "Y", before this feature can be activated, i.e. "Y" is entered in the CALL DUR CHRG field on the OSPSOPT form.

22.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ICCVDB	5478	3	4CD	27.60
NONUSA	5477-1	3	4CC	26.6
OSPSOPT	5424	3	4Y	8.9
TCCATTR	5473	3	4BY	27.56
TCCID	5454	3	4BC	27.55

ICCVDB form (5478 Record) - The 5478 Record is available with 5E9(1) and later Software Releases. This table is used to provide a ratio percentage of successful queries on a card issuer basis and the minimum number of query attempts required before the query success ratio is applied.

NONUSA form (5477-1 Record) - The 5477-1 Record is available with the 5E8 Software Release. This record is used to construct a table of NPA NXXs that are located within the NANP (North American Numbering Plan), but are outside the United States. The HOME COUNTRY field provides the home country identifier associated with the card issuer on the TCCID form (5454 Record).

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The ICCV CALL DUR CHRG field activates this feature.

TCCATTR form (5473 Record) - This form defines the attributes for a card type. It is used to group a set of card attributes together so that particular group of attributes can be associated with a particular card or cards that are identified via the Card Identification Tables. See Figure 11 for data checks for 5E9(1).

TCCID form (5454 Record) - The TCCID form provides for identification of telephone calling cards other than the 14-digit LEC (Local Exchange Carrier) card. This identification is used in the CAS (Customer Account Service) feature. The ICCV DB LABEL field is used to identify the ICCV card issuer and query alarm information on the ICCVDB form. The COUNTRY field identifies the country of the ICCV card issuer. This

field is assigned on either the NONUSA form or the IDDD form.

23. LOCAL EXCHANGE CARRIER ALTERNATE CARD FORMAT

23.1 LECACF Feature Description

The LECACF (Local Exchange Carrier Alternate Card Format) feature provides 891/CCC Card validation using ANSI TCAP (Transaction Capability Application Part) Type I signaling for 5E7 and later Software Releases. This feature is an enhancement to the 891 LEC Flexible Card Fast Feature, allowing OSPS to provide calling card services to cards issued in the ANSI/ISO 891 format as well as other Commercial Credit Card format. Measurement and software alarms are provided for Type I.

23.2 LECACF Translations Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSAPP	5537	3	5AK	8.17
OSPSOPT	5424	3	4Y	8.9
TCCATTR	5473	3	4BY	27.56

23.3 LECACF Modified Forms

DSAPP form (5536 Record) - For 5E7 and later, "AT1" enumeration was added to the APPLIC field. "AT1" signaling is ANSI TYPE I signaling. "AT1" must be entered for LECACF.

OSPSOPT form (5424 Record) - This form defines the global parameters for an office. The global parameters 891/CCC MIN QUERY and ALARM THR were added for LECACF.

MIN QUERY is the minimum number 891/CCC ANSI Transaction query attempts in a 15 minute period before an SW (software) alarm is given.

ALARM THR is the 891/CCC ANSI TCAP (Transaction Capabilities Application Part) query software alarm threshold, which is the successful ANSI non-alarmed query percentage. This percent is number of ANSI TCAP queries attempted in a 15 minutes period, which Every fifteen minutes, counts of the number of ANSI TCAP queries attempted and the number of queries with reply valid are sent to the DS SP (Direct Signaling - System Process) are counted. The ANSI TCAP query success rate is calculated from these counts and is compared to the value in this field.

TCCATTR form (5473 Record) - For 5E7 and later enter the SIGNALING TYPE of "AT1" for ANSI TYPE I signaling. When the SIGNALING TYPE is "AT1", then QUERY TIMEOUT must be entered, and the associated TCCID form must have PIN set to 4. The associated TCCID form is found by matching the CARD ATTR ID on the TCCATTR form with the CARD ATTR ID on the TCCID form.

24. LIDB

The LIDB (Line Information Data Base) capability is available with 5E5 and later Software Releases. This feature provides the message formats and equipment interface for an OSPS (Operator Services Position System) to communicate with a LIDB. It offers the ability to obtain billing authorization information from the LIDB via the LEC's SS7 (Signaling System 7) network for intraLATA traffic or from the BVA (Billing Validation Application) via AT&T's CCIS6 or DCIS6 network. These capabilities are needed to permit LECs to process Calling Card, Collect and Bill-To-Third number calls in an environment where the billing authorization database is distributed between the LECs and AT&T. A LEC can now either query AT&T's BVA database or the LEC LIDB database.

24.1 ODA Forms

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LIDBLNQ	5449	3	4AX	27.32 27.33
OSPSOPT	5424	3	4Y	8.9

24.2 Translation Requirements

LIDBLNQ form (5449 Record) - LIDB uses the LIDBLNQ form to determine the query destination for calling card calls, collect and bill-to-third number calls.

OSPSOPT form (5424 Record) - Several fields have been added to the OSPSOPT form, under the heading of L CC and L BNS. These fields serve the purpose of determining the query destination (BVA or LIDB) for calling card and BSN queries.

The query destination selection mechanism is described below in the EABS Call Handling portion of this section.

25. EXCHANGE ALTERNATE BILLING SERVICES CALL HANDLING

The EABS (Exchange Alternate Billing Services) capability is available with 5E5 and later Software Releases. EABS call handling provides for the handling of Calling Card, Collect and Bill-To-Third number calls based on responses to queries sent to the LIDB over an SS7 (Signaling System 7) network using the LIDB interface feature. To provide Billed Number Screening and calling card validation in a mixed BVA/LIDB environment, the OSPS supports bimodal (concurrent) access to either the BVA (Billing Validation Application) or LIDB based on the NPA-NXX of the called number for collect calls, the third number for bill-to-third-number calls, the card number for line number-based calling cards and the RAO-0/1XX for RAO-based calling cards. (RAO is expanded to Revenue Accounting Office.)

25.1 ODA Forms

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LIDBLNQ	5449	3	4AX	27.32 27.33
OSPSOPT	5424	3	4Y	8.9

25.2 Translation Requirements

LIDBLNQ form (5449 Record) - To introduce EABS in a new office where connection to LIDB is already established, the LEC INTRA field can be set to "C" (both BVA and LIDB) to indicate that query destination can be either BVA or LIDB and that accessing the LIDBLNQ form is required. The LIDBLNQ form should be populated with the NPA-NXX data in the LIDB.

OSPSOPT form (5424 Record) - The basic call handling for EABS is the same as that for Automated Calling Card Service except that EABS allows bimodal (concurrent) access to either BVA or LIDB data base. The calling card query option or BNS query option fields on the OSPSOPT form are used to determine the query destination. These fields determine query destinations based on the carrier (AT&T or LEC) and the type of the call (interLATA or intraLATA). The CC and BNS related fields indicate whether the queries should be sent to BVA, LIDB or use the LIDBLNQ form for their query destination. For example, if the LEC INTRA field (OSPSOPT form) is set at:

- "A" - then all LEC-carried intraLATA calls will query BVA.
- "B" - then all LEC-carried intraLATA calls will query LIDB.
- "C" - then the entry on the OSPSOPT form alone is not enough to determine the query destinations: the LIDBLNQ form has to be used. The data in the LIDBLNQ form will indicate whether for a particular NPA-NXX or RAO-0/1XX, BVA ("N" entered in the LIDB field) or LIDB ("Y" entered in the LIDB field) should be accessed.
- "D" - then the entries on the L CC DEFAULT and L BNS DEFAULT fields (they must be equal) will be used to determine the query destination.

26. ACD EXPANDED CALL TYPE DETERMINATION

The ECTD (Expanded CALL TYPE Determination) capability is available with 5E5 and later Software Releases. This feature allows the CALL TYPE for Toll and Assistance calls to be determined more specifically from the digits received and/or the incoming trunk group number.

26.1 ODA Forms

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	4M	26.10
ACDPOL	5412-B/C/E/F	3	4M	26.10
INFLTAP	5451	3	4AZ	27.51
OSPSCT	5404-1	3	4E	21.22
STINFO	5402	3	4C	21.2

26.2 Translation Requirements

ACDCTP form (5412-A/D Records)

ACDPOL form (5412-B/C/E/F Records) - The ECTD (Expanded CALL TYPE Determination) feature makes use of four ODA forms. The ACDCTP form and record used in the 5E4(2) Software Release for ACD (Automatic Call Distribution) is replaced by the ACDCTP and ACDPOL forms in the 5E5 Software Release. There can now be, at most, 3 levels of CALL TYPE determination. Calls may now be more specifically (in addition to prefix, call origin, etc.) determined in the following ways:

- based on a trunk group (uses 5412-A/D and 5412-B/C/E/F),
- based on a trunk group and then a destination index (uses 5412-A/D and 5412-B/C/E/F),
- based on a destination index (uses 5412-A/D and 5412-B/C/E/F),
- based on a destination index and then a trunk group (uses 5412-A/D and 5412-B/C/E/F),
- or no trunk group or destination index (uses 5412-A/D only).

Three levels of CALL TYPE determination can now be made using the data on ACDCTP first and then additionally the trunk group and destination index data on the ACDPOL form.

The six office records (5412-A/D and 5412-B/C/E/F Records) are sorted in multiple ways to make it easier to find the record entry of interest.

The new COIN field on the ACDCTP form indicates whether or not this is a coin type of call. The new OSPS ID field contains the 4-digit identifier of the OSPS which interflowed the call to this switch, if any (non-Interflowed calls should be set to zero). The OSPS ID is received from the sending OSPS Interflow switch and is not obtained from any data populated on this switch. The CALL TYPE field contains the call queue number that the call will be routed to if no further CALL TYPE determination is performed (i.e., second or third levels using trunk group or destination index). The DISPLAY INDEX field contains the VDT display index number for calls with a CALL ORIGIN of "DA2VDT" or "NIT".

When assigning a TA call queue to a type of call which is not "DA2VDT" or "NIT", the serving team associated with the call queue cannot be designated as a "non-ISP only" serving team. That is, if the CALL ORIGIN on ACDCTP is neither "DA2VDT" or "NIT", the CALL TYPE must have a serving team assigned to it (on OSPSCT) where the serving team has NON ISP ONLY (STINFO form) set to "N".

ACDPOL form (5412-B/C/E/F Records) - If additional CALL TYPE determination is to be performed, the PRE CALL ID field and SECOND LEVEL fields are used for the second level of CALL TYPE determination. If no additional CALL TYPE determination is required, the SECOND LEVEL field is "NONE". The PRE CALL ID field on this form is used only as a key by the ACDPOL form (in addition to the TGN field) if a trunk group is used in the next level of CALL TYPE determination. The PRE CALL ID field on this form is used as a key by the ACDPOL form (in addition to the CDI field) if a code index (destination index) is used in the second level of call type determination. The destination index comes from digit analysis (i.e., the PDIT, LDIT or INDIT forms). The DISPLAY INDEX field contains the VDT display index number for calls with a CALL ORIGIN of "DA2VDT" or "NIT" (on ACDCTP).

The ACDPOL form requires a SEQ NO (sequence number) in addition to the PRE CALL ID field. SEQ NO is an internal value used to allow multiple instances of this form to be created for the same PRE CALL ID. SEQ NO does not affect the mapping of data from the ACDCTP form nor the CALL TYPE determination. The TGRP/DEST field is where you indicate which type of data you are populating using "T" or "D" values. In the TGN/CDI field the Trunk Group Number or CDI (Destination Index) to be used is specified. Not all trunk groups or destination indices need to be populated! Only populate the data which needs a specific CALL TYPE (queue) determined. Any calls which are indicated as having a SECOND LEVEL but do not have a trunk group or destination index populated on ACDPOL will default to the CALL TYPE value indicated on the original ACDCTP form. This is also true of the THIRD LEVEL scenario, but the CALL TYPE used will be that of the previous SECOND LEVEL data read. The CALL TYPE field contains the call queue number that the call will be routed to if no further CALL TYPE determination is performed. The DISPLAY INDEX field contains the VDT display index number for calls with a CALL ORIGIN of "DA2VDT" or "NIT" (on the ACDCTP form). If no additional CALL TYPE determination is required, the THIRD LEVEL field is "NONE".

The OSPSCT form contains various CALL TYPE information, sorted by CALL TYPE. New fields used on this form for the ECTD feature are COIN RECALL and COIN NOTIFY. The existing RECALL TYPE field is also used by ECTD for normal recalls. Each of these fields contains a call queue number used to handle these types of calls, respectively.

INFLTAP form (5451 Record) - When assigning an OSPS ID value to handle Interflowed calls, the value used must be defined as an OSPS Incoming Toll and Assistance Identifier on an INFLTAP form.

OSPSCT form (5404-1 Record) - With the 5E5 Software Release, the CALL CLASS field from the 5E4(2) ACDCTP form has been deleted. The COIN RECALL and COIN NOTIFY fields should be used where in 5E4(2) the CALL CLASS field would be set to "CNRCL" or "CNOT" values, respectively. Where CALL CLASS would have been set to "RECB" or "RECFB", the RECALLTYPE field on the OSPSCT form should be used.

27. INTRAFLOW

The OSPS Intraflow feature is available with 5E5 and later Software Releases. Intraflow allows an ACD/OSPS administrator to assign for each call queue, a single principal serving team and up to eight supporting serving teams which may handle calls from the call queue when all of the operators on the principal serving team are busy.

For detailed information on the Intraflow feature, refer to the Intraflow description in Division 2, Section 3A, the Section for All OSPS Offices.

28. SUBACCOUNT BILLING

SAB (Subaccount Billing) is a new feature available in 5E5 and later Software Releases. This feature allows a customer to associate a one-to-four digit number with each call they make, for billing itemization purposes. These numbers are determined by the customer and are available to RAO (Regional Accounting Offices) to be printed on the customer's bill in association with each number called. This feature is invoked at the ACCS (Automatic Calling Card Service) prompt (bong tone) by the customer dialing the SAB access code followed by the one-to-four digit SAB number the customer has chosen. The customer does not presubscribe to this feature.

The AMA records will contain the SAB number so that the customer's bill can be itemized by the SAB number. Since these SAB numbers are customer-determined and have no meaning to OSPS, the customer must keep track of their meaning.

SAB calls may also consist of a sequence of up to ten calls per call session. Sequence calls are allowed by keying "#". The same SAB number will be used, i.e., the SAB number cannot be changed. Carriers cannot be changed on sequence calls.

At the present time, only automated processing is allowed for a SAB call, so the calls are restricted to calls for which paid billing are allowed and which are dialed "0+". SAB service is restricted from hotel (ACQS) and coin stations. Additionally, the switch owner can block a calling number from using SAB service or restrict certain special directory numbers from being forward numbers for SAB sequence calls.

28.1 ODA Forms

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINESCRN	5416	3	4Q	26.2
OSPSOPT	5424	3	4Y	8.9
SEQUEST	5429	3	4AD	26.41

28.2 Translation Requirements

LINESCRN form (5416 Record) - The field SUBACCT BILL has been added to this form. An "N" entered here will restrict the SAB feature for the back number or range of back numbers keying the form.

OSPSOPT form (5424 Record) - There are three new fields on the OPSOPT form under the SUBACCOUNT BILLING heading. The SAB ON entry indicates if this feature is turned on. The ACCESS CODE entry is the value entered by the customer after the ACCS bong tone to indicate that the call should receive Subaccount Billing treatment.

The LEC ALW field is used if the switch is owned by an IC (Interexchange Carrier). It is used to indicate if the LEC serving this switch also provides SAB service. A "Y" can be entered here only if SAB ON is set to "Y".

SEQUEST form (5429 Record) - This form is used for restricting sequence calls. Two fields have been

added for SAB feature use - ACCS and SUBACCT BILL. Formerly the form was used only for ACCS restriction. Now restriction can be placed on an either/or basis for ACCS and SAB. If "N" is entered in the SUBACCT BILL field, then the 3-, 7- or 10-digit TN in the key field is restricted from being a forward number for a Subaccount Billing sequence call. If ACCS is set to "N", then the TN is restricted from being a forward number for an ACCS sequence call.

29. CALL FLOW EXAMPLES

The following example shows what data is used in a sample call processing scenario. This example looks at a 0- call that comes from a conforming end office. Once this call reaches an operator, a forward number will be entered and routed to. For example, assume that an OPRTK form (5417 Record) shows that carrier selection is on and that the call does not originate from a coin phone. Assume that exception area mapping is turned on.

An incoming trunk is seized. The TKGRP form (5202 Record) indicates that it is an "ISPOPR" trunk and thus ISP software is invoked.

The OPRTK form for this trunk shows that equal access signaling is being used. ISP collects the called number and the calling number, noting that the signaling indicates that the call is to be handled by intraLATA carrier. The INTRA CARR ID value given on the OPRTK form is the one used. Assume that it is set to "LEC".

The DIOPR form (5418 Record) is looked at, using the LEC carrier as the key. DIOPR shows restrictions on the type of calls to be handled (such as coin restrictions). The type of arriving traffic is compared against any restrictions. If this call is not handled, then the alternate code index, the screen index from the OPRTK form and a prefix of none are used as the keys to a RAR form (5301 Record) to get a route index to send this call to an external operator system. When this occurs, further routing and charging information is found in the usual manner from the 5302, 5303 and 5202 Records.

If the call is not transferred out yet, then the primary code index in the DIOPR form is looked at. If the primary code index is not zero, the call is still sent to an external operator system, where the primary code index from the DIOPR form, the screen index from the OPRTK form and a prefix of "none" are used as keys. Routing is then done.

If the call is still not transferred out, it is passed off to an internal OSPS. The remaining steps of this scenario are done only when there is an internal OSPS.

The full back number is now constructed. Signaling should have sent the NXX-XXXX of the calling number. To determine the originating NPA, the OPRTK form is checked to see if there are any protected NXXs served by the incoming trunk group. If there are, then the NXX of the back number and the NPA from the OPRTK form are used as a key to the PRONXX form (5413 Record). If an entry in the PRONXX form is not found or if there are no protected NXXs, then the back number comes from the NPA given on the OPRTK form. If an entry is found on the PRONXX form, then the NPA from that record is used.

The OPRTK form is checked to see if there are calls arriving from ACQS establishments on the incoming trunk. For this example, assume that there are none.

The OPRTK form is checked to see if OLS (Originating Line Screening) may be done on the back number. If so, the SM containing the screening information for this NPA-NXX is found on a NPAMAP form (5414 Record), based on the back number (previously determined).

Using the data on the correct SM, the LINESCRN form (5416 Record) provides the OLS screening index (SCRN CODE) as a key into the SCRNCODE form (5415 Record), which provides the restrictions. If there is a true billing number associated with this back number, then the back number is replaced with the true billing

number.

Since there is no forward number, the call is now routed to an operator.

To select an operator, the ACDCTP form (5412 Record) is checked to determine what the call type is. In this case, the key is a CALL ORIGIN of "ISP", a PREFIX of "0M" (zero minus), a CALL CLASS of "INT" and a CARRIER of "LEC".

Using this call type, the serving team to handle the call is found in the OSPSCT form (5404 Record) and the Automatic Call Distributor selects an operator who belongs to that team (as shown in the OSPSOA form (5403 Record)) to handle the call.

The operator's VDT shows the seizure, displaying the back number and a carrier of LEC with a lock next to it (since carrier selection enforcement is on). Based on the incoming trunk group, the TGNLEC form (5443 Record) is checked to see if any special display is associated with this trunk group. If so, then the LEC index is used to access the LECTEXT form (5444 Record) and display that text to the operator. If there is originating line screening, the text found on the SCRNCODE form is available on the screen page. Although not displayed, any OLS restrictions are still enforced.

The operator enters a forward number. For a 7-digit forward number, an NPA is prepended to it before digit analysis. If the OPRTK form for the incoming trunk group indicates that there are protected NXXs, then the PRONXX form is checked with that from the NPA, the OPRTK form and the entered NXX. If such an entry is found, that true NPA is prepended to the entered digits; otherwise, the NPA on the OPRTK form is used. If a 3- or 10-digit number is entered, no prepending is done.

Digit analysis is done on this number. The DAS (Digit Analysis Selector), used as the starting point (the one associated with the incoming trunk), is found in TKGRP form. Digit analysis is done using the standard data given on the DAS, PDIT, LDIT and INDIT forms.

Since exception area mapping is turned on, the NPAMAP form is checked with the back number to determine what exception area (if any) the call originated in. This form is also checked with the forward number for a terminating exception area. If both are in such areas and if they correspond on the EXMAP form (5440 Record), the call is intraLATA, digit analysis is successful and the scenario continues below. If any of this is not true, digit analysis fails and an error display is given to the operator indicating that the forward number is not compatible with the carrier. The carrier will not change automatically since carrier selection enforcement is on.

Since the forward number is valid and can be served by the current carrier, the TCSNPA form (5437 Record) is checked with the forward number to see if any terminating code restrictions are in effect. If so, then the text displayed to the operator is retrieved from the TCSTEXT form (5436 Record). Any restrictions are also enforced.

When the operator tries to route this call, the code and route indexes used come from one of the INDIT or LDIT forms, as is normally done by digit analysis. When an RAR form is accessed in routing, the code index just mentioned is used, a prefix of none is always used and the screen index from the TKGRP form for the incoming trunk group is used. The route index from the RAR form is used to index into a RTIDX form (5303 Record), which contains the trunk group used for routing this call.

The following six examples will show what data is used in call processing, the order in which it is accessed and the way in which it fits together. In these examples, ODA form numbers will be used without an explanation of what the form is.

29.1 Example 1: 0- Call from Conforming End Office

This example will look at a 0- call that comes from a conforming end office. Interflow and Intraflow features are not turned on. Once this call reaches an operator, a forward number will be entered and routed to. For this example, assume that the OPRTK form shows carrier selection is on and that the call does not originate from a coin phone. Also assume that exception area mapping is turned on.

1. An incoming trunk is seized. The TKGRP form indicates that it is an "FIOPR" trunk and thus ISP software is invoked.
2. The OPRTK form for this trunk shows that equal access signaling is being used. ISP collects the called number and the calling number, noting that the signaling indicates that the call is to be handled by the intraLATA carrier. The intraLATA carrier in the OPRTK form is the one used. Assume that it is set to "LEC".
3. The DIOPR form (5418 Record) is looked at, using the carrier of "LEC" determined above as the key. One thing this form shows is restrictions on the type of calls to be handled (such as coin restrictions). The type of traffic arriving is compared against any restrictions. If this call is not handled, then the alternate code index, the screen index from the OPRTK form and a prefix of none are used as the keys to a RAR form to get a route index to send this call to an external operator system, out an FOPRI or FOPRT trunk. When this occurs, further routing and charging information is found in the usual manner from the 5302, 5303 and 5202 Records.
4. If not transferred out yet, then the primary code index for this carrier in the DIOPR form is looked at. If it is not zero or if the OSPS TA field on the OSPSOPT form is set to "N", the call is still sent to an external operator system. The route index to do this comes from the RAR form, where the keys are the primary code index from the DIOPR form, the screen index from the OPRTK form and a prefix of none. The routing is then done in a manner equivalent to that above.
5. If not transferred out yet, this zero minus call is passed off to an internal OSPS. The remaining steps are only done when there is an internal OSPS.
6. The full back number is now constructed. Signaling should have sent the NXX-XXXX of the calling number. To determine the originating NPA, the OPRTK form is checked to see if there are any protected NXXs served by the incoming trunk group. If there are, then the NXX of the back number and the NPA from the OPRTK form are used as the keys to the PRONXX form (5413 Record). If an entry in the PRONXX form is not found or if there are no protected NXXs, then the back number is assumed to have come from the NPA given in the OPRTK form. If an entry is found on the PRONXX form, then the NPA from that record is used.
7. The OPRTK form is checked to see if there are calls arriving from ACQS (Automatic Charge Quotation Service) establishments on the incoming trunk. For this example, assume that the form shows none.
8. The OPRTK form is checked to see if OLS (Originating Line Screening) may be done on the back number. If so, the SM that contains the screening information for this NPA-NXX is found in the NPAMAP form, based on the back number previously determined. Using the data on the correct SM, the LINESCRN form provides the OLS screening index (SCRN CODE) as a key into the SCRNCODE form, which provides the restrictions. If there is a true billing number associated with this back number, then the back number is replaced with the true billing number.
9. Since there is no forward number, the call will be routed to an operator.
10. A call type is now determined by accessing data from the ACDCTP form first. For this example, the keys are a CALL ORIGIN of "ISP", a PREFIX of "0M" (zero minus), COIN indicator of "N", CARRIER is "LEC" and OSPS ID is "0" (non-interflow call). Assume for this example that the incoming trunk group

number is to be used in determining the call type and that an entry for this trunk group exists on the ACDPOL form. Thus, using the above five pieces of information, the PRE CALL ID and SECOND LEVEL of TGRP are obtained from the ACDCTP form. A SECOND LEVEL of TGRP indicates that the ACDPOL form must be accessed. The PRE CALL ID obtained and the incoming trunk group number associated with the call are keys to the ACDPOL form. Assume that ACDPOL has THIRD LEVEL set to "NONE". Therefore, call type determination is completed and the call type is the value given to CALL TYPE in 5412-B/C/E/F.

11. Using this call type, the serving team to handle the call is found in the OSPSCT form and the ACD (Automatic Call Distributor) selects an operator who belongs to that team (as shown on the OSPSOA form) to handle the call.
12. The operator's VDT shows the seizure, displaying the back number and a carrier of LEC with a lock next to it since carrier selection enforcement is on. Based on the incoming trunk group, the TGNLEC form (5443 Record) is checked to see if any special display is associated with this trunk group. If so, then the LEC index for that trunk group is used to access the LECTEXT form (5444 Record) and display that text to the operator. If there is originating line screening, the text found in the SCRNCODE form is available on the screen page of the operator's VDT. Any OLS billing restrictions are enforced.
13. The operator enters a forward number. For a 7-digit domestic forward number, an NPA is prepended to it before digit analysis. If the OPRTK form for the incoming trunk group indicates that there are protected NXXs, then the PRONXX form is checked with the NPA from the OPRTK form and the entered NXX. If such an entry is found, that true NPA is prepended to the entered digits; otherwise, the NPA in the OPRTK form is used. If a 3- or 10-digit domestic number is entered, no prepending is done.
14. Digit analysis is done on this number. The DAS (Digit Analysis Selector), used as the starting point, is the one associated with the incoming trunk, found in TKGRP form. Digit analysis is done using the standard data given on the 5300-1, 5309, 5300-3 and 5300-5 Records. If this is an intraLATA call, then exception area mapping is not done and the call processing continues at step 16. If this is an interLATA call, continue with step 15.
15. Since exception area mapping is turned on, the NPAMAP form is checked with the back number to determine what exception area (if any) the call originated in. This form is also checked with the forward number for a terminating exception area. If both are in such areas and if they correspond in the EXMAP form (5440 Record), the call is intraLATA, digit analysis is successful and we can continue below. If any of this is not true, digit analysis fails and an error display is given to the operator indicating that the forward number is not compatible with the carrier. The carrier will not change automatically since carrier selection enforcement is on.
16. Since the forward number is valid and can be served by the current carrier, the TCSNPA form (5437 Record) is checked with the forward number to see if any terminating code restrictions are in effect. If so, then any TCS text associated with the terminating screening code is retrieved from the TCSTEXT form (5436 Record) and displayed to the operator. Any terminating billing restrictions are also enforced.
17. When the operator tries to route this call, the code and route indexes used come from either the INDIT or LDIT forms. This is the same as is normally done for POTS (Plain Old Telephone Service) calls. When the RAR form is accessed in routing, the code index just mentioned is used, a prefix of none is always used and the screen index from the TKGRP form for the incoming trunk group is used. The route index from the RAR form is used to index into a RTIDX form (5303 Record), which contains the trunk group used for routing this call.

29.2 Example 2: 0+ Call on MF Trunk

This example looks at a 0+ call that arrives on an MF trunk. This assumes that the number dialed is interLATA and that the call is arriving at an OSPS owned by an interLATA carrier. The call may be sent directly from an end-office or from an ISP located in another switch.

1. An incoming trunk is seized. The TKGRP form indicates that it is an "FIOPR" trunk and thus ISP software is invoked.
2. Assume the OPRTK form shows that equal access signaling is not being used and that the trunk group carries dedicated interLATA traffic. The carrier for this call is the interLATA carrier found in the OPRTK form. If the trunk was not marked as carrying dedicated traffic, digit analysis would have been done, using the DAS found on the TKGRP form associated with the incoming trunk. Note that the DIOPR form (5418 Record) is looked at next and that the ICF form (5305 Record) is never checked at this time.
3. Repeat step 3 from example 1, checking the DIOPR form to see if handling of the call is restricted and should be transferred out. In this example, the carrier used to access the DIOPR form is the interLATA carrier specified on the OPRTK form.
4. The primary code index is checked in the DIOPR form to see if the call should be transferred out as in step 4 from example 1.
5. If not transferred out yet, this zero plus call is passed off to an internal OSPS. The remaining steps are only done when there is an internal OSPS.
6. The full back number is now constructed in the same manner as in step 6 of the first example.
7. A check for ACQS treatment is made, as in step 7 of example 1. If the OPRTK form indicates that there may be ACQS traffic on this trunk, then the ACQS form (5425 Record) is checked with the back number. If no entry is found, this is not an ACQS call; otherwise, information about the ACQS establishment is found on this form.
8. Originating line screening is checked for, as in step 8 of example 1.
9. If 0+ a 7 digit domestic number was dialed, then a full 10-digit forward number is constructed. The OPRTK form is again checked to see if there are protected NXXs served by the incoming trunk. If so, the NXX dialed and the NPA from the OPRTK form are used as the keys to the PRONXX form. If an entry in the PRONXX form is not found or if there are no protected NXXs, then the dialed number is assumed to have the same NPA as is found in the OPRTK form. If an entry is found in the PRONXX form, then the NPA from that form is used instead. If the number dialed is other than a 7-digit domestic number, then no prepending is done. This is the number that digit analysis is done on.
10. Digit analysis is done on the possibly modified dialed number. Data appropriate to route the call using this OSPS is found. The DAS and thus subsequent digit analysis data, is based on the incoming trunk group and is the same one that ISP used if it did digit analysis. The carrier previously selected by ISP is still used and, for this example, it is assumed to be the switch owner. Since it is the owner, the routing data found on the INDIT or LDIT forms is used. If the carrier was different from the owner, then the routing information relevant for that carrier from the ICF form would be used. If the call type from digit analysis was "ADDON" or "MEETME", the call would be handed off to Alliance Teleconferencing at this point. Note that if this call was dialed as a zero plus a 7-digit domestic number, ISP did digit analysis on that 7-digit forward number, while a 10-digit forward number with a prepended NPA is used at this time.
11. Since the forward number is valid and can be served by the current carrier, the TCSNPA form (5437

Record) is checked with the forward number to see if any terminating code restrictions are in effect. If so, then any TCS text associated with the terminating screening code is retrieved from the TCSTEXT form (5436 Record) and displayed to the operator. Any terminating billing restrictions are also enforced.

12. Assuming originating line screening does not prevent it, automated calling card service is given to the call. Based on the back number, the ACCST form (5428 Record) is inspected to see if this call gets any special prompt treatment. If no special treatment is given, the ACCS 2 field on the OSPSOPT form indicates if the call routes to a tone or to an announcement, both generated by a DSU2-RAF-DTA.
13. An announcement is given and the customer enters a valid card number.
14. The call is routed, using the code and route indexes that came from one of the INDIT or LDIT forms. This is the same as is normally the case for POTS calls. When the RAR form is accessed in routing, the code index just mentioned is used, a prefix of none is always used and the screen index from the TKGRP form for the incoming trunk group is used. The route index from the RAR form is used to index into the RTIDX form, which contains the trunk group used for routing this call.

29.3 Example 3: 0+ Call on MF Trunk from Non-Conforming End Office

This example looks at a 0+ call that comes from a non-conforming end office on an MF trunk. Interflow and Intraflow features are not turned on. This is an intraLATA call for which the operator will enter and route to a non-floatable route number. Assume that exception area mapping and LATA mapping are not done.

1. An incoming trunk is seized. The TKGRP form indicates that it is an "FIOPR" trunk and thus ISP software is invoked.
2. The OPRTK form shows that equal access signaling is not being used. Assume the form specifies that this trunk is not dedicated to certain traffic. ISP starts to collect the called number so that it may do digit analysis. The DAS associated with the incoming trunk, found in TKGRP form, is the one used. Digit analysis uses the standard data given on the INDIT or LDIT form and will interpret as far as the data indicates. In order to allow for overlap outpulsing, ISP may not collect the entire dialed number at this time. Since an intraLATA number was dialed, the intraLATA carrier found in the OPRTK form is used. Assume that it is set to "LEC".
3. Repeat step 3 from example 1, checking the DIOPR form to see if handling of the call is restricted and if it should be transferred out.
4. The primary code index is checked in the DIOPR form to see if the call should be transferred out as in step 4 from example 1.
5. If not transferred out yet, this zero plus call is passed off to an internal OSPS. The remaining steps are only done when there is an internal OSPS.
6. The full back number is now constructed in the same manner as in step 6 of the first example.
7. A check for ACQS treatment is made, as in step 7 of example 1. Assume that there is none.
8. Originating line screening is checked for, as in step 8 of example 1.
9. A default NPA may be added to the forward number in the same manner as step 9 of example 2.
10. Digit analysis is again done on the dialed number. Data appropriate to route the call using this OSPS is found. The DAS is the same as was used by ISP in step 2 of this example. Note that if this call was

dialed as a zero plus a 7-digit domestic number, ISP did digit analysis on that 7-digit forward number, while a 10-digit forward number with a prepended NPA is used at this time. The carrier previously selected by ISP is still used. Since the local carrier is used and this is a locally owned OSPS, the routing data for this call comes from the local translator, not from the ICF form (5305 Record).

11. Since the forward number is valid and can be served by the current carrier, the TCSNPA form is checked with the forward number to see if any terminating code restrictions are in effect. If so, then any TCS text associated with the terminating screening code is retrieved from the TCSTEXT form and displayed to the operator. Any terminating billing restrictions are also enforced.
12. Assuming the OLS does not prevent it, automated calling card service is given to the call. Based on the back number, the ACCST form is inspected to see if this call gets any special prompt treatment. Assume that this form says that the call should route to the operator.
13. The Automated Call Distributor selects an operator to send the call to, as in step 10 of example 1. A prefix of 0+, rather than 0M, is used in this case since the call was dialed as 0 plus other digits.
14. The operator's VDT shows the seizure, displaying the back number, the forward number and a carrier of LEC. Based on the incoming trunk group, the TGNLEC form (5443 Record) is checked to see if any special display is associated with this trunk group. If so, then the LEC index for this trunk group is used to access the LECTEXT form (5444 Record) and display that text to the operator. If there is originating line screening, the text found in the SCRNCODE form (5415 Record) is also available on the screen page of the operator's VDT. Although not displayed, any OLS billing restrictions are enforced.
15. The operator enters and routes to a non-floatable route number.
16. Digit analysis is done on this route number, using the DAS from the TKGRP form. For this number to be valid, the call type determined by digit analysis must be either "OPINW" or "AUTINW".
17. If a carrier is specified for this non-floatable route number on the OCNTWK form, then that carrier is used; otherwise, the switch owner will be tried.
18. If the digit analysis data indicates that this is an interLATA call and the carrier set above is not of that sort, then the CARRIER ID ROUTE field on the OSPSOPT form is used. .SP The routing data used for this call depends on the carrier. Since this is a locally owned OSPS, the routing information in the digit translator is set to route using the local carrier. Thus, if the call uses the local carrier, the data from the translator is used. If an interLATA carrier is used, the routing information for that carrier is found in the ICF form. If this call originated on a RSM, then the interLATA carrier routing information from the ICF form is superseded by the RSM specific information from the RSMCAR form (5421 Record). If the ICF form for the interLATA carrier indicates that destination mapping is used, the CDIM form is checked after getting routing information from the ICF form or the RSMCAR form if appropriate. If a carrier code index and a carrier route index pair are specified for the previously determined code index and carrier id, then these are used; otherwise, the routing data found above is used.
19. When this connection is set up and the RAR form is accessed, the code index mentioned above is used, along with a prefix of none and the screen index from the TKGRP form. The route index from the RAR form is used to index into a RTIDX form, which contains the trunk group used for routing this call.
20. When the operator releases the route party and sets up a connection to the forward party, the routing information determined in step 10 is used and the call is routed as in step 16 of example 1.

29.4 Example 4: 0- Call from Conforming End Office, Interflow

This example is the same as example 1, except Interflow has been activated for the serving team that is to receive the call. The call enters the originating interflow switch and is handled as in steps 1 through 10 in example 1. The differences for Interflow begin with step 11, which is where this example will begin.

1. After the call type has been determined as in step 10 of example 1, the serving team that is to receive the call is found in the OSPSCT form.
2. A check is made to determine if the serving team is activated for Interflow and if so, to what destination. For this example, it is activated.
3. Using the destination ID, the switch then looks in an INFLTADP form (5452 Record) to obtain the B and D channel trunk groups assigned to the EDSL that connects to the receiving (destination) interflow switch. The switch sends the call to the receiving interflow switch over an available B channel. Information that is sent to the receiving switch includes a four-digit OSPS ID and four alphanumeric name of the originating interflow switch as found in OSPSOPT form (5424 Record). The OSPS ID is used in determining the call type on the receiving interflow switch. The alphanumeric name is displayed to the operator when the interflow call seizes a position on the receiving switch.
4. The interflowed call is received on the receiving interflow switch and the call type is redetermined as described in step 10 of example 1. The only difference is that the OSPS ID of the originating interflow switch, the incoming trunk group on the originating interflow switch and the call destination index on the originating interflow switch may be used as input to the ACDCTP form (5412-A/D Records) and the ACDPOL form (5412-B/C/E/F Records).

NOTE: The receiving switch may not have populated the ACDCTP form with the originating switch OSPS ID and/or the ACDPOL form with the originating switch's trunk group and destination information. This will not cause an error in call type determination.

1. After the call type is determined on the receiving switch, the call is routed to an operator's position and completed as in steps 11 through 17 of example 1.

29.5 Example 5: INTRAFLOW

Intraflow has two basic scenarios:

1. a call is looking for an operator because it has been queued too long,
2. an operator is looking for a call that has been queued too long.

29.6 Example 5-1: Call Looking for a Server

The OSPS scenario for a call to this point is the same as any call that comes into the switch that is for an operator. The following steps are what the ACD would do after the request was made for an operator and no operator was found on the principal serving team that handles the assigned call type.

1. If no position is available on the principal serving team designated to handle this call (on the OSPSCT form), the call is queued.
2. If the office parameter INTRAFLOW ALW? is set to "Y" on the OSPSOPT form and the call type has INTRAFLOW ALW set to "Y" on the OSPSCT form, and the system is not in overload, the ACD looks for a supporting serving team for the assigned call type on the OSPSCT form. The teams SUP TEAM 1

through SUP TEAM 8 and the thresholds THRSH1 through THRSH8 from the OSPSCT form are used for the search for a supporting serving team to handle an intraflowed call.

3. The current delay on the oldest call in the queue is compared to the threshold (THRSH1) for the first supporting serving team (TEAM1) as retrieved from form 5404-2. If: (1) the current delay on the queued call is greater than THRSH1 for supporting serving team TEAM1; and (2) TEAM1 has INTRAFLOW ALW set to "Y" in its STINFO form and (3) supporting serving team TEAM1 is not activated for interflow, then PCT INTRAFLOW is checked in the STINFO form for TEAM1 to make sure it is not handling more than that percent of intraflow calls as a supporting serving team.
4. Assuming these conditions are met, the ACD routes the queued call to a position in supporting serving team TEAM1.
5. Assuming one of the conditions are not met for TEAM1, supporting serving team TEAM2 is checked in the same manner using its threshold (THRSH2). The process continues until: (1) a position on a supporting serving team is found; (2) the call delay does not exceed the threshold of the supporting serving team being checked or (3) there are no more supporting serving teams to check.
6. After a supporting serving team is found, an operator is selected to handle the call (as shown on the OSPSOA form).

29.7 Example 5-2: Server Looking for a Call

This scenario is the case where an operator position becomes available and the ACD initiates a search for another call for that position to receive.

1. When a position becomes available, the principal call queues assigned to the associated serving team on the STINFO form are searched for a call that this position can receive.
2. If: (1) no call is found in any of the principal call queues; (2) INTRAFLOW ALW? on the OSPSOPT form is set to "Y"; (3) the serving team that this position belongs to has not exceeded its PCT INTRAFLOW on the STINFO form (i.e., the percentage of intraflowed calls currently being served by this serving team is not greater than PCT INTRAFLOW); (4) the serving team has INTRAFLOW ALW set to "Y" on the STINFO form and (5) the system is not in overload, then all supporting call queues are searched for a call to handle.
3. For each call queue that has INTRAFLOW ALW set to "Y" on the OSPSCT form, the available serving team is searched for in that call queue's list of supporting serving teams until a match is made.
4. Once a match is made, the delay of the oldest call on the associated call queue is compared to the threshold assigned to this serving team on the OSPSCT form. If the threshold is not exceeded, the call delay ratio is calculated and the next call queue for which this serving team is a supporting serving team is searched for.
5. After all call queues are searched, the call with the highest delay ratio is routed to the available position.

29.8 Example 6: Non-ISP to VDT Calls

This feature allows a non-Intermediate Switching Point (non-ISP) call to be directed to a VDT position. The call queue can be determined based on either the incoming trunk group number or the digits received.

Non-ISP calls come from Multifrequency, Dial Pulse and Seizure Only trunks. Common Channel Signaling

and ISP trunks are not supported.

The DAS associated with the incoming trunk from the TKGRP form (5202 Record) is used as input to the digit analysis forms to determine the call type of "NIT". The value of "NIT" is passed along to the call processing software so that special handling can be performed for the routing of this call. The NON-ISP call then enters call type determination (ODA forms ACDCTP and ACDPOL) to determine the call type (queue). The call type is determined by information from digit analysis, the incoming trunk group and other information as specified earlier in ACD EXPANDED CALL TYPE DETERMINATION.

After the call type is determined, the serving team must be determined via the OSPSCT form using the call type as the key. Now that the serving team is known, a special check is performed to see if the serving team is currently interflowing (via reroute to the network) NON-ISP calls.

If interflow is activated, the incoming destination index, the trunk group and the interflow destination identification number are used to index into an INFLDEST form (5448 Record). The result of this reference is a new outgoing destination index to which the call should be interflowed. The call is handled by that destination office as if it is a new incoming call.

If interflowing (via reroute to the network) is not in effect for this serving team, then an operator is requested from the ACD.

30. MORE EFFICIENT CALL HANDLING

MECH (More Efficient Call Handling) allows a call to be handled by two operators during the normal completion of an operator assisted call. This saves operator work on Person-to-Person and Collect Calls. The first operator enters the class of charge for the call and may enter the name of the person desired and the name of the calling party. Then the first operator releases the call, OSPS outputs, monitors for answer supervision and connects the call to a second operator when the called party answers. The second operator (also known as the MECH operator) obtains billing authorization or the requested party. If the proper person and/or acceptance of charges is obtained, the MECH operator can release the call with both parties connected. Unanswered calls are disconnected when the calling party hangs up.

30.1 ODA Forms

The following forms have been changed for MECH translations.

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
EQRA	5821		35	19.10
EQRAP	5822	8	36	20.10/20.22
FIXRT	5301-1	3	3G	10.1
OSPSCT	5404-1	3	4E	21.22
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63
TCSNPA	5437	3	4AL	27.2
TCSCC	5438	3	4AM	27.3
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

The following forms are also required for MECH translations.

Other Required ODA Forms

Form Name	Record Number	Division	Section	RC View
RTIDX	5303	3	3P	10.2

ANNHD	5531	3	5AE	8.61

30.2 Translation Requirements For MECH

Collect Calls or Person-to-Person calls are eligible for MECH treatment. Once a valid back number is obtained, the OLS (Originating Line Screening) is checked to determine the billing types allowed from the originating station. Upon entry of a valid forward number, valid billing type and carrier, a BNS (Billed Number Screening) or CCS (Calling Card Service) query is launched. The call continues when a favorable reply is returned from the appropriate database. Figure 4 shows the form flow for MECH.

ANNHD form (5531 Record) - The header IDs that are entered in the UNBRANDED ANNC field or the BRANDED ANNC field on the OSPSOPT form are defined in the ANNHD form. For more information on translations for recorded messages, see Division 2, Section 1S.

The header IDs that are defined in the ANNHD form (5531 Record, RC View 8.61) are entered in the UNBRANDED ANNC field or the BRANDED ANNC field.

EQRA form (5821 Record) - The MECH Feature uses the following fields on the EQRA form.

- AOC = "Y"
- SERVICE CNT

The MECH feature uses DSU2-RAF (Digital Service Unit 2 - Recorded Announcement Function) service circuits to play MECH announcements. The ACCS (Automated Calling Card Service) capability uses a DSU2-RAF with DTA (Dial Through Announcements) to generate announcements on an output port and to decode dialed digit signals on an input port. The coin capability uses a DSU2-RAF with coin (DSU2-RAF-COIN) to generate announcements on an output port and to detect deposited coin tones on an input port. For ACCS and coin, only 20 of the 32 available RAF channels may be used due to the real time demands of these applications. Prior to 5E6 Software Release, the remaining 12 channels were unused. These channels may now be used as AOC (Announcement Only Channels) by the MECH feature to play MECH holding announcements without impacting the ACCS and coin capabilities.

EQRA form is used to define the characteristics of a RAF unit. If "DTA" is entered in the SERVICE TYPE field, the RAF unit is used for ACCS. If "CTR" is entered in the SERVICE TYPE field, then RAF unit is used for coin. A RAF unit may be used for MECH if either "DTA" or "CTR" is entered in the SERVICE TYPE field and the AOC field is set to "Y". The AOC field allows unused ACCS and coin channels to be used for announcements only. (For Recent Change only, to enter the data for RAF, "DTA" must be entered in SERVICE TYPE for ACCS, coin or MECH. The Recent Change only field, COIN UNIT, must be set to "Y" to allow a RAF to be used for coins).

When "Y" is entered in the AOC field, all channels not initialized as "DTA" or "CTR" are initialized as type "ANN" for announcement only trunks. If "N" is entered in the AOC field, all channels not initialized as "DTA" or "CTR" remain uninitialized.

SERVICE CNT field identifies the number of channels that should be initialized as "DTA" or "CTR". When "Y" is entered in the AOC field, the remaining channels are initialized as announcement only. If SERVICE TYPE is "DTA" or "CTR" and "N" is entered in the AOC field, the valid entries are 1 through 20. If "Y" is entered in the AOC field, the valid entries are 0 through 20. For example, if the SERVICE TYPE is "DTA" and AOC is "Y", then an entry of 20 in the SERVICE CNT field indicates that 20 channels are initialized for DTA use and 12 are initialized for AOC to be used for MECH. An entry of "0" in SERVICE CNT field allows an entire RAF unit to be initialized as announcement only.

All DSU2-RAF ports (channels) on the same DSU2-RAF must be assigned to the same trunk group (TGN) on TRUNK forms, with the exception that AOC (Announcement Only Channels) on DTA or CTR RAFs, as defined on the EQRA form, may be assigned to a different trunk group.

AOC cannot be assigned to RAFs of type DTA or CTR unless the AOC field on the EQRA form is "Y". AOC channels must have a TRKCLS of "RAFANNC" on the TKGRP form(s).

EQRAP form (5822 Record) - This form defines the RAF circuit pack for OSPS MECH announcements.

FIXRT form (5301-1 Record) -

To route a call to the DSU2-RAF-AOC channels to play the MECH holding announcement, "ROAOC" must be entered in the FIXED ROUTE TYPE field on the FIXRT form. The ROUTE INDEX field provides the key into the RTIDX form which points to the trunk group that accesses the AOC channels.

For more translation information on RAFs see Division 2, Section 1S on RAF (Recorded Announcement Function).

OSPSCT form (5404-1 Record) After MECH treatment has been applied to a call, if the originating station is non-coin or is coin without a paid class of charge and the back party sends a flash prior to the forward party answering, the forward connection is dropped and a recall operator is requested. DIOR (Direct International Originations) calls and coin PAID calls ignore a flash during the ringing interval. The recall type used for this call is the entry in the RECALL CALL TYPE field on the OSPSCT form. The RECALL CALL TYPE must be defined in the OSPS CALL TYPE field.

If the forward party answers before the back party sends a flash, the forward and back parties are both muted. The system attempts to attach an operator belonging to the MECH call type entered in the MECH TYPE field on the OSPSCT form for the original call type. If "N" is entered in the MECH ANNC field on the OSPSOPT form, then the entry in the 1ST ANNC DELAY field on the OSPSCT form gives the first delay threshold to be exceeded before a holding announcement will be played.

If MECH TYPE is entered on an OSPSCT form, it must match the OSPS CALL TYPE on the same form or another OSPSCT form. Also, if MECH TYPE matches OSPS CALL TYPE on a different OSPSCT form, the OPER TYPEs must be the same.

OPRTK form (5417 Record) - If collect calls are allowed to the forward number, the MECH field on the OPRTK form is checked. If it is set to "Y", then MECH treatment can be applied to calls arriving on the trunk group identified in the TGN field. This field provides the TCA (Telephone Company Administration) with the ability to activate or deactivate the MECH treatment based on the incoming trunk group. By default, the MECH treatment is allowed for incoming trunks.

OSPSOPT form (5424 Record) - The following fields are new or have changed for MECH.

- FEATURE WORD
- PERSON SWITCH
- MUTE BK
- MUTE FWD
- MECH ANNC
- MECH BRAND

- UNBRANDED ANNC
- BRANDED ANNC
- REPEAT INTERVAL
- OFF HOOK WAIT

The FEATURE WORD field must be set to "Y" for further checks on MECH to continue. The FEATURE WORD field can also be set to "T" for testing calls eligible for MECH treatment over the trunk group and member number, to allow TCA to test MECH prior to activating the feature.

If a Collect Call is also a Person-to-Person call or the call is a Person-to-Person call the PERSON SWITCH field should be set to "Y" to allow MECH treatment to be applied to calls with a person rate class. If it is set to "Y", a PR OK message is displayed to the operator indicating MECH treatment can be applied to the call. If the operator presses the SEND key, the call will not be considered for MECH treatment. If the operator presses the POS REL key, the appropriate number is outputted and MECH treatment is given to the call.

When a call is released for MECH treatment, a conference circuit is obtained prior to outputting the forward number. Because conference circuits are used for many purposes, the ringing interval is timed after outputting occurs. If answer supervision is not received within the time interval specified in the OFF HOOK WAIT field, the call will be torn down and the conference circuit made available. The default wait value is four minutes. A value of zero disables the timing, i.e., no timing occurs.

If the forward party answers the MECH call and a flash has not been received from the back party, both parties are muted. If an operator is available, the MUTE BK field and the MUTE FWD field indicate if the back and forward parties are muted upon position seizure. An entry of "N" in either of these fields indicates that the voice path to the back or forward party should be unmuted when attaching to the MECH operator.

When a MECH operator is not immediately available to handle a MECH call, the call has to be queued. The system then determines what delay announcement to play, if any. If "Y" is entered in the MECH ANNC field, the MECH holding announcement will always be played when a MECH call is queued. If "N" is entered in the MECH ANNC field, then the holding announcement is only played when the expected delay exceeds the first delay threshold entered in the 1ST ANNC DELAY field on the OSPSCT form. If an announcement is played, the MECH branded announcement will be played. If "Y" is entered in the MECH BRAND field and the carrier of the call is the switch owner. If "N" is entered in the MECH BRAND field or the carrier is not the switch owner, the MECH unbranded announcement is played.

PHRASE form (5534 Record) - The MECH phrases are defined on the PHRASE form (5534 Record, RC View 8.63). An example of a branded announcement is "Please hold, an AT&T operator will be connected to the call promptly." An example of an unbranded call is "Please hold, an operator will be connected to this call promptly." Announcement Translations are discussed in Division 2, Section 1S, Recorded Announcement Feature.

The MECH holding announcement is repeated if the MECH operator is not available in the time period identified in the REPEAT INTERVAL field of the OSPSOPT form.

The phrases used for MECH calls in a MECH operator queue are defined on the PHRASE form.

RTIDX form (5303 Record) - The ROUTE INDEX entry on this form identifies the trunk group used to access the AOC channels. The ROUTE INDEX used for AOC channels must have "GENANN" entered in the CI ROUTE TYPE field. The TRUNK GROUP NUMBER on the RTIDX form must correspond with a TGN on the

TKGRP form.

TCSNPA form (5437 Record)

TCSCC form (5438 Record) - If the class of charge is collect, the TCSNPA form (5437 Record) is checked using the NPA-NXX of the forward number or TCSCC form (5438 Record) is checked using the Country Code of the forward number to identify if the forward number is allowed to accept collect calls.

The TCSNPA form and the TCSCC form are checked to determine if MECH treatment is allowed to be applied to calls for the forward number. TCSNPA form identifies the TCS (Terminating Code Screening) information associated with a forward NPA (Numbering Plan Area) or NPA-NXX number. MECH is allowed by default on the TCSNPA form.

The TCSCC form identifies the Terminating Code Screening associated with a forward Country Code. MECH treatment is denied by default on the TCSCC form.

TKGRP form (5202 Record) - The TGN pointed to by the RTIDX form for AOC channels must have the following characteristics:

- TRK DIR = "RAF"
- HUNT TYPE = "FIFO"
- TRKCLS = "RAFANNC"
- SVC GRP = "AOC"

RAF (Recorded Announcement Function) trunk assignments (RAF EN is entered on the TRUNK form) for DTA (Dial-Through-Announcement) channels or CTR (Coin Tone Receiver) channels must follow an assignment pattern as explained in TG-5 Division 8, Section 35 and shown on the 5271-4 RAF Equipment Number record.

The TRKCLS on the TKGRP form must agree with the RAF TYPE on the 5271-4 Recorded Announcement Function Equipment Number Record. The 5271-4 office record is pointed to by the RAF EN on the TRUNK form.

TRKCLS on the TKGRP form must be "RAFANNC" if the AOC (Announcement Only Channels) are assigned to RAFs of type "DTA" or "CTR" and the AOC field on the EQRA form is "Y".

TRUNK form (5204 Record) - The TRUNK form defines the members of the trunk group to access AOC channels.

If RAF EN is entered on the TRUNK form, then RAF (Recorded Announcement Function) trunk assignments for DTA (Dial-Through-Announcement) channels or CTR (Coin Tone Receiver) channels must follow an assignment pattern as explained in TG-5 Division 8, Section 35 and shown on the 5271-4 RAF Equipment Number record.

All DSU2-RAF ports (channels) on the same DSU2-RAF must be assigned to the same trunk group (TGN) on TRUNK forms, with one exception, that is the AOC (Announcement Only Channels) on DTA or CTR RAFs as defined on the EQRA form may be assigned to a different trunk group.

31. DIOR

The DIOR features have been moved to Division 2, Section 3K.

32. IMPROVED THIRD NUMBER ACCEPTANCE

For 5E6 and later Software Releases, the ITNA (Improved Third Number Acceptance) feature provides TCA (Telephone Company Administration) with the ability to determine whether third number verification by the OSPS operator is required, and 100 therefore, the ability to automatically outpulse to the third number. The intent of this feature is to reduce fraud on bills to third number calls and to relieve the operator from the task of deciding if third number verification is required. Automatic outpulsing also reduces the operator work time for calls which require billing verification.

32.1 ODA Forms

The following forms are new or changed for the ITNA feature.

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EXCPT	5461-1	3	4BI	26.32
OSPSOPT	5424	3	4Y	8.9
SETID	5461-2	3	4BJ	26.30
SPECL	5461-3	3	4BK	26.31
TREAT	5461-4	3	4BL	26.33

32.2 Translations for ITNA Treatment of Calls

Figures Figure 5 and Figure 6 give the form flows for the ITNA feature. The following forms need to be entered for ITNA translations.

ITNA treatment is only provided on Back Third Number requests. If the Back Number is not screened against Back Third Number billing (as identified in the OLS (Originating Line Screening) data), a BVA (Billing Validation Application) BNS (Billed Number Screening) or LIDB (Line Information Data Base) BNS query is launched after the following is entered: a valid forward number, valid back third number, Back Third Number class of charge, and carrier. In addition, if the carrier for the call is AT&T, a NCD (Network Call Denial) query is launched. ITNA treatment will be provided based on the replies from the BVA or LIDB database (and NCD database when AT&T is the carrier for the call). The following tables summarize when ITNA treatment is given to a call.

BVA Table			
Reply	BVA		
	Allow	Deny	Indeterminate
Allow	ITNA	No	ITNA
Deny	No	No	No
Indeterminate	Special	No	Special

LIDB Table			
Reply	LIDB		
	Allow	Deny	Indeterminate
Always accept	Allow	No	Allow Allow

Table entries of "ITNA" indicate that ITNA treatment will be performed. Entries of "No" indicate that ITNA treatment will not be attempted. The ITNA feature has the ability to provide Special Area checks for number that return Indeterminate replies from the BVA or LIDB databases when the NCD reply is "Allow" or "Indeterminate". Special Area checks are provided for situation where the third number is not in the BVA or LIDB database and the OSPS is capable of handling the call. An example of this is traffic handled near the Canadian border where the back third number NPA is actually a Canadian NPA. If Special Area checks are allowed, ITNA determines if an entry is available for the back third number NPA. If the back third number NPA is found, then ITNA checks are performed. LIDB reply of "Always Accept" indicates that third number

verification is not required. For these cases, ITNA treatment is not provided as third number billing is always accepted by the third number.

OSPSOPT form (5424 Record) - For cases in which ITNA treatment will be performed, the OPSOPT form has "Y" entered in the ITNA field indicating that ITNA feature is activated and ITNA Treatment Tables checks will be performed. If ITNA field is set to "N", bill to third calls are handled as they were in previous Software Releases.

(For Recent Change only, an entry of "T" in the ITNA field provides the TCA with the ability to test the ITNA feature over a predefined test trunk prior to activation of the feature to calling customers. When "T" is specified, ITNA treatment will be performed for calls that are placed on the specified trunk group and member number.)

When the BVA or LIDB reply is "indeterminate" (and the NCD reply is either "Allow" or "Indeterminate" if AT&T is the carrier) and the ITNA CHECKS field is set to "Y", then the Special Area Table is checked.

SPECL form (5461-3 Record) - If the Back Third Number NPA has an entry in the Special Area Table, the ITNA Treatment Table is checked and ITNA may be applied to the call. If an entry is not found, a display will be shown on the VDT indicating that an indeterminate reply was received.

TREAT form (5461-4 Record) - The ITNA Treatment Table information is entered in the TREAT form. The ITNA Treatment Table indicates whether acceptance is always required, acceptance is not required, or acceptance depends on the time of day. Entries in this table are based on the Originating Station type, carrier for the call, and the incoming trunk group number. An entry of "UNKNOWN" or "5" in the ORIG STAT TYPE field indicates all originating station types other than the ones specifically listed will be treated the same. An entry of "OTHER" indicates exclusion, that is all originating types other than, for example, non-coin or non-public.

Specific carrier entries may be made in the "CARRIER" field. This indicates that Bill to Third Party calls handled by that carrier may have specific ITNA treatment defined for that carrier. Single trunk group entries or a range of trunk groups may be entered on this record in the BEGIN TGN and the END TGN fields. Specific ITNA treatment is provided for calls arriving on the identified trunk group(s). If the CARRIER and TGN fields are left blank, then the Bill to Third Party calls for the Originating Station Type receive the same treatment regardless of carrier and/or incoming trunk group.

The TIME SET ID field is based on the Originating Station, carrier, and incoming trunk group. If "ALWAYS" is entered in the TIME SET ID field, then acceptance is always required and the Bill to Third Party number will be outpulsed automatically for verification. If "NEVER" is entered in the TIME SET ID field, then acceptance is not required. However, the calling number may have an entry in the ITNA Exception Table overriding the treatment identified in the ITNA Treatment Table. If "NEVER" is entered, the EXCPT form is checked using the NPA-NXX-XXXX of the calling number. If TS1 through TS8 (TCA defined time SET IDs) are entered, and entry is required on the SETID form.

When the TREAT form is entered with a TIME SET ID equal to an entry other than "NEVER" or "ALWAYS", a SETID form must be entered with TIME SET ID equal to TIME SET ID on the TREAT form.

The range of trunk group numbers should never overlap on the TREAT form.

The data entered on the TREAT form must be consistent for alike ORIG STAT TYPES.

There are three ORIG STAT TYPES of "PREPCOIN". One form entry has a CARRIER and a TGN entered. The other two only have TGNs entered. This is an error since all the "PREPCOIN" entries must have the same fields entered consistently (they do not have to match). However, it is permissible to have a TGN

entered on one and a TGN range entered on another.

SETID form (5461-2 Record) - This form identifies the times of day that auto outpulsing should be performed. Up to eight TIME SET IDs may be defined. If a Bill to Third call is attempted at a time of day that falls on or between the start or stop times defined on this form, auto outpulsing to the Bill to Third number takes place. If the call is attempted outside of the range of start and stop times, the ITNA Exception Table is checked to determine if alternate ITNA treatment should be provided to the calling number.

EXCPT form (5461-1 Record) - The TIME SET ID on this form indicates that auto outpulsing should always be performed for the calling number or that auto outpulsing depends on the time of day. If the time of day determines auto outpulsing, the TIME SET ID from the EXCPT form is checked on the SETID form. If the time of day of the originating station is between the start and stop times for the TIME SET ID, then auto outpulsing occurs. If the time of day is not between the start and stop times, a message is displayed to the operator indicating that verbal acceptance is required but the time of day is not appropriate. At this point the operator may attempt to obtain alternate billing or may manually outpulse to the third number for verification.

When the ITNA Exception Table is checked and the calling number is not found, the TIME SET ID from the ITNA Treatment Table (TREAT form) is used. If the TIME SET ID from the ITNA Treatment Table is set to "NEVER", a message will be displayed to the operator indicating that no acceptance is required. If a time range was indicated by the TIME SET ID, a message will be displayed to the operator that verbal acceptance is required but the time of day is not appropriate. Again, the operator may attempt to obtain alternate billing or may manually outpulse to the third number for verification.

For every EXCPT form entered, a corresponding NPAMAP form must be entered where the NPA and NXX are equivalent on both forms.

Directory numbers should never overlap on EXCPT forms. An EXCPT form may not include the same directory number(s) in a range that is also entered on another EXCPT form.

When "TS1", "TS2", "TS3", "TS4", "TS5", "TS6", "TS7", or "TS8", is entered in the TIME SET ID field on the EXCPT form, a SETID form must be defined with that TIME SET ID.

When the routing to the third number takes place the RAR form (5301 Record) is checked. The keys to the RAR form are the Screen Index from the incoming trunk group (TKGRP form, 5202 Record), the Code Index from the digit analysis either the INDIT or the LDIT form, and a PFX of "NONE" from the RAR form. If the RTI field on the RAR form is set to REGL, the route index from digit analysis is used to route the call. If RTI field contains an actual route index, then that route index will be used to route the call.

A Charge Index that has been previously defined in the CGIDX form (5302-1 Record) must be entered in the CHGI field on the RAR form.

The Route index to be used in routing the call must be defined on the RTIDX form (5303 Record). The TGN field on the RTIDX form identifies the trunk group to be used to establish the connection with the forward party.

33. VOICE MESSAGING SERVICE INTERFACE

The VMSI (Voice Messaging Service Interface) is available with 5E7 and later Software Releases and provides an automated or operator assisted way that a calling party can leave a message for a busy line or a called number that doesn't answer. The caller can leave a message in an ESP VMS (Enhanced Service Provider's Voice Messaging Service). VMS is a network voice storage and forward service offered to the callers by an ESP external to the 5ESS Switch.

33.1 VMSI Feature Assignment

VMSI does not have interdependencies with other records. The OSPSOPT form (5424 Record) defines the office parameters for VMSI. The ESPINFO form (5472 Record) defines information about an ESP, and acts as a table to translate the ESP access code into a ten digit telephone number to be used in processing a request for VMS service.

33.2 ODA Forms For VMSI

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ESPINFO	5472	3	4BX	27.65
OSPSOPT	5424	3	4Y	8.9

33.3 VMSI Translation Requirements

ESPINFO form (5472 Record) - This form defines information about the ESP and translates the access code into a ten digit telephone number of the ESP.

OSPSOPT form (5424 Record) - This form defines the office parameters for VMSI. SERCIVE CODE, OSPS OWNER, TIME OUT, and VMS ON fields define the office parameters for VMSI. VMS ON enables or disables VMSI. The TIME OUT field is used by the VMSI feature to indicate the time out for "ready to receive". SERCIVE CODE assigns the VMSI Service Code. OSPS OWNER identifies the owner of the originating OSPS.

34. VOICE MESSAGING SERVICE INTERFACE ANNOUNCEMENT PROMPT

34.1 VMSI AP Feature Description

The VMSI AP (Voice Messaging Service Interface Announcement Prompt) feature offers the use of announcements to prompt a customer, on a credit-card call, to transfer to a voice messaging service if the call encountered a busy or ring no-answer condition that was identified by CCS7 signaling. This feature is available with 5E7 and later Software Releases. The prompt is truncated if the customer depresses # or, on ring no-answer, if the forward party answers. Therefore, announcement prompts apply only to calls awaiting an answer (ringing or busy) that allow entry of a DTMF "#" for sequence dialing and that are set up with outgoing CCS7 signaling.

34.2 VMSI AP Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
EQRAP	5822	8	36	20.10
				20.22
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63

34.3 VMSI AP Translations

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. Announcement header IDs OSPSTA 52 and 53 were added for 5E7 and later.

EQRAP form (5822 Record) - This form is used to define the RAF (Recorded Announcement Function)

circuit packs. Memory board 5D172A10[L24] is an optional OSPS-TA announcement board that was added for 5E7 and later.

OSPSOPT form (5424 Record) - This form is used to define the OSPS office option global parameters. The global parameters added for VMSI AP are PROMPT ON BUSY (activates VMS prompt treatment on busy calls), PROMPT ON RING (activates VMS prompt treatment on ring no-answer calls) and RING TIME OUT (number of seconds before applying VMS prompt on ring no-answer).

PHRASE form (5534 Record) - This form defines and describes the phrase IDs which are provided on the DSU2-RAF (Digital Services Unit 2-Recorded Announcement Function) Announcement Storage circuit packs for each application. Standard phrase IDs for OSPSTA 260 - 288 were added for 5E7 and later.

35. ESP (VMS) CREDIT CHECKING

35.1 ESP (VMS) Credit Checking Feature Description

For 5E7 and later Software Releases, the ESP (Enhanced Service Provider) (VMS (Voice Messaging Service)) Credit Checking feature causes card billing information to NOT be sent to the ESP when the card used has been presubscribed in the card database to be blocked from charging ESP services. When OSPS receives a card query reply that indicates ESP services are not allowed and an ESP transfer is requested, it allows the ESP transfer, but it does not send the card billing to the ESP. CAS R3 with CCS7 validation of CAS card and VMS Release 2 must be active before ESP (VMS) Credit Checking can be activated.

35.2 ESP (VMS) Credit Checking Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

OSPSOPT form (5424 Record) - This form is used to define the OSPS office option global parameters. The global parameter CREDIT CHECK activates the ESP (VMS) Credit Checking feature.

36. VOICE MESSAGING SERVICE INTERFACE RELEASE 4

The VMS (Voice Messaging Service) is a network voice storage and forward service offered to the public by ESPs (Enhanced Service Providers) Release 4 of the VMSI features builds on functionality offered in previous releases with the following improvements:

1. Improved Call-Data Transfer:

Previous releases used in-band DTMF signaling to transfer call data to ESCs. Release 4 offers CCS7 signaling to reduce data transfer times, while continuing to support DTMF signaling.

2. Additional Call Data:

Call Disposition data is sent to ESCs that receive their data via CCS7 signaling. This data indicates the state of the original call (busy, ringing, or indeterminate) prior to its transfer to the ESC.

36.1 VMSI R4 Translation Requirements

New And Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
ESPINFO	5472	3	4BX	27.65

36.2 VMSI R4 Modified Form

ESPINFO form (5472 Record) - This form defines information about the ESP for VMS. For 5E8 and later, CCS7 signaling can be used to transfer data to an ESC (Enhanced Service Complex). The CCS7 SIGNALING field indicates if CCS7 signaling is being used. The CC DIGIT TYPE field is used to indicate that the Billing Number sent in a Generic Digit Parameter is a card number.

The PIN DIGIT TYPE, CAC DIGIT TYPE, SAB DIGIT TYPE and the THIRD NBR TYPE fields allow the TCA to initialize or modify the Type of Digits value of the Generic Digits Parameter used to send the PIN information, CCC Authorization Code, SAB Number information, and the Third Number Billing information to any specific ESC. The CC DIGIT TYPE, PIN DIGIT TYPE, CAC DIGIT TYPE, and SAB DIGIT TYPE must be unique entries. The default values for these fields are the expected values to be used by the AT&T ESC.

37. ALTERNATE ACCESS TO OPERATOR SERVICES / SOFTWARE DEFINED NETWORK AND NETWORK REMOTE ACCESS

The AATOS (Alternate Access To Operator Services) and SDN/NRA (Software Defined Network/Network Remote Access) feature is available with 5E7 and later Software Releases. AATOS and SDN/NRA allows a telephone company to route incoming calls to the OSPS over nonoperator trunks and allows card calls to be routed to a private network from telephones not included in that network. AATOS allows a customer to access an OSPS via a 1+800 number, if the caller is using COCOT (Customer Owned Coin Operated Telephones), hospital or hotel phones that block traffic from reaching a specific carrier.

The SDN feature allows callers to place SDN calls from stations off their private networks via a 1+800 number. The SDN/NRA feature expands the SDN feature to allow initial and sequence calling card calls under automated protocol (0+, 01+) and operator assistance (0-, 0+, 01+) calls.

For 1 + 800 calls, the OSPS first prompts the caller to enter the number they are calling, and then to enter credit card number. Callers who time out or dial zero are sent to an operator. The operator can enter the called number and establish collect, card, or third number billing. The call is routed over the Public Switched Network and OSPS creates the billing record.

37.1 ODA Forms For AATOS/SDN NRA

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OPRTK	5417-2	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9

37.2 AATOS/SDN NRA Translation Requirements

ANNHD form (5531 Record) - This form lists the phrases in the required order to be associated with an announcement header. The default data provided by ODA is given in Division 3, Section 5AE. Two new header IDs were added for AATOS and SDN NRA, "OSPSTA 050" and "OSPSTA 051".

OPRTK form (5417-2 Record) - This form defines the common information and type of traffic over each trunk group that can access an OSPS operator. The AATOS SDN NRA field indicates whether or not the trunk carries only AATOS SDN/NRA traffic.

OSPSOPT form (5424 Record) - This form defines the global parameters for an office. FEATURE WORD and SDN NRA CARRIER fields were added for AATOS and SDN/NRA. FEATURE WORD activates processing AATOS and SDN/NRA calls. SDN NRA CARRIER assigns the default carrier for SDN/NRA calls.

38. OPERATOR ASSISTANCE FOR 900 SERVICES

The Operator Assistance for 900 Services feature handles 900 Services (Multiquest) calls which can be charged to AT&T-issued credit cards, Commercial Credit Cards, and LEC-issued credit and calling cards on an automated or operator basis. This feature also limits class of charge for 900 Services from certain origins, for example, block paid calls to 900 from hotel and public phones. The credit card numbers are screened against the Card Attribute Table, and, if valid, are sent with the 900 number, SAB number, and CCC authorization code (if available) in a CCS7 ISUP signaling message.

38.1 Operator Assistance For 900 Services Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
EQRAP	5822	8	36	20.22
OSPSOPT	5424	3	4Y	8.9
PHRASE	5534	3	5AH	8.63
TCCATTR	5473	3	4BY	27.56

38.2 Operator Assistance For 900 Services Modified Forms

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. Announcement Header IDs OSPSTA 63 and OSPSTA 64 were added to the 5E8 and later default data for Operator Assistance For 900 Services.

EQRAP form (5822 Record) - This form is used to define the RAF (Recorded Announcement Function) circuit packs. New micro-codes for DSU2-RAF Announcement Storage circuit packs were added for 5E8.

OSPSOPT form (5424 Record) - This form defines the OSPS office global parameters. Only one OPSOPT form can be entered per office. For 5E8, the MQ900 field indicates if the Operator Assistance For 900 Services feature is active, inactive, or (for Recent Change only) being tested before being activated in the office.

PHRASE form (5534 Record) - This form defines and describes the phrase IDs that are provided on the DSU2-RAF Announcement Storage circuit packs for each application. For 5E8 and later, phrases 298 - 303 default input data were added for Operator Assistance For 900 Services.

TCCATTR form (5473 Record), - This form defines the attributes for a card type. The field ALLOW 900 CALLS indicates whether or not OSPS 900 services are allowed for that card type.

39. THE DIFFERENTIATION OF CARD SERVICE CHARGES

The Differentiation of CSC (Card Service Charges) feature provides the OSPS with the ability to provide card rate quotes and charging information for credit card T&C (Time and Charges) calls based on the Vendor/Issuer ID of the card. In addition, this feature has the ability to give comparison card information rate quotes. Also, this feature allows operators to specify the prefix (0-, 0+, or 1+) and indicate if the call was "automated" or "operator assisted" for all rate quotations.

39.1 Differentiation CSC Translation Requirements

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CMPCRD	5476	3	4CF	27.45
OSPSOPT	5424	3	4Y	8.9

39.2 Differentiation CSC New And Modified Forms

CMPCRD form (5476 Record) - This form defines the TCA calling card comparison card for the Differentiation of CSC feature and assigns a label which identifies the Issuer of the comparison card.

OSPSOPT form (5424 Record) - This form defines the OSPS office global parameters. Only one OSPSOPT form can be entered per office. For 5E8, the DIFF CARD ON field indicates if the Differentiation CSC feature is activated.

OSPS TRUNK TYPE	TRK DIR	TRK CLASS	INPULSING	OUTPULSING
Outgoing D Channel	SGNL	IFOPER	DCHN	DCHN
Outgoing B Channel	OUT	IFOPER		DCHN
Incoming D Channel	SGNL	IFTERM	DCHN	DCHN
Incoming B Channel	INC	IFTERM	DCHN	

Figure 1 OSPS EDSL TRUNK CHARACTERISTICS

D4 FRAMING FORMAT

DFI MODE	DATA RATE	TRANSMISSION CHARACTERISTICS
D4	56K	56 kb/s, noninverted, ZCS (Zero Code Suppression)
D464	R64K	64 kb/s, restricted channel, inverted, B8ZS (Bipolar 8-bit Zero Suppression)
64K	64K	64 kb/s, clear channel, noninverted, B8ZS

EXTENDED SUPER FRAME FORMAT

DFI MODE	DATA RATE	TRANSMISSION CHARACTERISTICS
FEB7	56K	56 kb/s, noninverted, ZCS
FE64	R64K	64 kb/s, restricted channel, inverted, ZCS
FE8Z	64K	64 kb/s, clear channel, noninverted, B8ZS

Figure 2 OSPS EDSL TRUNK TRANSMISSION CHARACTERISTICS

Below is an example of the PREFIX/ FEATURE DIGIT INTERPRETER TABLE that would be set up in a local office to handle international dialing.

DIGITS TO INTERPRET	CALL TYPE	PREFIX	DIGTS TO DELETE	REMARKS
0112	LDIT	1	00	IDDDSTA-TO-STA
0113	LDIT	1	00	IDDDSTA-TO-STA
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
012	LDIT	0	00	IDDDOPRASST
013	LDIT	0	00	IDDDOPRASST

The next example is of an INTERNATIONAL DIRECT DISTANCE DIALING RECORD. The routing information given here is sample information only.

CAC	MNDE	MXDE	CODE INDEX	ROUTE INDEX
33	05	10	0002	0835
504	06	12	0003	0836
.	.	.	.	.
.	.	.	.	.

•	•	•	•	•
973	06	12	0004	0837

The following is an example of the TERMINATING CODE SCREENING FOR COUNTRY CODES RECORD.

COUNTRY CODE	PAIRED COUNTRY CODE	SCRN CODE	REORDER
33	033	331	Y
504	884	00	N
•	•	•	•
•	•	•	•
•	•	•	•
973	973	00	N

This example is of the 5E4(2) ACD CALL TYPE RECORD. This shows how the international calls could be assigned call types.

ORIGIN CALL	PREFIX	CALL CLASS	CARRIER	CALL TYPE
ISP	01	INT	IC	050
ISP	011	INT	IC	050
ISP	01	RECB	IC	051
ISP	011	RECB	IC	051
ISP	01	RECFB	IC	051
ISP	011	RECFB	IC	051

The following example shows data population for FCA (Fully Coded Addressing) in 5E5.

LDIT	CAC	IDDDPFX	MNDE	MXDE	CODE INDEX	ROUTE INDEX	DESEP	CALL TYPE	TYPE CICALL	REMARKS
10	33	011	05	10	0002	0035				FRANCE 1+
10	33	01	05	10	0002	0035				FRANCE 0+
10	504	011	06	12	0003	0036				HONDURAS 1+
10	504	01	06	12	0003	0036				HONDURAS 0+
70	33		05	10	0125	0850		IDDDFCA	NONCI	FRANCEFCA
70	504		05	10	0124	0851		IDDDFCA	NONCI	HONDURASFCA

Figure 3 INTERNATIONAL CALL DATA

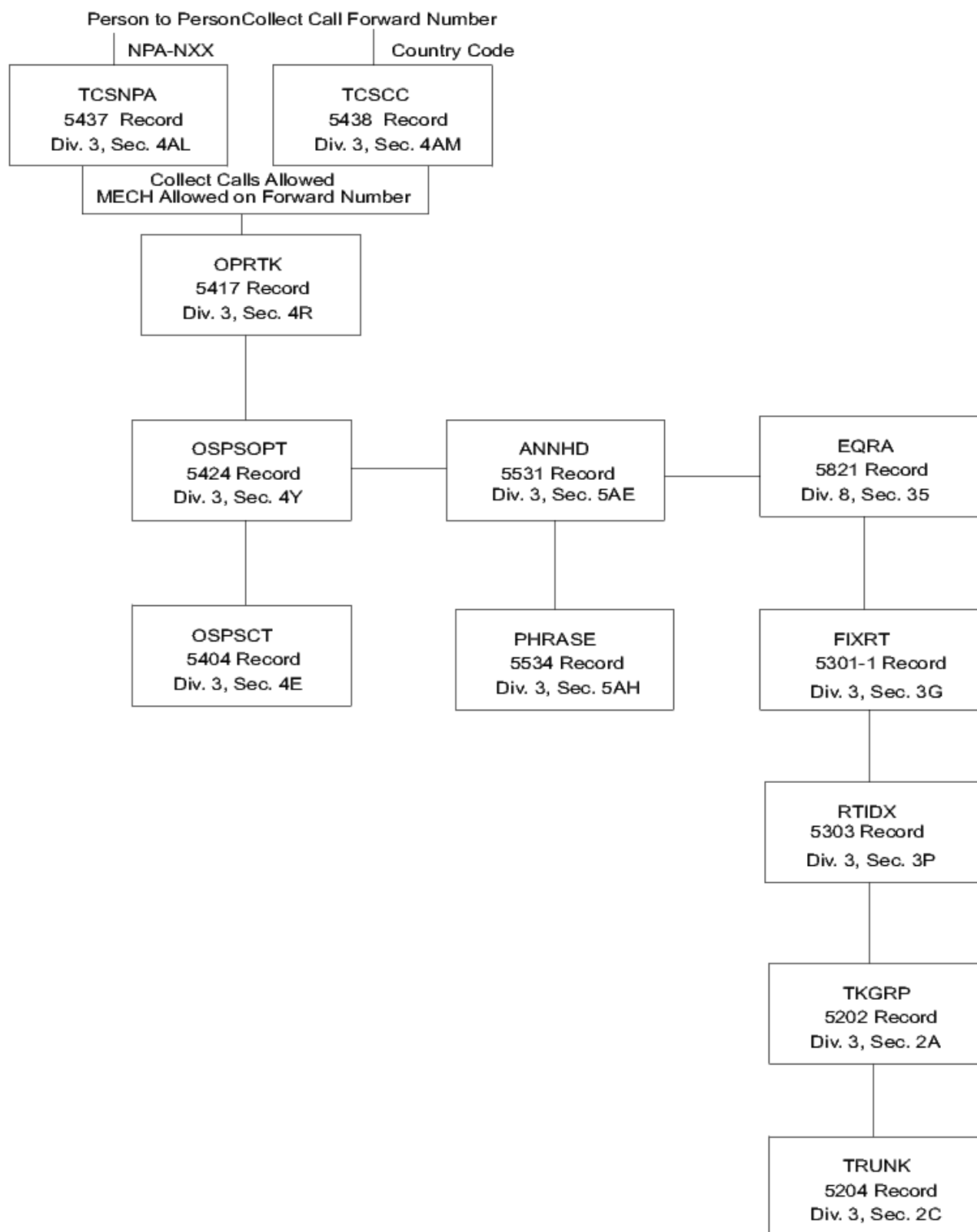


Figure 4 FORM FLOW FOR MECH FEATURE

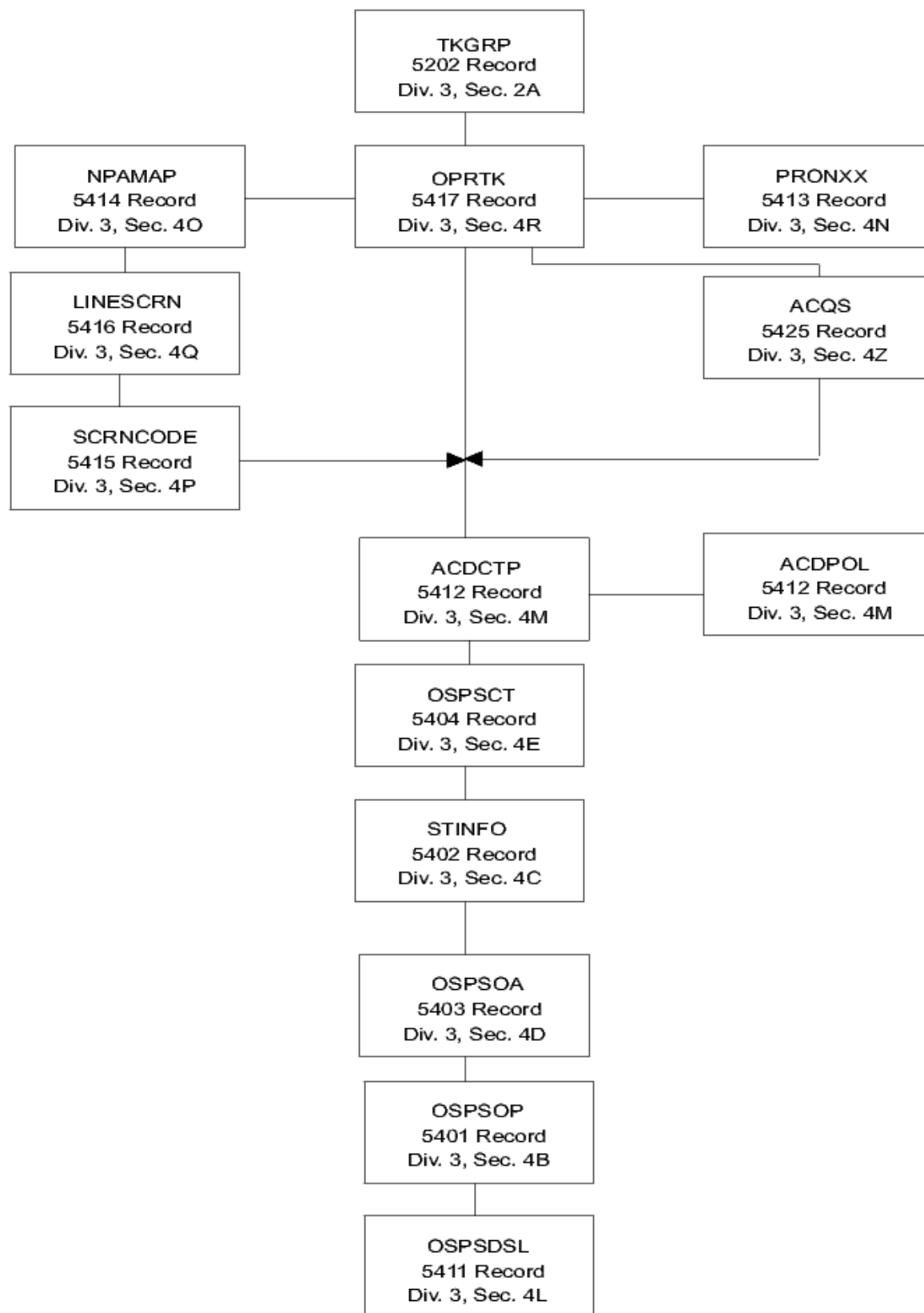


Figure 5 FORM FLOW FOR INCOMING CALL FOR ITNA

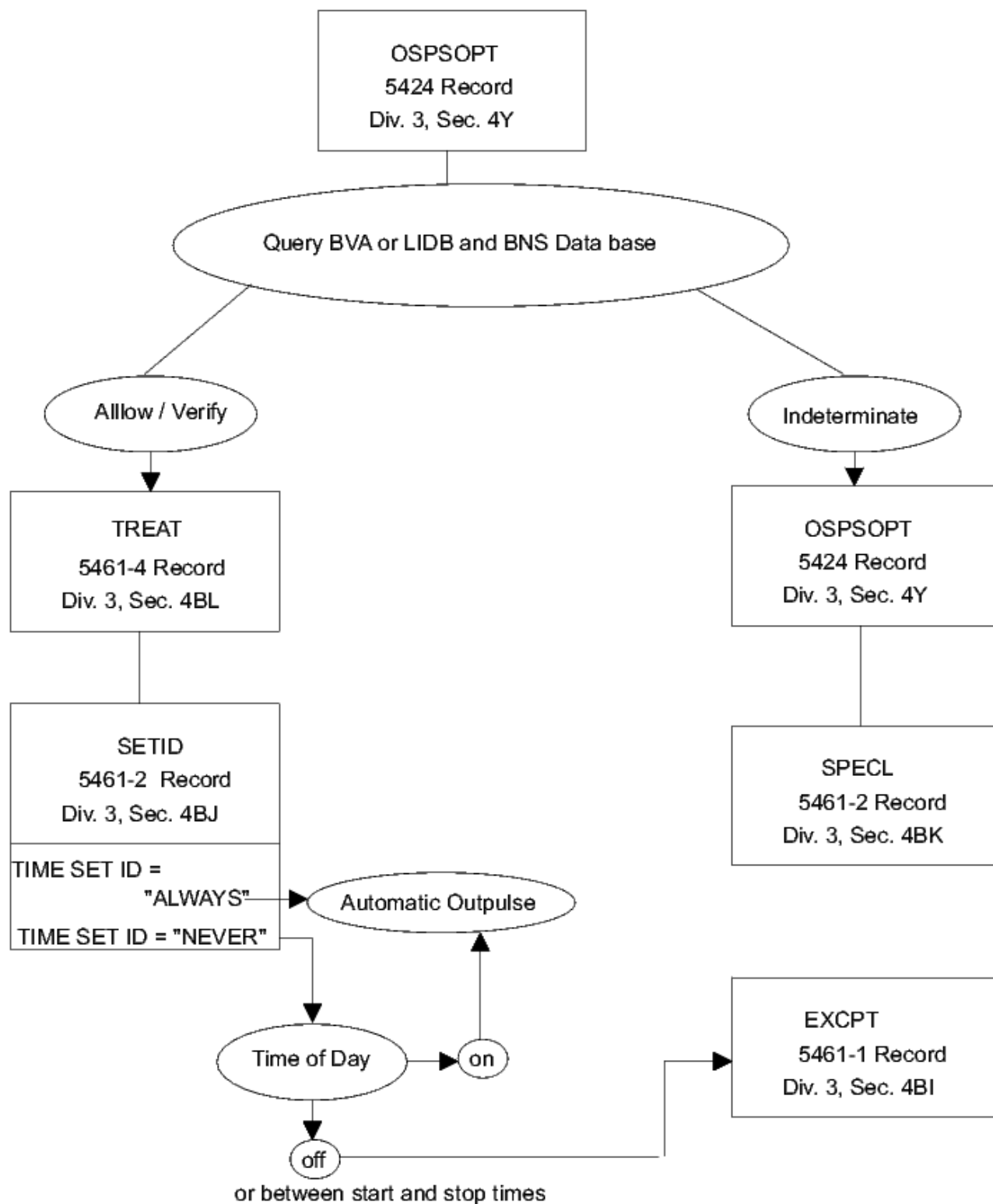


Figure 6 FORM FLOW FOR ITNA TREATMENT FOR CALLS

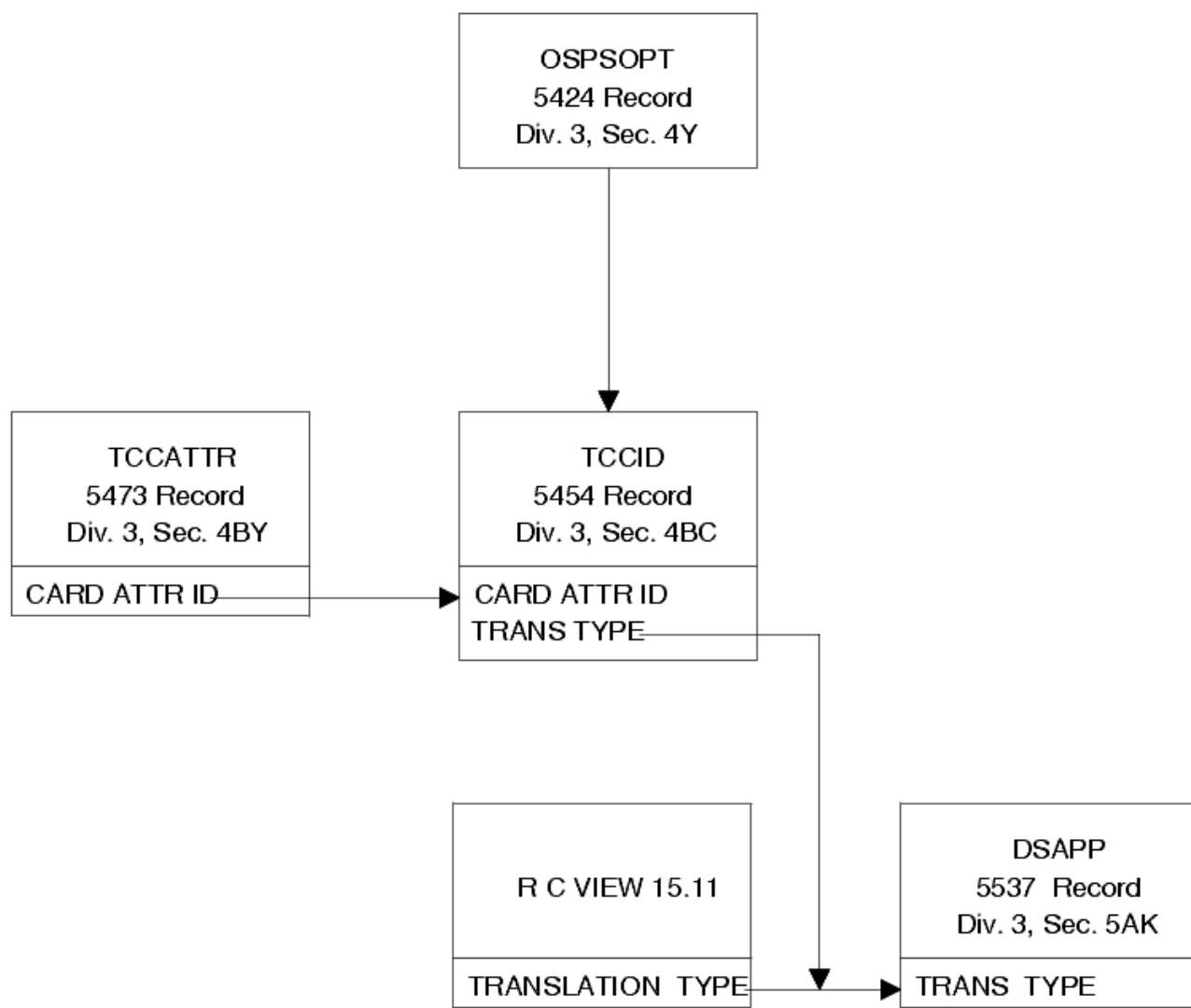


Figure 7 FORM FLOW FOR CAS RELEASE 3

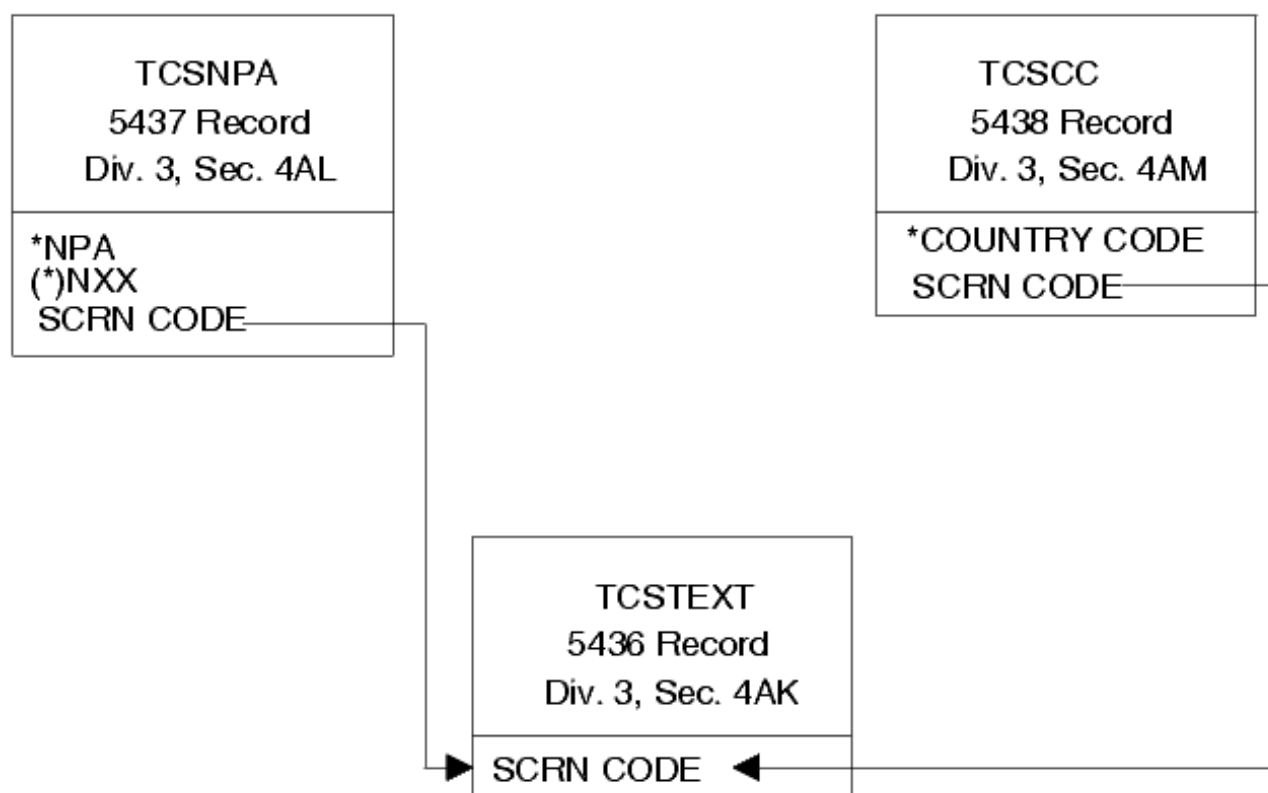


Figure 8 FORM FLOW FOR TCSE

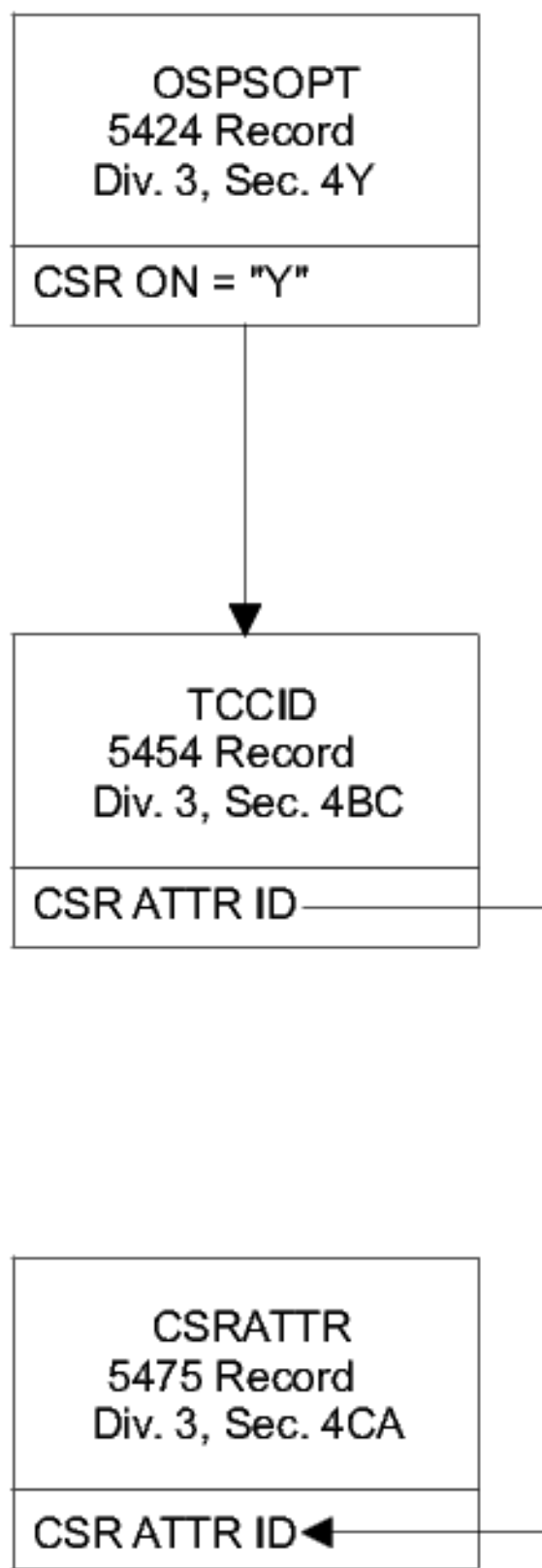


Figure 9 FORM FLOW FOR CAS RELEASE 4 AND CSR

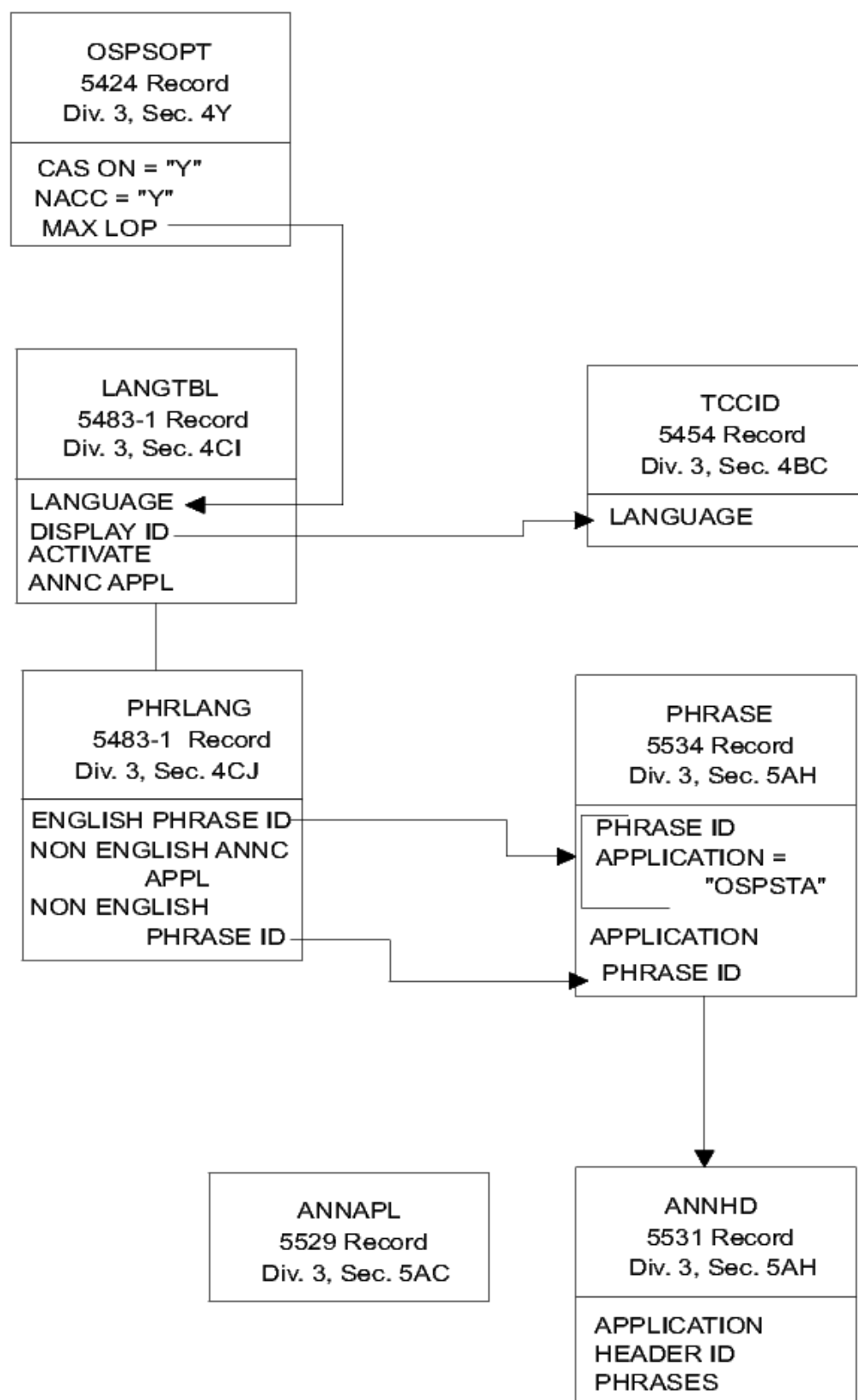


Figure 10 FORM FLOW FOR NON-ENGLISH ANNOUNCEMENTS FOR CARD CALLS

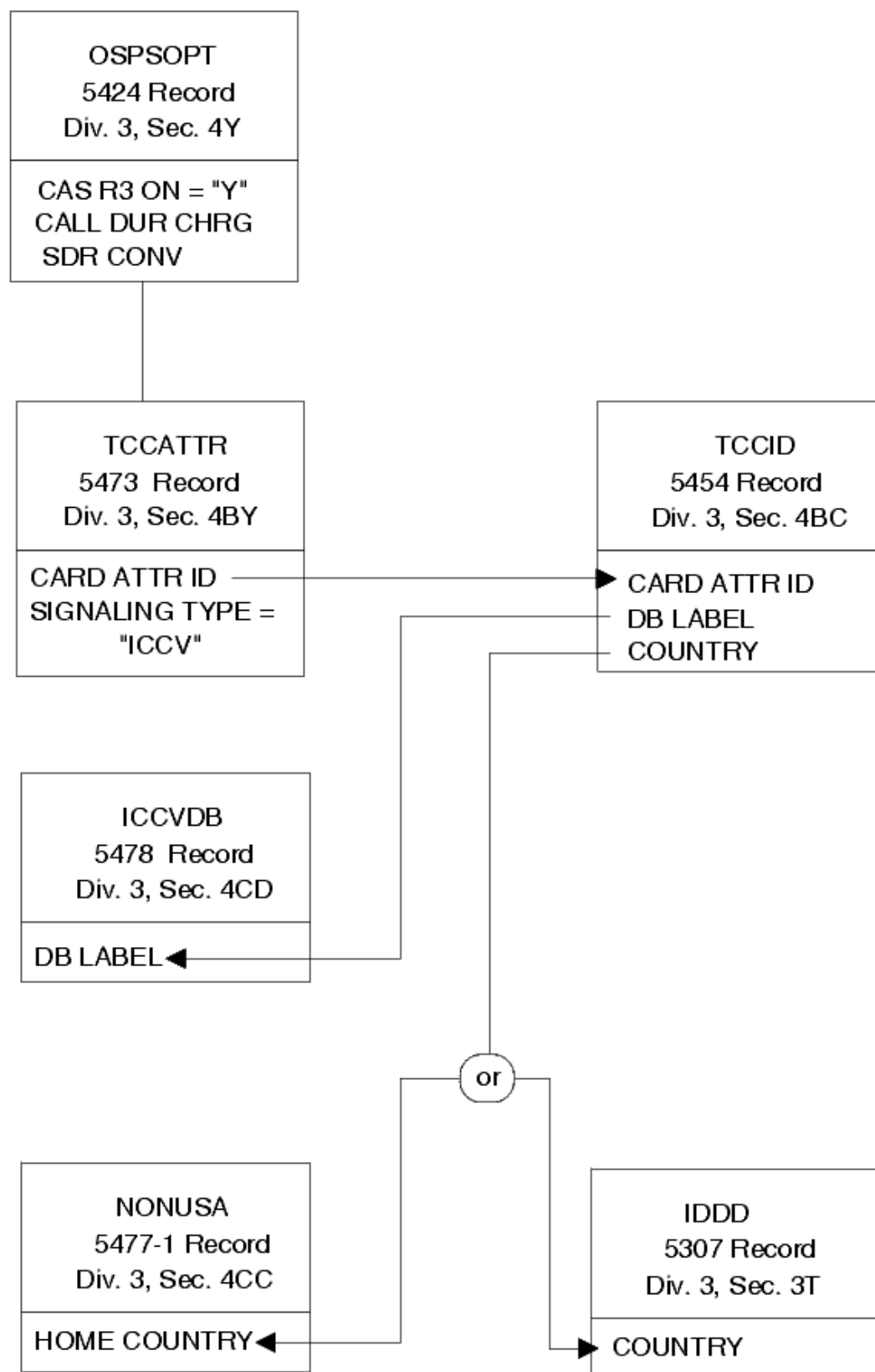


Figure 11 FORM FLOW FOR ICCV CALL DURATION AND CHARGE

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Figure 12 TOLL AND ASSIST FEATURE INDEX FOR 5E5 AND LATER SOFTWARE RELEASES

SEC. 3J: SERVICE ANNOUNCEMENT SYSTEM

1. 5E9(2) SERVICE ANNOUNCEMENT SYSTEM FOR SM

1.1 Background Information

Prior to the SAS (Service Announcement System) feature, the DSU2-RAF (Digital Service Unit Model 2 - Recorded Announcement Function) provides announcements to customers. Each DSU2-RAF service group consists of a control card and 1 - 3 memory boards. The 3 boards have a combined capacity of 10 MB which can hold approximately 1300 seconds of uncompressed, digitally-encoded (64KBPS) speech. This speech is stored on the DSU2-RAF in phrases such as "Please dial", "the number you dialed", and "We're sorry". The DSU2-RAF has the capability of generating announcements by concatenating these phrases together, based on a series of phrase IDs which are assigned to the various announcements through Recent Change or through ODA default input data. A DSU2-RAF service group can play up to 32 announcements at once. DSU2-RAFs programmed with "dial-through" capabilities can support 20, 2-way channels. Dial-through announcements are interruptible announcements commonly used by the OSPA application for entering calling card information.

Prior to SAS, DSU2-RAF memory boards were populated with ROM (Read Only Memory). Updating the phrases on a board involved pulling the DSU2-RAF from service and swapping the boards with other boards that contain the updated phrase data.

SAS consists of new hardware that plugs into the existing DSU2 housing and the associated switch software. It also provides a timely announcement update system and advanced algorithms (e.g. speech compression) to run on the SAS DSPs (Digital Signal Processors).

1.2 Feature Description

The first phase is implemented in the 5E9(2) Software Release. The feature number for this capability is 99-5E-1532.

The main objective is to produce a high capacity announcement system that provides both RAF (Recorded Announcement Facility) transparency and an improved platform on which to accommodate new capabilities.

SAS-SM (Service Announcement System on an SM) hardware technology is based on the DSC-3 (Digital Service Circuit 3), developed for SM-2000. Each SAS physical service group has 1 - 4 memory boards, with each board having slots for 8 flash memory cards, and one SAS DSC Control Group, 1 SAS-DSC control card.

SAS effectively increases the announcement capacity on standard SMs while remaining compatible with existing DSU2-RAF hardware and announcement administration. SAS also provides a more powerful platform on which to support advanced switching applications.

1.3 Feature Assignment

See Figure 1 for equipment provisioning form flow. See Figure 2 for phrase and announcement provisioning form flow.

1.4 Provisioning SAS Equipment

SAS equipment is provisioned on the EQRA form (5821 Record) and the EQSASP form (5859 Record).

When a SAS common board is being inserted, the equipage status cannot be "O" (operational). When a SAS memory board (circuit pack) is being inserted, the equipage status of the memory board cannot be greater

than that of the common board. The equipage status cannot be changed directly from "U" to "O" in Recent Change. It must be first changed to "G" (grow) and then to "O". SAS circuits must be OOS (Out Of Service) before updates can be performed.

SAS memory boards are inserted sequentially and contiguously. The equipage status of the current board cannot be greater than that of the succeeding board, e.g. if board3 is being inserted, the EQSTAT of board3 cannot be greater than the EQSTAT of board2.

A SAS memory board can be inserted with no memory flash card data specified. However, if memory flash card data is specified, the card sizes and card version numbers specified in the list must be equal to the number specified in the cards equipped attribute, i.e., the sum of the number of entries in MEMORY CARD LIST must equal the CARDS EQUIP entry on the EQSASP form.

1.5 Phrase and Announcement Data

Each phrase on a DSU2-RAF memory board or SAS memory card must be represented with an entry in the PHRASE form. Once the entry is in the PHRASE form, it can be used to construct announcement headers (ANNHD form) or announcement trailers (ANNTR form).

1.6 Replacing a RAF With a SAS

The RAF can be degrown and the SAS grown on the same equipment. The trunk members associated with the RAF unit must be deleted. The trunk members (up to 32) to be associated with the SAS must be inserted. For more information on degrowing the RAF, see AT&T document 235-105-331. For more information on growing the SAS see AT&T document 235-105-231.

1.7 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
ANNTR	5533	3	5AG	8.62
EQRA	5821	8	35	19.10
				20.22
EQRAP	5822	8	36	20.10
				20.22
EQSASP	5859	8	61	20.26
NPAMAP	5414	3	4O	26.1
PHRASE	5534	3	5AH	8.63
PHRLANG	5483-2	3	4CJ	8.67
SCRNCODE	5415	3	4P	26.3
SERVDATA	5466	3	4BS	21.54
TKGRP	5202	3	2A	5.1

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. The HEADER ID field was increased to support the SAS feature. More phrases are allowed per announcement HEADER ID. The DURATION field, which is a Recent Change/Verify only field, was added to ODA for information.

ANNTR form (5533 Record) - This record lists phrases that identify the announcement trailer. The PHRASE ID field has been increased to support SAS. The DURATION field, which is a Recent Change/Verify only field, has been added for information.

EQRA form (5821 Record) - This form defines the RAF and SAS services. The UNIT NUMBER field replaced the RAF UNIT field, UNIT TYPE and SAS SERVICES fields were added to support the SAS feature. A

second "read only" screen identifies which SAS service has been assigned to a specific channel.

EQRAP form (5822 Record) - This form defines the RAF circuit packs. The RAF UNIT field was renamed UNIT NUMBER field to support the SAS feature.

EQSASP form (5859 Record) - This form defines the equipage information for the SAS memory packs and the cards with the memory pack.

NPAMAP form (5414 Record) - This form assigns an SM, trunk group, exception area index and a LATA to an NPANXX combination. The PHRASE ID field was increased to support the SAS feature.

PHRASE form (5534 Record) - This form defines and describes phrase IDs which are provided on the DSU2-RAF Announcement Storage or SAS circuit packs for each application. PHRASE ID and DURATION fields were increased to support the SAS feature.

PHRLANG form (5483-2 Record) - An entry in this form maps an English language phrase ID to a corresponding non-English phrase ID. The PHRASE ID fields were increased to support the SAS feature.

SCRNCODE form (5415 Record) - This record defines billing restrictions on the back number. The ANNC HEADER ID and PHRASE ID fields were increased to support the SAS feature.

SERVDATA form (5466 Record) - This form is used to define EIS (External Information Systems) service parameters. The INT ANNC TYPE field has been increased to reflect the larger HEADER ID on the ANNHD form to support the SAS feature.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The RAF MBR field was added to support the SAS feature.

2. 5E10 SAS ON SM-2000

2.1 Feature Description

The SAS on SM-2000 feature is a 5E10 feature that has the capability of the 5E9(2) feature Service Announcement Service which was implemented on an SM. The 5E10 SAS on SM-2000 feature implements SAS on SM-2000s. The AT&T feature number for this capability is 99-5E-2695.

The DSU2-SAS (Digital Service Unit2-Service Announcement System) offers the following:

- Greater storage capacity
- Increased channel capacity (for dial through announcements)
- An interface for allowing on-line announcement updates by the customers
- A base for enhanced feature offerings.

For 5E10 and later, the DSU2-SAS can be equipped on both SMs and on SM-2000s and offers a high capacity announcement system that provides both RAF (Recorded Announcement Function) transparency and an improved platform on which to accommodate new capabilities.

DSU2-SAS consists of two hardware packs that reside in the DSU2. The first is the controller pack (TN1841)

and the second is a memory board (TN1842) for flash cards that contains the recorded announcements. For SM-2000, only DSU2-SAS provides recorded announcement functionality. For SMs, either DSU2-RAF or DSU2-SAS can be equipped to provide recorded announcement functionality. The total number of DSU2-SAS units that are allowed per SM is 8. SAS for 5E10 supports a maximum of 80,000 announcement seconds.

2.2 Feature Assignment

The data for SAS on an SM was implemented in 5e9(2). In 5E10, data changes are to implement SAS on SM-2000. To provision SAS on an SM-2000, the data on the EQRA form (5821 Record) must reflect an SM-2000.

2.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQRA	5821	8	35	19.10
EQIM	5700	8	2	18.1

EQRA form (5821 Record) - This form defines the RAF and SAS services. For SAS on SM-2000, the enumerations for the CONTROL GROUP, DATA GROUP, DATA PORT, and EQUIPMENT BAY have been increased.

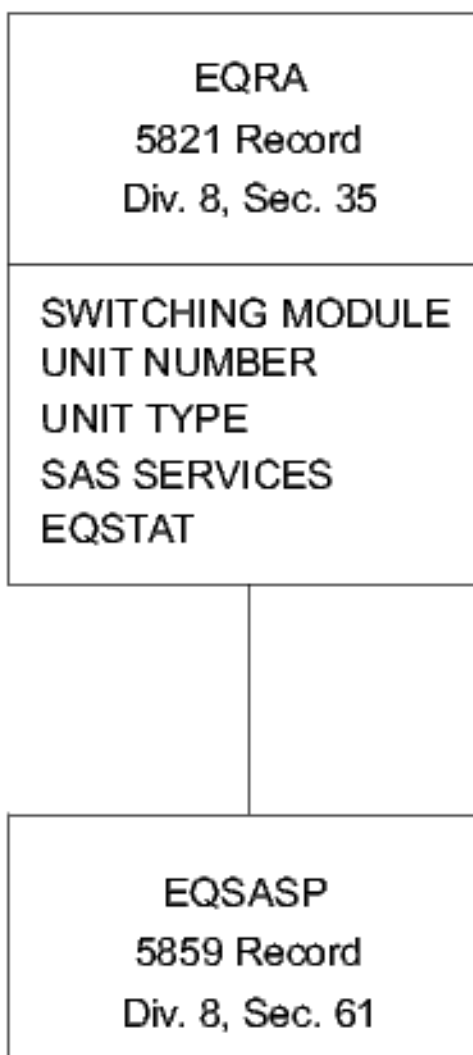
EQIM form (5700 Record) - The form defines Switching Module equipage Assignments. The UNIT TYPE must be "SM2000" for SAS on SM-2000 feature.

3. Glossary

DSC-3	Digital Service Circuit 3
DSPs	Digital Signal Processors
DSU2-RAF	Digital Service Unit Model 2 - Recorded Announcement Function
DSU2-SAS	Digital Service Unit2-Service Announcement System
EIS	External Information Systems
OOS	Out Of Service
OSPS	Operator Services Position System
RAF	Recorded Announcement Function
ROM	Read Only Memory
SAS	Service Announcement System

PROVISION EQUIPMENT

Define SAS common board
and types of services to be
provided on the SAS Unit.



Define SAS Memory Board and
SAS Memory Flash Cards

Figure 1 SAS EQUIPMENT PROVISIONING FORM FLOW

PROVISION PHRASE AND ANNOUNCEMENT DATA

PHRASE Record 5534 Div. 3, Sec. 5AH
PHRASE ID DURATION

ANNHD Record 5531 Div. 3, Sec. 5AE
HEADER ID DURATION PHRASES

ANNTR Record 5533 Div. 3, Sec. 5AG
DURATION (RC only) PHRASES

The forms below are dependent on PHRASE or ANNC HEADER IDs

SERVDATA Record 5466 Div. 3, Sec. 4BS
INT ANNC TYPE

PHRLANG Record 5483-2 Div. 3, Sec. 4CJ
ENGLISH PHRASE ID NON ENGLISH PHRASE ID

SCRNCODE Record 5415 Div. 3, Sec. 4D
ANNC HEADER ID PHRASE ID

NPAMAP Record 5414 Div. 3, Sec. 4O
PHRASE ID

Figure 2 SAS ANNOUNCEMENT PROVISIONING FORM FLOW

SEC. 3K: DIRECT INTERNATIONAL ORIGINATION FEATURES

1. DIRECT INTERNATIONAL ORIGINATION

1.1 Feature Description

The DIOR (Direct International Origination) feature allows a customer outside of the United States to complete a call to a domestic (U.S.) or other international location by directly accessing an operator in the U.S. DIOR thus eliminates the need for an operator in another country to set up a call to the U.S.

DIOR treatment is activated when a call is made from a designated DIOR station or when a DIOR access code is dialed. DIOR stations are considered exclusively non-coin and non-Automated Charge Quotation Service.

A DIOR call is identified by an access code sent across international facilities from either an originating local office or originating station equipment to a gateway office in the U.S. The gateway office then passes the call to OSPS.

The access code from an overseas location is in the form: SSS-CCC-XXXX

Entry	Definition
SSS	DIOR Special Access Code (in the range of 100-199)
CCC	Originating Country Code
XXXX	Originating Station Information

DIOR calls can arrive at the OSPS office on MF (Multifrequency) or CCS (Common Channel Signaling) trunks. Since only MF signaling is supported, calls on CCS trunks are routed through the switch onto an MF trunk group. Trunks dedicated to DIOR must only carry DIOR traffic.

The gateway office may send either the full 10-digit number or a 7-digit number (CCC-XXXX) to the OSPS office. When a 7-digit number is sent, the OSPS office uses the "SSS" identified in office data for calls arriving on the DIOR trunk group. An initial DIOR call is marked as 0- and requires operator assistance.

OLS (Originating Line Screening) can be used on the pseudo NPA (SSS) to restrict certain classes of charge. The classes-of-charge allowed are collect, calling card and bill to third.

ACCSQ (Automated Calling Card Sequence) calls can be placed without operator assistance when Back Card Number or a DDD (Direct Distance Dialing) Back Card Number class of charge is used. For these calls to be completed, DTMF signal quality from the originating country must be acceptable. A calling card that is not a Commercial Credit Card or a non-AT&T Telecommunications Card, must be validated by an operator on an off-line external database.

1.2 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCNAME	5463	3	4BP	27.7
LINESCRN	5416	3	4Q	26.2
NPAMAP	5414	3	4O	26.1
OPRTK	5417	3	4R	26.26
SCRNCODE	5415	3	4P	26.3
TCSNPA	5437	3	4AL	27.2
TKGRP	5202	3	2A	5.1
TPRNPA	5465	3	4BR	27.5

CCNAME form (5463 Record) - Upon position seizure, the CCNAME form is checked to identify the call's originating country. The COUNTRY NUMBER field on this form contains the 3-digit Originating CC (Country Code) signaled by an overseas location. The country seen on the VDT is taken from the COUNTRY NAME field on this form. The operator obtains the desired forward number at this point. The forward number may be either a domestic or an international destination. A DIOR call to a domestic location requires that a 10-digit number entry be made. Entries less than 10 digits are not accepted. Entries greater than 10 digits are truncated to 10 digits and treated as a 10-digit entry.

LINESCRN form (5416 Record) - The LINESCRN form has also added a DIOR NPA field for pseudo-NPAs. LINESCRN identifies a Screening Code associated with a line number. The Screening Code is then defined in the SCRNCODE form (5415 Record, RC View 26.3).

SCRNCODE has been modified to allow Forward Card Number and Forward 3rd Number classes of charge to be restricted separately. Prior to 5E6, these classes of charge were only restricted together in the FORWARD BILL field.

NPAMAP form (5414 Record) - The NPAMAP form is the first record checked for OLS treatment to identify the SM where OLS data resides for the NPA-NXX identified.

The NPAMAP form has added the DIOR NPA field for pseudo-NPA entries. When set to "Y", this field allows NPA entries to be made in the range of 100-199.

OPRTK form (5417 Record) - Each trunk group defined as "DIOR" on the TKGRP form must also have an entry of "Y" in the DIOR NPA field of the OPRTK form. Also, the ORIG NPA field must have an entry from 100 to 199. This entry is the pseudo-NPA used as a prefix when the gateway office signals 7 digits rather than a 10-digit number. The CARRIER fields identify the DIOR service provider. Only one DIOR service provider should be identified for a DIOR trunk group. The COIN and ACQS fields must indicate that only non-coin and non-ACQS traffic are allowed on the trunk group.

When a call arrives at an OSPS office on a DIOR trunk group, the OL SCRNCODE field on the OPRTK form indicates whether OLS (Originating Line Screening) checks are to be done. Typically, a DIOR trunk group is dedicated to screened traffic in this field by an entry of "DED".

TCSNPA form (5437 Record) - When a forward number passes TPR checks, normal Terminating Screening checks determine if the desired class of charge is allowed to the forward destination. For a domestic forward number, the TCSNPA form is checked using the "NPA" or "NPA-NXX" of the forward number. An entry in this record may identify a Screening Code. The TCSTEXT form (5436 Record, RC View 27.1) is then checked for valid billing types. For an international forward number, the TCSCC form is checked using the COUNTRY CODE of the forward number. As with the domestic forward number, an entry in this record may identify a Screening Code defined in the TCSTEXT form. If the forward number is not restricted against the type of billing desired, an appropriate database query is done, after which the operator can connect the forward and back parties.

TKGRP form (5202 Record) - DIOR calls arrive at an OSPS office on trunks dedicated to DIOR service. The TRUNK CLASS field on the TKGRP form (5202 Record) must have an entry of "DIOR".

TPRNPA form (5465 Record) - Digit analysis is done to determine the validity of the forward number and routing information. If the forward number passes digit analysis, TPR (Terminating Point Restriction) checks are done to identify whether a DIOR call to the forward location is allowed. If a domestic forward number has been entered, the TPRNPA form is checked based on the carrier for the call (CARRIER field) and the NPA or NPA-NXX of the forward number. An entry in this record indicates that a DIOR call is NOT allowed to the NPA or NPA-NXX.

2. DIOR SPEED DIALING

2.1 Feature Description

The feature number for this capability is 98-5E-2092. This special feature is available for 5E8 and later Software Releases. This Feature allows a USA Direct customer to reach domestic or international service providers through the use of abbreviated or speed-dialing codes. The dialing code is 1- to 3-digits and must be preceded by a 2-digit DIOR speed-dialing access code. All DIOR callers have access to these numbers either through the ACCS (Automated Calling Card Service) or with the assistance of an operator.

2.2 Feature Assignment

The DIOR speed-dialing access code is assigned in the DSD SERVICE CODE field on the OSPSOPT form (5424 Record). It conforms to the format for existing service access codes such as those for VMS (Voice Messaging Service) and Subaccount Billing. Checks ensure that the DSD service code does not conflict with existing service access codes.

The speed codes are assigned on the DIORSD form (5484 Record) and is only be accessible by DIOR callers. The translated directory number and an international indicator are associated with the speed codes. The international indicator is used by call processing to highlight the INTL FWD# field at the operator position for international calls. It is used by automated call processing to prefix the digits 01 to the translated international forward number for use by digit analysis.

When a DIOR customer dials a forward number, or a DIOR customer receives operator assistance in dialing a forward number, this feature performs additional checks. If the forward number is identified as a DIOR speed-dialing access code and speed code, the FID 565 is checked to indicate if the feature is active. If it is active, the forward number is translated into the full directory number and passed to digit analysis where processing continues as normal. The translated forward number appears in the AMA record and at the operator position if operator assistance is required on the call. All applicable terminating number restrictions apply to the translated forward number for both automated and operator assisted calls.

An indication is made in the call record that an operator and customer dialed speed code was dialed for AMA recording purposes.

2.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DIORSD	5484	3	4CL	27.9
OSPSOPT	5424	3	4Y	8.9

DIORSD form (5484 Record) - This form maintains a list of 1- to 3-digit speed codes for DIOR Speed Dial feature. It assigns the speed code to a forward number and indicates if the forward number is an international number.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The DIOR Speed Dial access code is assigned in the DSD SERVICE CODE field on this form.

3. DIOR COUNTRY PAIR SCREENING

3.1 Feature Description

The DIOR CPS (Direct International Originations Country Pair Screening) feature allows certain country-to-country DIOR calls, and disallows others, depending on the originating-to-terminating country pair. If the inbound leg of the call is a DIOR call, and if the outbound leg is to a point outside of the United States, CPS checks to determine whether to allow the DIOR call.

Currently several international countries are allowed for DIOR country-to-country calls. A DIOR caller from an "allowed" country and carrier may place a call to another country that is also an "allowed" country, as specified by the screening data provided by the tables constructed from the DCPSP form and the NONUSA form.

For example, if France and Russia are "allowed", a DIOR country-to-country call can originate from France and can terminate to Russia. A DIOR call originating from a foreign destination such as France that is dialed to another foreign destination such as Russia must pass CPS checks in order for the DIOR call to be completed. The CPS restrictions are determined by data.

3.2 Feature Assignment

For 5E8 and later, two new forms are used to identify the originating country and carrier as well as the terminating country code and the terminating NPA-NXX that is within the NANP (North American Numbering Plan) but outside of the United States. Upon an entry of a forward number (domestic or international) by the caller during automated handling or by the OSPA operator, the call is blocked or allowed based on tables constructed by these new forms.

An error treatment is applied to the call if it is restricted, and the call cannot be routed to the forward number. For an automated initial DIOR call, the error treatment sends the call to the operator. For Automated Sequence DIOR, the caller will receive an error announcement and the call is aborted.

For 5E8 only, during the data transition period the TCA (Telephone Company Administration) can setup the CPS data prior to the activation of the new CPS feature. To activate the feature, the DIOR CPS feature parameter field must be set to "Y" on the OSPSOPT form (5424 Record).

3.3 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DCPSP	5477-2	3	4CK	27.8
NONUSA	5477-1	3	4CC	26.6
OSPSOPT (5E8 only)	5424	3	4Y	8.9

The translations for DIOR CPS require the following forms. See Figure 1 for the form flow for DIOR CPS.

CCNAME form (5463 Record) - This form is used to map a numeric country code to a 15-character country name. If COUNTRY CODE is entered on the DCPSP form and it is greater than 199, it must match a COUNTRY NUMBER on a corresponding CCNAME form.

DCPSP form (5477-2 Record) - The 5477-2 Record is available with the 5E8 and later and it is used to construct a table of "allowed" Originating Country Codes and Carrier, and Terminating Country Codes.

NONUSA form (5477-1 Record) - For 5E8 and later, this record is used to construct a table of NPA-NXXs which are within the NANP, but are outside of the United States. The table indicates that the NPA-NXX is an acceptable terminating number for a DIOR country-to-country call.

OSPSOPT form (5424 Record) - This record defines the OSPA office option global parameters. For 5E8

only, DIOR CPS must be set to "Y" to activate this feature.

4. DIOR TOLL-FREE INTERNATIONAL SERVICE

4.1 Feature Description

DIOR Toll-Free International Service is available for 5E9(1) and later. The feature number for this capability is 98-5E-2501.

The DIOR Toll-Free International Service Feature allows callers that use the DIOR service (such as USADirect callers) to reach certain toll-free numbers free of charge, because the subscribers of those toll-free numbers have specified a desire to receive and pay for these calls. In addition, this feature allows toll-free subscribers to block access to their toll-free numbers for callers from specific calling countries or optionally from all countries. This is an enhancement to the existing capability of the OSPS DIOR feature which allows callers to dial domestic toll-free numbers provided the callers pay for the international-access leg of the call.

4.2 Feature Assignment

See Figure 2 for feature assignment form flow for DIOR Toll-Free Service feature.

The format of the CCS7 ISUP (ISDN User Part) IAM (Initial Address Message) is changed by this feature. The receiving 4ESS® Switch needs a corresponding feature to receive this new format. Therefore, activation on this feature must be coordinated with the 4ESS Switch. This feature must be activated on the 4ESS Switch before it is activated at the OSPS.

The Recent Change view 27.7 was modified and renumbered as view 27.81 to enable all new views for DIOR features to be grouped together (see the corresponding ODA CCNAME form (5463 Record).)

This feature is activated on the OSPSOPT form (5424 Record). This feature is not enabled until the purchaser has made the necessary arrangements with AT&T. Information on feature enabling is provided upon ordering. This feature does not have a secured feature activation.

The CCNAME form (renumbered view 27.81) maps the DIOR country code to an IDDD country code that is used in the charge number parameter of the IAM message to the 4ESS Switch for toll-free calls.

The DEHOCSM form (5496 Record) indicates in which standard or loaded SM the DEHNP data for a particular 8XX-NXX is located. Once the **DEHNP** data for an 8XX-NXX is in place it cannot be moved to another SM unless it is completely deleted and re-inserted.

The DEHNP form (5431 Record) allows the user to define how an 8XX number is to be treated from the originating DIOR countries. The default is caller-paid meaning that OSPS or an operator will request card billing. The default treatment can be changed to either free (8XX subscriber pays) or denied (call is blocked). The data can also be setup to provide alternate treatments for calls from different originating DIOR countries by providing the country code and applicable different treatment in the COUNTRY CODE TREATMENT LIST. The data can also be setup to change the default for all callers to either denied or free and then state exceptions to the new default by populating the data in the COUNTRY CODE TREATMENT LIST.

4.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
CCNAME	5463	3	4BP	27.81

DEHNP	5431	3	4AF	27.85
DEHOCSM	5496	3	4CW	27.84
OSPSOPT	5424	3	4Y	8.9

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. New announcements headers 217, 218, and 223 are needed for this feature. Announcement Header 223 currently has a default value. The following are the DIOR Toll-Free Service feature HEADER IDs per the customer's implementation instructions to the field. 217 and 218 use custom phrases; they should be entered on the RC view 8.61 / ODA form ANNHD (5531 Record). The customer may also wish to override the default data for HEADER ID 223, which currently is the following:

HEADER ID: 223
 APPL: OSPSTA
 PHRASE LIST
 ROW PHR
 1 155
 2 125

"Thank you for using AT&T"

to the following phrases:

HEADER ID: 223
 APPL: OSPSTA
 PHRASE LIST
 ROW PHR
 1 155
 2 125

"Thank you for using AT&T"

The HEADER ID for 217 should be the following:

- HEADER ID: 217
- APPL: OSPSTA
- PHRASE LIST
- ROW PHR
- 1 156
- 2 14391 (custom)
- 3 27
- 4 145

"We're sorry, this number cannot be dialed from this international location. 1/2 second pause. Please dial another telephone number now."

The HEADER ID for 218 should be the following:

- HEADER ID: 218
- APPL: OSPSTA
- PHRASE LIST
- ROW PHR
- 1 156
- 2 14391 (custom)
- 3 27
- 4 64

"We're sorry, this number cannot be dialed from this international location. 1/2 second pause. Please, hang up."

CCNAME form (5463 Record) - This form is used to map the COUNTRY NUMBER to a 15-character country name, which is used for DIOR calls. For this feature the translation from the DIOR country code to the IDDD country code was added. This form also indicates whether or not the call is originating in an 809 area code. This yes/no value has implications on the data sent in the IAM message, if the call is free to the calling party.

DEHOCSM form (5496 Record) - This form specifies the SM (Switching Module) on which the billing treatment data is stored for DIOR calls to an 8XX number. The craft have the ability to distribute the data so that a large amount of memory is not necessary on every SM.

DEHNP (5431 Record) - This form specifies the 8XX number and the billing treatment that applies to it from all DIOR originating countries or the **default treatment plus per-country alternate treatments**.

This form indicates how the NXX-XXXX of the 8XX number is to be treated. If no data is found for the number, the caller must enter a credit card number or go to an operator for further handling. The data can also be setup to allow the call for free to the 8XX numbers or to deny the call to the 8XX number based upon the IDDD country code which was entered on the CCNAME form (5431 Record).

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. This feature is activated by setting the TOLL FREE 800 field to "Y".

5. OSPS TOLL-FREE NPA EXPANSION

5.1 Feature Description

This feature supports SACs (Service Access Codes) other than 800, with 888 expected to be the first new SAC assigned. Calls to these new SAC codes will be identified as toll-free calls and will be treated as 800 calls are now treated. This is a secured feature with SFID 405. For provisioning information about this feature see Division 2, Section 4A405.

6. DIOR COUNTRY PAIR SCREENING - SPECIAL SCREENING

6.1 Feature Description

The DIOR CPS (Country Pair Screening) - SS (Special Screening) feature is available for 5E9(1) and later. It provides the OSPS with the ability to screen DIOR country-to-country calls and provide special call handling for certain service provider selected country-to-country pairs. This special call handling includes restricting card billing and forcing certain country-to-country pairs to always receive operator handling. The feature number for this capability is 98-5E-2639.

This feature is intended to reduce the amount of fraud committed on DIOR originated calls that are completed to international destinations. Fraud can be associated with a specific country-to-country pair or for all DIOR calls terminating to a particular country. One way fraud is reduced by this feature is by screening the types of calling cards allowed for these calls and by requiring an additional verification step for AT&T cards. The additional validation step involves the use of a CPC (Card Protection Center) operator to verify the card user, which will help eliminate the use of fraudulent calling cards on these identified country-to-country calls. The other way this feature can reduce fraud for specified country pairs or terminating country codes is by requiring an operator to handle on the call. The operator handling step impedes fraudulent callers that use automated means of access, because some fraudulent callers are deterred simply by the delay and inconvenience

operator handling brings to the call.

6.2 Feature Assignment

To activate the DIOR Country Pair Screening - SS feature set the CPS R2 field on the OSPSOPT form (5424 Record) to "Y". The TCS (Terminating Code Screening) operator display changes are active upon loading of this feature and does not depend on the feature activation in the CPS R2 field on the OSPSOPT form.

The data which determines that a certain originating country code and carrier to a terminating country code should receive the CPS Card Screening and/or the Terminating Operator Handling treatments is populated on the DCPSS form (5433 Record).

6.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DCPSSS	5433	3	4AH	27.86
OSPSOPT	5424	3	4Y	8.9

DCPSSS form (5433 Record) - This form specifies additional screening which may be done on a country pair for DIOR (Direct International Originations) calls. For a Terminating Country Code (TERM CC field), calls may be required to use an AT&T card or be automatically routed to an operator based on the Originating Country Code (ORIG CC field) and/or CARRIER.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. To active the DIOR CPS - SS feature, set the CPS R2 field to "Y".

7. DIOR SEQUENCE CALL HANDLING

7.1 Feature Description

DIOR Sequence Call Handling is available for 5E9(1) and later. This feature allows DIOR callers from eligible countries to reach an operator to place additional calls, in the event that their call attempt is unanswered or busy, or when their call completes and the called party hangs up first. This feature also allows the switch owner finer control over which calls are allowed automated initial and automated sequence call handling. The feature number for this capability is 98-5E-2390.

This feature allows DIOR callers using card billing at non-DTMF (Dual Tone Multifrequency) or DTMF phones to make sequence calls. If the call is not answered after a specified interval, or if the called number is determined to be busy, or if the called party goes on-hook for a specified interval with the calling party remaining off-hook, then the OSPS releases the network connection to the called party and plays an announcement to the caller.

The announcement prompts the caller to leave a message and to remain on the line to be connected to an operator; additionally, if the caller is allowed automated sequence calling privileges, it reminds the caller that "#" can be dialed to start automated sequence calling treatment. If the caller remains off-hook for a specified interval after the announcement finishes, the caller is routed to an operator for assistance. If the caller is eligible and dials "#", automated sequence call treatment is provided. If the caller hangs up, the call is ended with no further special treatment.

Additionally, this feature enhances the switch owner's ability to control DIOR automated calling by separating permission for automated initial dialing from that for automated sequence dialing, and by adding control by originating local access carrier.

7.2 Feature Assignment

New announcement header IDs with the appropriate phrase list should be entered on the ANNHD form (5531 Record).

The following announcements should be inserted. The recommended phrases are shown; these can be altered at the site if so desired. One possible alteration is the length of the pause following the announced text, to allow the caller more or less time to hang up before the recall to an operator is initiated. To alter the length of the pause, add or delete instances of phrase 28 at the end of the announcement. Each instance of phrase 28 alters the pause length by 1 second.

Phrases for Announcement Header IDs		
Header ID	Phrase Number	Text
200	14023	Your party is not answering.
	26	(1/4 sec pause)
	158	Please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)
201	14023	"Your party is not answering
	26	(1/4 sec pause)
	14042	Press "pound"
	71	now
	26	(1/4 sec pause)
	14047	or
	158	please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)
202	14019	BUSY TONE
	26	(1/4 sec pause)]
	158	Please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)
203	14019	BUSY TONE
	26	(1/4 sec pause)
	1402	Press "pound"
	71	now
	26	(1/4 sec pause)
	14047	or
	158	please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)
204	14023	Your party is not answering
	26	(1/4 sec pause)
	14037	To leave a message
	14025	for a charge
	26	(1/4 sec pause)
	102	please
	14042	press "pound"
	2	one
	3	two
	4	three
	71	now
	26	(1/4 sec pause)
	14047	or
	158	please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)
205	14019	BUSY TONE
	26	(1/4 sec pause)
	14022	The phone is busy

	26	(1/4 sec pause)
	14037	To leave a message
	14025	for a charge
	26	(1/4 sec pause)
	102	please
	14042	press "pound"
	2	one
	3	two
	4	three
	71	now
	26	(1/4 sec pause)
	14047	or
	158	please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)
214	158	Please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)
215	14042	Press "pound"
	71	now
	26	(1/4 sec pause)
	14047	or
	158	please hold for
	162	an
	159	operator
	28 28 28 28	(4 sec pause)

The per-country per-carrier permissions are specified on the CCNAME form (5463 Record). For each country specified determine which originating local access carriers (values 0 - 9) can send calls to the OSPS. (As a cross-reference: Country Pair Screening, DCPSP form (5477-2 Record), also uses originating local access carrier values.) For each of these country/carrier combinations, determine whether automated initial call treatment, automated sequence call treatment, and/or offer to transfer to operator treatment are allowed.

To turn on the feature set the DIOR OTTO ACT field to "Y" on the OSPSOPT form (5424 Record). The data to control feature operation are also specified on this form. Determine the appropriate values to use for the DOM WAIT, INTL WAIT, and POST COMPL parameters. Determine which of the BUSY ANN, RNA ANN, and/or UNDEF ANN options of the feature should be activated for this switch. (Note that the value chosen for POST COMPL can also be used to activate or deactivate the post-completion announcement option in this switch.)

7.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCNAME	5463	3	4BP	27.81
OSPSOPT	5424	3	4Y	8.9

CCNAME form (5463 Record) - This form is used to map the COUNTRY NUMBER to a 15-character country name, which is used for DIOR calls. The list of carrier permissions was added as part of the DIOR Sequence Call Enhancements special feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The following fields support DIOR Sequence Calling on the OSPSOPT form (5424 Record)

- BUSY ANN ACT
- DIOR OTTO ACT
- DOM WAIT
- INTL WAIT

- POST COMP
- RNA ANN ACT
- UNDEF ANN ACT

8. DIOR NETWORK REMOTE ACCESS

8.1 Background

Prior to the DIOR NRA (Network Remote Access) feature, the SDN (Software Defined Network) customer dialed a toll-free access number from a particular country. The international TA (Telecommunication Administration) translated this number into a routing number of the form 143-WXY-NCCZ, where:

- 143 identified the call as an NRAI (NRA International) call within the ASN (AT&T Switched Network).
- WXY identified the NRAI subscriber (i.e., the SDN the caller is trying to reach).
- NCC was an NRA Country Code used for rating, billing, and fraud control within the NRAI platform.
- Z was a "don't care".

The International Telecommunications Administration then routed the call to the ISC (International Switching Center) with this routing number. The ISC signaled the same routing number to a 4ESS Switch ATP (AT&T Trigger Platform), which (in conjunction with an SDN) NCP (Network Control Point) provided SDN service to the customer. Having obtained a valid authorization code and dialed number, the call was routed through the ASN to the local office serving the dialed number. The AT&T Service Provider was able to offer this version of service (called NRA International or NRAI) from only a handful of international locations.

8.2 Feature Description

The DIOR NRA (Network Remote Access) feature is available for 5E10 and later. The feature number for DIOR NRA is 98-5E-3104. DIOR NRA allows the OSPS on DIOR calls to recognize 8XX numbers that are used to gain remote access to domestic SDN (Software Defined Network) services. Customers use DIOR as a means of accessing the ASN (AT&T Switched Network), and then dial an 8XX number to access their private network. If allowed from the originating country, the call is class charged auto-collect, and OSPS signals the call forward with the necessary routing information. The 8XX subscriber is responsible for both the DIOR access costs and the domestic 8XX service costs associated with all answered and completed DIOR NRA calls.

As a result of this new feature, OSPS distinguishes NRA 8XX numbers from all other 8XX forward numbers on DIOR calls. In contrast with other DIOR 8XX calls, DIOR NRA calls that are allowed will always be "toll free" (i.e., calls made by NRAI customers are class charged "auto-collect"). OSPS uses DIOR NRA specific routing data to determine routing for DIOR NRA calls. In addition, when signaling the call to the 4ESS Switch ATP, OSPS provides the routing information that the 4ESS Switch ATP expects to receive from the ISC (International Switching Center) in the current NRAI architecture.

8.3 Operator Displays

Operators could encounter the DIOR NRA feature under the following conditions:

- the originating country is not eligible for automated switch handling (initial calls, sequence calls, or both).

- the NRAI customer bails-out from automated switch handling or AP (Automated Position) handling.
- the customer attempted to make a sequence call subsequent to an automated DIOR NRA or "toll-free" DIOR I8XX (DIOR International 8XX) initial call (which is sent to the operator as a DIOR 0- call).

To complete these calls, the operator is required to enter a forward number. Once a forward number is entered and the call is determined to be a DIOR NRA call, OSPS provides one of the following:

- If the call is "allowed", the operator may see displays indicating that this 8XX call is a DIOR NRA call, an AUTOCOLLECT charge, and either a display indicating that the operator may float the call ("PR OK") or a display indicating that manual outpulsing is required (if the call is TPR (Terminating Point Restrictions) "restricted"). Any OLS (Origination Line Screening) restriction against auto-collect is automatically overridden.

If a previous class-of-charge was present for the call, it is overridden (e.g., on sequence calls, on calls where the forward number is entered after the class-of-charge, or on calls where the operator previously entered a different forward number that was not charged auto-collect). Once OSPS class charges the call auto-collect, the operator may not enter an alternate COC (Class of Charge) without changing the forward number.

- If the call is "blocked", the operator displays indicate that the NRAI customer is not allowed to make this DIOR call because of a forward number restriction from the originating country: the error message "FWD# not allowed from BK country" and the forward number is displayed in reverse video.

In order to release the blocked call, the operator must either cancel the call or change the forward number and obtain a valid class-of-charge. (This new error message is also used by the DIOR Toll-Free International feature to indicate a blocked call.)

- If the operator attempts to enter a credit number using the "CREDIT #" key on a blocked DIOR NRA call or a blocked DIOR Toll-Free International call, that entry is rejected by OSPS.

8.4 AMA

The translated CPN (e.g. 143-WXY-NCCZ) is recorded as the terminating number instead of the dialed 8XX number.

An AMA record is generated on every DIOR NRA call that is either answered, or sampled.

8.5 DIOR NRA Functionality

In order to support NRAI as a service to domestic SDN customers in international locations, OSPS provides the following functionality on DIOR NRA calls.

- OSPS provides DIOR access. NRAI customers use a DIOR access number in their international location to reach the AT&T network. Associated with this access is a DIOR Pseudo Country Code, which is signaled from the International Switching Center.
- OSPS provides DIOR functionality. Calls are given DIOR originating treatment, providing NRAI customers with an opportunity to enter a forward number for initial or sequence calls. This treatment may be provided either by automated switch handling, or position handling (operator or AP) depending on the

originating country and office/trunk data.

Callers may enter any forward number which is allowed as a DIOR forward number. This includes speed dial codes. In order to encounter the DIOR NRA feature, NRAI customers must enter an 8XX number or a speed dial code that translates into an 8XX number.

- OSPS provides screening. OLS (Originating Line Screening) and TPR (Terminating Point Restrictions) checks are performed on each DIOR NRA call. Any OLS screening that applies to the call against auto-collect billing is overridden by OSPS if the call is determined to be an allowed DIOR NRA call. All TPR screening that applies to the call is honored.
- For potential DIOR NRA calls (i.e., the forward number is an 8XX number), OSPS maps the DIOR Pseudo Country Code into the country code format used by NRAI (i.e., an NRA Country Code) using data contained in the modified DIOR Pseudo Country Code to IDDD Country Code Mapping Table CCNAME form (5463 Record, View 27.81).
- OSPS determines whether the call should be given DIOR NRA processing, by searching a new NRA 800 Number Recognition table to determine whether the 8XX number is an NRA number. This table contains the following:
 - A list of NRA 8XX numbers for which DIOR NRA treatment shall be provided.
 - An associated default treatment associated with each NRA 8XX number. The default treatment value specifies whether calls to a given NRA 8XX number should be allowed or blocked.
 - An exception list containing countries from which the default treatment does not apply.
 - A seven-digit routing number associated with each NRA 8XX number. OSPS searches in this table using the 8XX number dialed by the customer and the NRA Country Code as keys. If the 8XX number is present, then the call is a DIOR NRA call which OSPS treats as either "allowed" or "blocked".

If OSPS determines that the call is not a DIOR NRA call, it proceeds as in the absence of this feature.

- OSPS performs CPN (Called Party Number) Translation, in order to obtain a routing number to be used in populating the AMA record and the IAM to the 4ESS Switch ATP.

OSPS translates the seven digit routing number (found in the new NRA 800 Number Recognition Table look-up) into a ten-digit routing number using the NRA Country Code. This is the routing number that the ISC signals to the 4ESS Switch in the current NRAI architecture.

OSPS also performs CN (Charge Number) Translation to transform the charge number into a format acceptable to the 4ESS Switch network.

OSPS translates the DIOR ANI into an NRAI ANI using the NRA Country Code and the seven-digit routing number found in the new NRA 800 Number Recognition Table.

- OSPS identifies DIOR NRA calls to the operator or AP, and provides a billing indicator or error message

(corresponding with the default treatment or exception in the NRA 800 Number Recognition Table). These indicators are provided after the valid non-TPR blocked 8XX number is entered and is determined to be an NRA number. The indicators are used to distinguish DIOR NRA calls from DIOR International 8XX calls.

Although DIOR NRA calls are different from DIOR International 8XX calls, position handling is the same as for "Toll-Free" DIOR International calls.

- On automated calls, OSPS provides announcements to keep NRAI customers informed of call progress. The AP may also provide announcements.
- OSPS routes the call to a 4ESS Switch ATP using DIOR NRA specific routing data (i.e., the DIOR NRA Destination Index and DIOR NRA Routing Index specified in global office data on the OSPSOPT form (5424 Record)). This routing data allows DIOR NRA calls to receive different routing from other DIOR 8XX calls.
- OSPS uses CCS7 signaling. The IAM includes the following when signaling the call:
 - The Called Party Number parameter is populated with the Translated CPN.
 - The Charge Number parameter is populated with the Translated CN.
 - The Dialed Number parameter is populated with the 8XX forward number.
 - The Forward Call Indicator parameter is populated with zero. This specifies to the 4ESS Switch that the call is not an incoming international call (the call is coming from OSPS, not an international TA).
- OSPS generates an AMA record for all DIOR NRA calls that are answered or sampled. On each record, the back number field shall be populated with the DIOR ANI, and the forward number field shall be populated with the Translated CPN.

8.6 Feature Assignment

Activation of this feature should be coordinated with changes to the toll network.

The following new announcement headers support this feature and should be populated on the ANNHD form (5531 Record).

New Announcement Headers	
Header ID	Definition
123	Thank You announcement on initial calls
124	Thank You announcement on sequence calls
125	First attempt reprompt on blocked DIOR NRA calls
126	Termination announcement on blocked DIOR NRA calls

NOTE: For 5E9(2) only, standard default data was populated for Announcement Header ID OSPSTA 123 (Thank you for using AT&T) and OSPSTA 124 (Number invalid).

On the CCNAME form (5463 Record, View 27.81), the NRA CC field is used to specify a country code other than the IDDD CAC (International Direct Distance Dialing Country Access Code) for DIOR NRA (Network Remote Access) calls originating from the country specified in the COUNTRY NUMBER field. This country code is used to determine call completion permissions.

The DEHOCSM form (5496 Record, View 27.84) is used by DIOR NRA (in addition to DIOR Toll-Free) to specify the SM that stores the 8XX number office code data. In the FEATURE field, enter "TF8" for DIOR Toll-Free feature or "NRA" for the DIOR NRA feature. Existing data for the DIOR Toll-Free feature maps to "TF8".

The DNRA form (6400 Record, View 27.87) supports the DIOR Network Remote Access feature. This form specifies the DIOR NRA 8XX access number, a routing number for routing the call to the NRA toll office, and up to 128 specific originating country codes that are exceptions to the default treatment. The OFFICE CODE / LINE field on the DNRA form cannot be used on the DEHNP form (5431 Record), the OFFICE CODE/LINE cannot support the DIOR NRA and the DIOR Toll-free feature.

For the OSPSOPT form (5424 Record, View 8.9), three fields have been added to support DIOR NRA. The destination index and route index fields should be populated with the destination and route indexes to be used when routing the DIOR NRA calls to the appropriate NRA toll office. The DIOR NRA feature activation field should be set to "Y" when all the other DIOR NRA data have been populated and the feature is to be turned on.

8.7 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCNAME	5463	3	4BP	27.81
DEHOCSM	5496	3	4CW	27.14
DNRA	6400	3	4CZ	27.87
OSPSOPT	5424	3	4Y	8.9

CCNAME form (5463 Record) - This form is used to map the COUNTRY NUMBER to a 15-character country name, which is used for DIOR calls. The NRA CC field supports this feature.

DEHOCSM form (5496 Record) - This form specifies the SM (Switching Module) on which the billing treatment data is stored for DIOR calls to an 8XX number. The "NRA" value for the FEATURE field indicates the DIOR NRA feature.

DNRA form (6400 Record) - This form specifies the DIOR NRA 8XX access number, a routing number for routing the call to the NRA toll office, and up to 128 specific originating country codes that are exceptions to the default treatment. This is a new form to support the DIOR NRA feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The DIOR NRA ACT, NRA RTE IDX, and NRA DEST IDX fields support the DIOR NRA feature.

9. DIOR AUTOMATED INITIAL CALLS: RELEASE 3

9.1 Feature Description

The DIOR AIC (Automated Initial Calls) - Release 3 feature provides AP (Automated Position) handling to DIOR automated initial calls that have bailed-out from switch-based automated handling. The feature number for this capability is 98-5E-2704.

With this feature, the OSPS determines if a DIOR call is eligible for switch-based AIC handling and for DIOR AP handling, by consulting the OSPS Country Number to Country Name Mapping table on the CCNAME form (view 27.81) either on an originating country basis or on an originating country and originating local access carrier basis. For a call to be sent to an AP, AP call types have to be defined and AP handling has to be activated on the applicable trunk groups, regardless of the new DIOR per country AP controls.

The following four treatments can be specified for initial DIOR calls based on the originating country and/or the originating local carrier:

- Send call to operator position (as a DIOR 0- call).
- Send call to Automated Position (as a DIOR 0- call).
- Give call switch-based AIC handling, bail-out to operator (as a DIOR 0+ call) if customer signals for operator or times-out after forward number entry.
- Give call switch-based AIC handling, bail-out to Automated Position (as a DIOR 0+ call) if customer signals for operator or times-out after forward number entry.

If the call is not eligible for AIC handling ("non-automated" DIOR call), the switch sends the call to a position. The type of position the call will be sent to depends on the value of the DIOR AP handling for that origination. If DIOR AP handling does apply and the trunk group permits it, the call is sent to an AP. If DIOR AP handling does not apply or the trunk group does not allow APS (Automated Position System), the call is sent to an operator position.

If the call is eligible for AIC handling, the switch provides an automated forward number prompting to the call. When the caller enters a valid forward number the switch continues by prompting the caller for a card number. If a valid card is entered, the call is routed. If the caller enters a card number that results in the call receiving restriction handling such as TPR (Terminating Point Restrictions), CPS (Country Pair Screening), or Digit Analysis Failures, the call is sent to an operator regardless of the DIOR AP handling applicable to the origination. If the caller times-out or dials 0 for an operator, then the DIOR call is routed (based on this feature) to either an APS or an operator. If DIOR AP handling does not apply to the initial call and the caller signals for an operator (0/0#) or times-out, the call is sent to an operator for handling. If DIOR AP handling does apply to the initial call and the caller signals for an operator or times-out, the call is sent to an AP for handling.

9.2 Feature Assignment

Before activating this feature on the switch, the AP System Software Update package must be applied. The OSPS switch data population for this feature must be coordinated with an update of the Cluster data in the AP systems.

See Figure 4 for feature assignment form flow for the DIOR AIC R3 feature.

The following order should be followed in provisioning data for this feature to insure that call queue data exists before this feature is activated:

1. Populate the call type determination information on ACDCTP and ACDPOL forms (5412 Record, views 26.9, and 26.10) to define the AP call types for these DIOR calls.
2. Enter the AP protocol information on the OSPSOPT form (5424 Record, view 8.9), if this data has not already been populated. activate the DIOR AIC R3 feature.
3. Enter the DIOR AP handling data on the CCNAME form (5463 Record, view 27.81) for the appropriate originating country or originating country/local access carrier pair identified for this feature.
4. Activate the DIOR AIC R3 feature on the OSPSOPT form.
5. Enter the AP treatment information on the OPRTK form (5417 Record, view 26.26) for each trunk group handling these DIOR calls.

9.3 Scenario for Automated Initial DIOR Call

The caller dials a DIOR call that is set up for automated initial call handling and when prompted for a forward number, enters 0, 0# or times-out. The call is sent to the appropriate position queue (operator or automated) based on how the AP handling data is set up. If APS is allowed on the OPRTK form and if AP handling is allowed on the CCNAME form, then the call is routed to the AP call queue.

9.4 Scenario for Non-automated Initial DIOR Call

The caller dials a DIOR call that is not set up for automated initial call handling. The call is sent to the appropriate position queue (operator or automated) based on how the AP handling data is set up. If APS is not allowed on the OPRTK form or if AP handling is not allowed on the CCNAME form then the call is routed to an operator instead of an AP.

9.5 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCNAME	5463	3	4BP	27.81
OSPSOPT	5424	3	4Y	8.9

CCNAME form (5463 Record) - This form is used to map the COUNTRY NUMBER to a 15-character country name, which is used for DIOR calls. The AP QUEUE field is used to indicate whether the Automated Position queue should be used when an automated call needs to be sent to a position and the carrier is not identified on this form.

The APQ field is used to indicate whether the Automated Position queue should be used when an automated call from this carrier needs to be sent to a position. This is used whenever the CARRIER is identified.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The DIOR Automated Initial Calls Release 3 is activated by the DIOR AIC R3 field.

10. GLOSSARY

ACCS	Automated Calling Card Service
ACCSQ	Automated Calling Card Sequence
AP	Automated Position
APS	Automated Position System
AIC	Automated Initial Calls
ASN	AT&T Switched Network
ATP	AT&T Trigger Platform
CAC	Country Access Code

CC	Country Code
CCS	Common Channel Signaling
CN	Charge Number
COC	Class-Of-Charge
CPC	Card Protection Center
CPN	Called Party Number
CPS	Country Pair Screening
DDD	Direct Distance Dialing
DIOR	Direct International Origination
DTMF	Dual Tone Multifrequency
IAM	Initial Address Message
IDDD	International Direct Distance Dialing
ISC	International Switching Center
ISUP	ISDN User Part
MF	Multifrequency
NANP	North American Numbering Plan
NCP	Network Control Point
NRA	Network Remote Access
NRAI	Network Remote Access International
OLS	Originating Line Screening
OSPS	Operator Services Position System
SDN	Software Defined Network
SS	Special Screening
SM	Switching Module
TA	Telecommunication Administrations
TCA	Telephone Company Administration
TCS	Terminating Code Screening
TPR	Terminating Point Restriction

VMS Voice Messaging Service

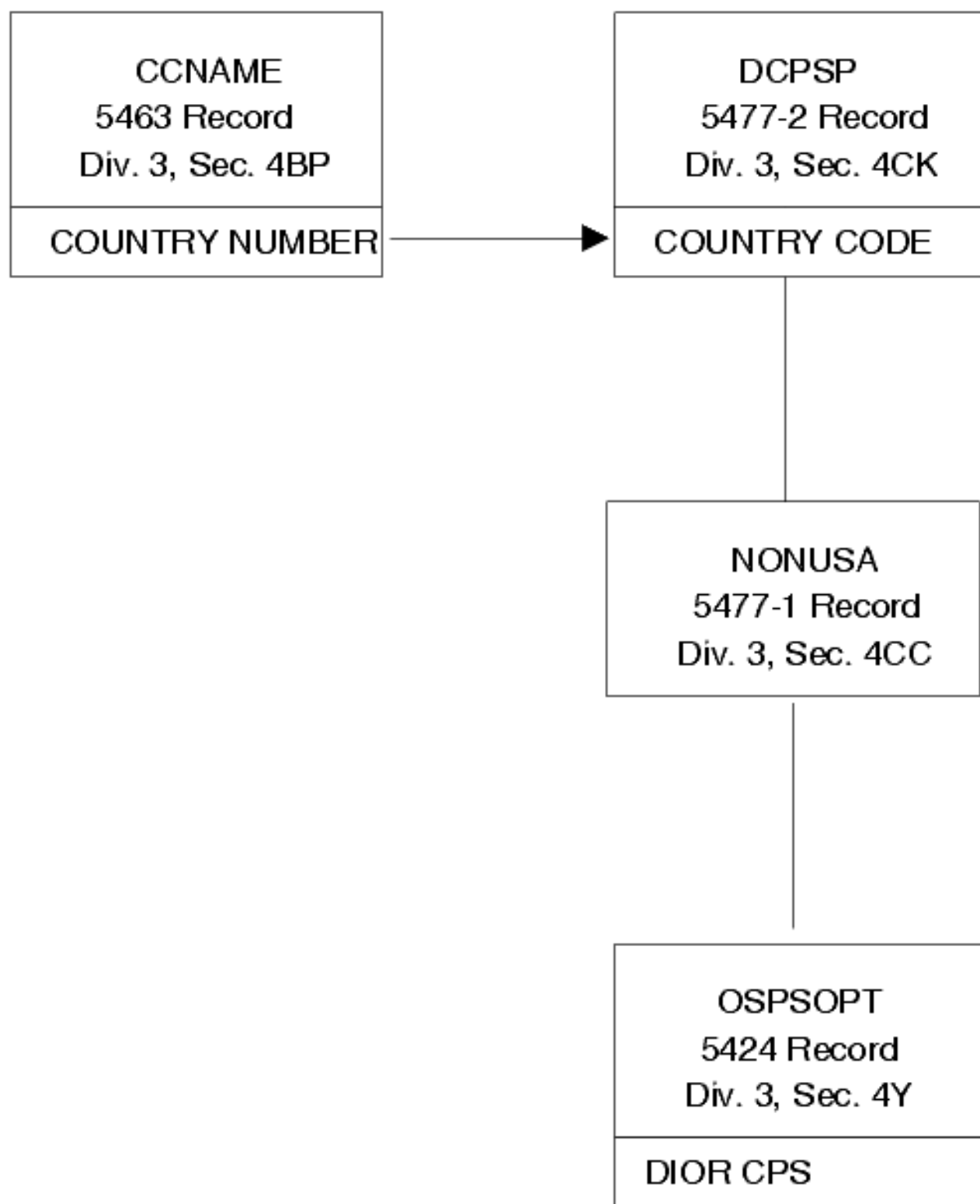


Figure 1 DIOR COUNTRY PAIRED SCREENING FORM FLOW

Feature must be active on 4ESS Switch before activating feature on the OSPS.

DIOR Pseudo code
to IDDD CAC code

CCNAME 5463 Record Div. 3, Sec. 4BP
IDDD CAC IS 809 NXX

Specify SM for
billing treatment data

DEHOCSM 5496 Record Div. 3, Sec. 4 CW

Specify billing treatment
for 800 NXX

DEHNP 5431 Record Div. 3, Sec. 4AF

Enter Announcement
HEADER IDs

ANNHD 5531 Record Div. 3, Sec. 5AE
HEADER ID OSPSTA 217 OSPSTA 218 OSPSTA 223

Activate Feature

OSPSOPT 5424 Record Div. 3, Sec. 4Y
TOLL FREE 800 = "Y"

Figure 2 DIOR TOLL FREE INTERNATIONAL 800 SERVICE FORM FLOW

Assign announcement
header IDs

ANNHD 5531 Record Div. 3, Sec. 5AE
ANNHD IDs 123 - 126

Map DIOR Pseudo
country code to NRA
country code format

CCNAME 5463 Record Div. 3, Sec. 4CW
COUNTRY NUMBER IDDD CAC _____ NRA CC _____

Assign SM that stores
800 number office code

DEHOCSM 5496 Record Div. 3, Sec. 4CK
FEATURE = "NRA" OFFICE CODE _____

Assign the Exception List
DIOR NRA toll-free
access routing number

DNRA 6400 Record Div. 3, Sec. . 4CZ
OFFICE CODE _____ CAC _____

Activate NRA feature
Assign destination and
routing indexes

OSPSOPT 5424 Record Div. 3, Sec. 4Y
DIOR NRA ACT NRA RTE IDX NRA DEST IDX

Figure 3 DIOR NRA FORM FLOW

Define AP Call Type

ACDCTP
ACDPOL
5412 Record
Div. 3, Sec. 4M

Define AP Protocol
Activate DIOR AIC R3

OSPSOPT
5424 Record
Div. 3, Sec. 4Y

DIOR AIC R3 = "Y"

Define AP Handling Information

CCNAME
5463 Record
Div. 3, Sec. 4BP

AP QUEUE
APQ

AP Handling for Trunks

OPRTK
5417 Record
Div. 3, Sec. 4R

Figure 4 DIOR AIC R3 FORM FLOW

SEC. 3N: INTERFLOW FEATURES

1. INTERFLOW

The Interflow feature is available with 5E5 and later Software Releases. The OSPS Interflow feature allows for immediate, scheduled or permanent close down of one, some or all operator serving teams at an OSPS. Call traffic requiring operator assistance that is otherwise handled by the closed serving teams is subsequently interflowed to another OSPS.

For the TA (Toll and Assistance) OSPS application, Interflow is accomplished via dedicated digital facilities called OSPS EXSLs (Extended Digital Subscriber Lines). Call completion, charging, final routing and other switch functions are carried out by the OSPS on which the call originally arrived; only service provided by the operator will be handled by the Interflow receiving OSPS. The OSPS switch from which a call is to be interflowed is referred to as the originating OSPS and the switch to which a call is to be interflowed is referred to as the receiving OSPS.

1.1 OSPS Extended Digital Subscriber Line

OSPS EDSLs are required to interflow Toll and Assistance call traffic between two OSPS switches. An OSPS EDSL is actually a T1 transmission facility on which 23 B channels (voice) and a single D channel (data) are provided. There are four types of trunk groups that must be defined for OSPS EDSLs:

- Outgoing D Channel
- Incoming D Channel
- Outgoing B Channel
- Incoming B Channel

The outgoing D channel and outgoing B channel trunk groups are defined on the originating OSPS. The incoming D channel and incoming B channel trunk groups are defined on the receiving OSPS.

If multiple OSPS EDSLs are used between two OSPS switches, then the D channel on each OSPS EDSL that connects those two switches must be assigned to the same trunk group. The B channels on each OSPS EDSL that connects those two switches must also be assigned to the same trunk group. The trunk group defined for the D channels cannot be the same as the trunk group defined for the B channels. The outgoing D channel trunk group number on the originating OSPS does not have to equal the incoming D channel trunk group number on the receiving OSPS. The same is true for the outgoing B channel trunk group and incoming B channel trunk group.

If an OSPS is interflowing to multiple OSPSs, then a unique outgoing D channel trunk group and outgoing B channel trunk group must be defined for each receiving OSPS. Conversely, if an OSPS is receiving interflow call traffic from multiple OSPSs, then a unique incoming D channel trunk group and incoming B channel trunk group must be defined for each originating OSPS.

1.2 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AUTO	5505	3	5E	14.1
TKGRP	5202	3	2A	5.1

TRKCL	5203	3	2B	5.3
TRUNK	5204	3	2C	5.5

AUTO form (5505 Record) - Automatic trunk testing by the switch may only be performed on outgoing B channel OSPS EDSL trunk groups and not on the other three interflow trunk group types. For automatic trunk testing to occur on an outgoing B channel OSPS EDSL trunk group, the ATTTN field must be set to a valid entry on the AUTO form. Testing of outgoing B channels is accomplished with the use of the ISTF (Integrated Services Test Facility), therefore, the entry used from the AUTO form must have AUTOMATIC PROGRESSION TEST TYPE set to "INV" or "NINV".

Associated with automatic trunk testing is the AML PERCENT field which specifies the percentage of trunk group members that may be removed from service without sounding an alarm or causing a craft AML message to be printed at the MCC ROP. Again, this field may only be populated for an outgoing B channel OSPS EDSL trunk group and not the other three interflow trunk group types.

TKGRP form (5202 Record) - The TKGRP form is used to define the OSPS EDSL trunk groups numbers. The TRK DIR and TRKCLS fields are used to distinguish the four types of OSPS EDSL trunk groups. The two fields should be set according to the following table. The INPULSING and OUTPULSING fields must also be set according to the table.

Refer to Figure 1 for a summary of these fields for OSPS EDSL trunk groups.

The DATA RATE field on the TKGRP form must be populated for all four types of OSPS EDSL trunk groups and must be populated consistently with the DFI MODE field on the EQDUP form so that the desired facility transmission characteristics are achieved. Figure 2 lists the transmission characteristics that result from the setting of these two parameters for both D4 framing and ESF (Extended Super Frame) transmission formats.

The remaining fields in the TKGRP form should be left blank or retain their default values for all four types of OSPS EDSL trunk groups.

TRUNK form (5204 Record) - The TRUNK form is used to define trunk group members for the OSPS EDSL trunk groups. This is accomplished by assigning the DEN (Digital Equipment Numbers) for the B and D channels to the respective B and D channel trunk groups.

Each OSPS B and D channel trunk group member should be assigned a TRANS CLS that is defined for a digital facility (i.e., TRUNK TYPE in the TRKCL form must be "DIGITAL").

The outgoing D channel trunk group members on the originating OSPS (TRK DIR = "SGNL" and TRKCLS = "IFOPER" in the TKGRP form) and the incoming D channel trunk group members on the receiving OSPS (TRK DIR = "SGNL" and TRKCLS = "IFTERM" in the TKGRP form) must be assigned an ISCN (Integrated Services Channel Number) and PSCLI (Protocol Software Change Level Indicator). These fields should remain blank for the outgoing B channel trunk group members on the originating OSPS (TRK DIR = "OUT" and TRKCLS = "IFOPER" in the TKGRP form) and for the incoming B channel trunk group members on the receiving OSPS (TRK DIR = "INC" and TRKCLS = "IFOPER" in the TKGRP form)

The PSCLI is defined to accommodate the possibility of protocol interface differences that may exist between two OSPSs executing on different software releases. This attribute is used to identify the software release of the 5ESS Switch on the far end of the OSPS Interflow link. The value entered indicates the PSCLI of the resident 5ESS Switch.

The remaining fields in the TRUNK form should be left blank or retain their default values for all four types of OSPS EDSL trunk groups.

1.3 INTERFLOW Activation/Deactivation

Interflow Activation and Deactivation allows a user to turn Interflow "on" or "off" on an immediate or scheduled basis. Activation and deactivation of Interflow may be accomplished via Recent Change only. Interflow cannot be activated or deactivated via ODA.

Interflow is activated and deactivated to a receiving OSPA Interflow switch on a serving team basis. That is, a user turns Interflow "on" or "off" for a serving team. A serving team may be activated to interflow to only one receiving OSPA switch at a time, but multiple serving teams may be activated to the same receiving OSPA switch. When a serving team is activated for Interflow, all calls that would otherwise be handled by an operator on that serving team are interflowed. If the activated serving team handles TA call traffic, then the calls will be interflowed via the OSPA EDSL to the receiving OSPA switch.

- **NOTE:** If the activated serving team handles DA, Telemarketing or Non-ISP to VDT calls, then the calls will be interflowed via rerouting the calls through the network to another operator switch. If a case exists where a serving team handles both TA and Non-ISP to VDT calls, then the TA calls will be interflowed via the OSPA EDSL and the Non-ISP to VDT calls will be interflowed via rerouting calls out over trunks to the network. For additional information on the interflow of non-TA calls, refer to the DIRECTORY ASSISTANCE OFFICES, Division 2, Section 3B and/or the ACD/MIS TELEMARKETING SERVICES, Division 2, Section 3D.

1.4 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9
STINFO	5402	3	4C	21.2

Since activation and deactivation of Interflow can be accomplished only via Recent Change Views 21.7, 21.8 and 21.16, there are no ODA input forms to activate or deactivate Interflow. The following sections describe how to activate and deactivate Interflow via Recent Change.

1.5 Scheduled INTERFLOW Activation/Deactivation

OSPSOPT form (5424 Record) - The SCHED IFLOW field indicates if the the INTERFLOW feature is activated. The Q DRN TIME parameter on the OPSOPT form is used only when interflow has been scheduled for activation. Interflow can be scheduled for activation on quarter hour boundaries via Recent Change Views 21.16 and 21.8. Q DRN TIME specifies the number of minutes prior to the scheduled quarter hour when interflow activations are to occur. For example, if interflow is scheduled to be activated at 8:15 AM and Q DRN TIME is set to 3 (minutes), then the activation will actually occur at 8:12 AM. This parameter was defined because once interflow is activated for a serving team, all newly arriving calls will be interflowed and calls that were queued will not be interflowed and, therefore, must be served on the initial OSPA switch. If an administrator wishes to not have any operators handling calls at or near to the scheduled quarter hour, then Q DRN TIME should be set to nonzero. If Q DRN TIME is set to zero, then operators must stay logged in past the scheduled quarter so that the calls that were queued at the time of activation will be served.

The OSPA ID field on the OPSOPT form identifies the originating OSPA switch. These OSPA IDs should be selected such that OSPA switches within the same interflow network are unique. The OSPA ID is used when reporting the occurrence of Interflow activations and deactivations at the OAP (OSPA Administrative Processors) at both the originating and receiving Interflow switches. These reports always indicate the OSPA ID of the switch which initiated the activation or deactivation.

RC Views 21.16, OSPA Automatic Reconfiguration Time and 21.8, OSPA Scheduled Interflow Activation and Deactivation, are used to schedule Interflow activations and deactivations. RC View 21.16 defines an

auto-reconfiguration pattern in terms of a PAT ID and the time that the pattern should take effect. Patterns may be scheduled to take effect either on an hour boundary or 15, 30 or 45 minute quarter hour boundary for a given forcing day.

Activation/deactivation data is entered into the pattern with RC View 21.8. This view is constructed such that the user specifies for a particular Interflow receiving switch (i.e., the DEST ID field) which serving teams should be activated or deactivated. The OSPS ID of the receiving OSPS should be entered in the DEST ID field.

If Interflow is to be activated for a serving team, an "A" is entered on the field corresponding to the serving team number. Conversely, a "D" is entered if Interflow is to be deactivated for a serving team. A serving team's scheduled status may be deleted by updating an "A" or "D" to "blank". A blank entry indicates that the associated serving team is neither activated or deactivated by this pattern when this pattern takes effect.

1.6 Immediate INTERFLOW Activation/Deactivation

OSPSOPT form (5424 Record) - As for scheduled activations and deactivations, the OSPS ID field on the OPSOPT form identifies the originating OSPS switch. It is used when reporting the occurrence of Interflow activations and deactivations at the OSPS Administrative Processors at both the originating and receiving Interflow switches.

RC View 21.7, OSPS Immediate Interflow Activation and Deactivation, is used to immediately (manually) activate/deactivate Interflow. This view is constructed such that serving teams can be activated or deactivated for a particular receiving Interflow OSPS switch as specified by the DEST ID field. The OSPS ID of the receiving OSPS should be entered in the DEST ID field. An "A" should be entered for each serving team that is to be activated and a "D" for those that are to be deactivated. The Interflow activations and deactivations take place immediately upon completion of the RC UPDATE operation.

STINFO Form (5402 Record) - The NON ISP AND TA and NON ISP ONLY fields are used to inform the Interflow activation/deactivation process whether Interflow must be activated/deactivated for a TA serving team that handles only T&A call traffic (NON ISP AND TA = "N" and NON ISP ONLY = "N"), a TA serving team that handles only Non-ISP call traffic (NON ISP AND TA = "N" and NON ISP ONLY = "Y") or a TA serving team that handles both NON ISP and TA call traffic (NON ISP AND TA = "Y" and NON ISP ONLY = "N"). This is necessary since TA call traffic is interflowed via dedicated digital facilities, i.e., OSPS EDSLs and NON ISP call traffic is interflowed via reroute through the network.

NOTE: For additional information on the interflow of non-TA calls, refer to the DIRECTORY ASSISTANCE OFFICES, Division 2, Section 3B and/or the ACD/MIS TELEMARKETING SERVICES, Division 2, Section 3D.

A TA serving team which handles only NON ISP call traffic, i.e., NON ISP ONLY = "Y", must be assigned to call queues defined to receive DA to VDT or NON ISP to VDT calls. That is, if a serving team on a STINFO form has NON ISP ONLY set to "Y", then the serving team must only be assigned to a call type on the OSPSCT form which is used on the ACDCTP form with CALL ORIGIN equal to "DA2VDT" or "NIT".

1.7 INTERFLOW Software Compatibility

The Interflow feature provides software compatibility between two OSPS that are executing on different software releases or different software issues within the same software release. This is accomplished by having each OSPS identify the software release issue that it is executing in what is called an OSPS Translation ID.

1.8 Translation Requirements

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
INFLTRID	5453	3	4BB	27.50
OSPSOPT	5424	3	4Y	8.9

INFLTRID form (5453 Record) - Each switch checks the INFLTRID form to ensure Interflow compatibility exist between the two switches. The INFLTRID form contains a list of interflow translation IDs that the resident switch has compatibility with. The existence of compatibility ensures that the application software on the two Interflow switches are able to compensate for any possible changes that may be made in the software interface.

OSPSOPT form (5424 Record) - The IFTRANSID field in the OPSOPT form is assigned a value that identifies the Translation ID of the resident OSPS switch. During the initialization of the OSPS EDSLs between two cooperating Interflow OSPS switches, the value of IFTRANSID is exchanged between the two switches.

1.9 ACD For INTERFLOW Calls

Interflow for Toll and Assistance is conducted over OSPS EDSLs connecting to two OSPS switches. The OSPS switch from which a call is to be interflowed is referred to as the originating OSPS and the switch to which a call is to be interflowed is referred to as the receiving OSPS. The ACD on both the originating and receiving OSPS switches are involved in routing an interflow call to an operator for assistance.

1.10 Translation Requirements

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ACDCTP	5412-A/D	3	4M	26.9
ACDPOL	5412-B/C/E/F	3	4M	26.10
INFLTADP	5452	3	4BA	27.52
INFLTAP	5451	3	4AZ	27.51
OSPSOP	5401	3	4B	21.32
OSPSOPT	5424	3	4Y	8.9
TKGRP	5202	3	2A	5.1

ACDCTP/ACDPOL forms (5412 Record) - The ACDCTP/ACDPOL forms are used to assign call type information for the OSPS ACD feature. When a call is interflowed to the receiving switch, the sending switch's FIOPR TGN number is used by the receiving switch for expanded call type determination.

If the receiving switch has an FIOPR TGN with the same TGN number as the sending switch, a conflict may result unless precautions are made. The following will prevent problems when the OSPS APS (Automated Position System) is added to any OSPS switch.

To resolve this conflict, the receiving switch should use the fifth key to ACDCTP form, which is the OSPS ID field. If the OSPS ID field is NOT 000, i.e., it is the OSPS ID of the sending switch, then all calls from that sending switch that match the other four keys will be controlled by the entries on the record on the receiving switch. This information can then be used to match up to a PRE CALL ID that does not use the conflicting TGN number. PRE CALL ID is on the ACDCTP form, and it is the key to the ACDPOL form.

In addition, if the OSPS ID field is 000 on the receiving switch and if there is a matching OSPS ID entry for each sending Office, then all non-interflowed calls (calls that originate on the receiving switch) that match the other four keys will be controlled by the entries in this record on the receiving switch.

INFLTADP form (5452 Record) - On the originating OSPS, the INFLTADP form contains a list of OSPS switches to which calls may be interflowed. The list consists of two switch identifiers; one is a four-digit ID and the other is a four alphanumeric character ID. Also listed are the B and D channel trunk groups assigned to the OSPS EDSLs that connect the originating OSPS to the associated receiving OSPS. Each entry in the INFLTADP form essentially defines a pseudo serving team for the ACD to route calls to. Each OSPS EDSL B channel trunk group appears to the ACD on the originating switch as just another serving team, the members of which are the members of the B channel trunk group. The D channel trunk group identifies the trunk group to be used by call processing when transmitting data information between the two OSPS switches. These trunk groups must be valid trunk groups defined on a TKGRP form for the originating OSPS.

INFLTAP form (5451 Record) - The OSPS ID received at the receiving OSPS must exist on an INFLTAP form on the receiving OSPS. This form maintains a list of OSPS switches from which interflowed calls may be received. Listed for each originating OSPS are a four-digit ID, a four alphanumeric character ID and the OSPS EDSL B and D channel trunk groups. These trunk groups must be valid trunk groups defined on a TKGRP form for the receiving OSPS.

The ACD on the receiving switch routes interflowed calls to operator positions similar to the way that it routes non-interflowed calls. The only difference is in call type determination. As previously stated, the OSPS ID of the originating OSPS may be used in determining the call type. Also, the incoming trunk group number may be used in determining the call type for an interflowed call. The incoming trunk group number used is with respect to the originating OSPS, not the receiving OSPS, i.e., it is the trunk group number of the trunk on which the call initially arrived on the originating OSPS.

The ACD on the receiving switch also ensures that interflowed calls are not interflowed again, i.e., double interflow is not allowed. Calls for which double interflow occurs will be given reorder tone and a Double Interflow message will be printed at the OAPs.

OSPSOP form (5401 Record) - Since the ACD on the originating switch treats OSPS EDSL B channel trunk groups as pseudo serving teams, then each B channel trunk group member port must appear to the ACD as a pseudo operator position port. This is accomplished via the OPSOP form. On that form, each B channel DEN (Digital Equipment Number) is mapped to a receiving OSPS ID that must exist on a INFLTADP form.

OSPSOPT form (5424 Record) - The OSPS ID field in the OPSOPT form is a four-digit identifier used to identify the originating OSPS. The originating OSPS uses the value of this field in reporting Interflow activations and deactivations at the OAPs. The value of this field is sent to the receiving OSPS with each call that is interflowed. The receiving OSPS uses the OSPS ID to generate interflow traffic measurements on a per originating OSPS basis and to report interflow activations and deactivations at the OAPs. It may also be (but does not have to be) used in determining a call type for an interflowed call at the receiving OSPS. This is accomplished via the OSPS ID field on an ACDCTP form.

The IFNAME field in the OPSOPT form is a four alphanumeric character identifier which is also sent to the receiving OSPS with each call that is interflowed. It is displayed to the operator when an interflow call seizes an operator position.

1.11 Directory Assistance, Non-ISP To VDT And Telemarketing Services

For information on ACD for interflow of non-TA calls, refer to the DIRECTORY ASSISTANCE, Division 2, Section 3B and/or the ACD/MIS TELEMARKETING SERVICES, Division 2, Section 3D.

1.12 Interaction with INTRAFLOW

A serving team that has Interflow (or rerouting for non-TA calls) activated is not eligible to receive intraflowed traffic. A queue whose principal team is being interflowed or interflowed via rerouting may be intraflowed to a

supporting team whose delay outflow threshold is zero. If an Interflow channel is not found and no supporting team server is found, the call will fail because queuing is not allowed for teams which are interflowed or rerouted.

2. INTERFLOW: EXPANDING THE NUMBER OF TRUNKS GROUPS

This feature increases the number of incoming Interflow connections from 16 to 100. An OSPS receiving site can handle Interflow traffic from up to 100 different OSPS sending sites. The number of outgoing Interflow connections was not increased. The AT&T feature number for this capability is 98-5E-2858.

This is a secured feature, SFID 394 (or SFID 288). For more information on this feature, see Division 2, Section 4A394.

OSPS TRUNK TYPE	TRK DIR	TRK CLASS	INPULSING	OUTPULSING
Outgoing D Channel	SGNL	IFOPER	DCHN	DCHN
Outgoing B Channel	OUT	IFOPER		DCHN
Incoming D Channel	SGNL	IFTERM	DCHN	DCHN
Incoming B Channel	INC	IFTERM	DCHN	

Figure 1 OSPS EDLS TRUNK CHARACTERISTICS

D4 FRAMING FORMAT		
DFI MODE	DATA RATE	TRANSMISSION CHARACTERISTICS
D4	56K	56 kb/s, noninverted, ZCS (Zero Code Suppression)
D464	R64K	64 kb/s, restricted channel, inverted, B8ZS (Bipolar 8-bit Zero Suppression)
64K	64K	64 kb/s, clear channel, noninverted, B8ZS

EXTENDED SUPER FRAME FORMAT		
DFI MODE	DATA RATE	TRANSMISSION CHARACTERISTICS
FEB7	56K	56 kb/s, noninverted, ZCS
FE64	R64K	64 kb/s, restricted channel, inverted, ZCS
FE8Z	64K	64 kb/s, clear channel, noninverted, B8ZS

Figure 2 OSPS EDSL TRUNK TRANSMISSION CHARACTERISTICS

SEC. 4: SPECIAL FEATURES AND TRANSPARENCY FEATURES

SEC. 4A: SECURED FEATURES

SEC. 4A0: SECURED FEATURES DESCRIPTION

1. SECURED FEATURE DESCRIPTION

Secured features are the optional service features that can be purchased in addition to the features included in the current Software Release. The secured features must be enabled by a Lucent Technologies SEE (System Equipment Engineer). Once the SEE determines through the TEO (Telephone Equipment Order) that secured features have been purchased by the customer, the SEE enables those features either through 5ODA for 5E5 and later Software Releases or through Recent Change for earlier Software Releases.

For a new 5ESS Switch office, 5ODA enables the secured features that the office has purchased. The Lucent Technologies SEE populates the SFSYS form (5713-1 Record), thereby enabling access to the secured features that the office has purchased. The SFSYS form is available only to Lucent Technologies. Customers cannot enable secured features. Once Lucent Technologies has enabled the feature, the customer can then populate the 5ODA forms which assign the specific secured feature. For example, to activate the ERCO (Executive Ringer Cutoff) secured feature, the Lucent Technologies SEE enables ERCO on the SFSYS form. Refer to Division 3, Section 5AR. Once the ERCO feature is enabled, it can be assigned to a line on the DSLUSR form (5908 Record) and assigned to a Button on a key set on the CFGGRP form (5964 Record).

During retrofits, 5ODA preserves the current values of the secured features from the database and evolves the values to the new Software Release.

1.1 Increase Secured Feature ID's

For 5E13 and later, the Increase Secured Feature ID's feature increased the SFID (Secured Feature ID) number fields from 500 to 996. The feature number for this feature is 97-5E-4652.

2. SECURED FEATURE ACTIVATION

2.1 Background

Prior to the Secured Feature Activation feature, a customer had to contact the Regional Engineer to activate a SFID (Secured Feature Identification) in the 5ESS Switch. The Regional Engineer executes SFAC (Secured Feature Activation) using the MAP X, MAP Y, MAP Z (Office ID), and the appropriate MAP list rows from the switch's Recent Change View 8.22. This results in a generated password which is valid for 2.5 hours. The customer then activates the SFID on Recent Change View 8.22 with the data generated from SFAC.

2.2 Feature Description

The Secured Feature Activation feature (99-5E-7035) is being deployed for the BMI (Beginning Managed Introduction) of the 5E15 Software Release.

This feature provides an efficient and easy to use procedure to speed-up the secured feature application process when a company buys a feature for all of their switches. It also gives them unlimited time to activate the purchased feature. The process allows activation of an SFID using a single Company Password (COPASSWD) in multiple offices rather than having to activate each office with an individual Password (PASSWD). Two new fields are added to RC View 8.22, MAP Z which is the Company ID and COPASSWD, which is the generated password. The Company Identification Code is treated in a manner similar to the Office ID. The Company ID is determined by the customer and updated using ODBE (Office Data Base Editor). Refer to the 235-105-210 Routine Operations and Maintenance Procedures for the procedure to update the

Company ID. When a customer wants to activate a SFID that they have purchased for all of their switches, the MAP Z value is used on Recent Change View 8.22. The Regional Engineer executes SFAC and requests the values for MAP X, MAP Y, MAP Z and the SFID that is being activated. SFAC generates a company password that is valid for all customer switches when the Company ID is used. The customer is then responsible to distribute the generated password to their switches.

The password for individual Secured Feature Activation is not affected by the addition of the company password.

2.3 Feature Assignment

To provision this feature, set the COMPANY ID field on the OFCOPT form. The Lucent Technologies Secured Feature Administrator has to be contacted for assistance in the update operation.

2.4 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
OFCOPT	5509	3	5I	8.1

OFCOPT form (5509 Record) - The OFCOPT form (5509 Record) is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. A new field, COMPANY ID, is added for 5E15 and later.

3. SECURED FEATURES TABLES

Information on secured features is documented in the TG-5 as follows:

Division 2, Section 4A contains a listing (index) by feature number and by feature name.

Division 2, Section 4A0 provides a numerical list which contains software release information (see Figure 1). The SOFTWARE UPDATE/FEATURE RELEASE column provides the SU or FR number associated with the feature. The INFO SOFTWARE UPDATE/FEATURE column provides the number used to access the feature description using SCANS (Software Change Administration and Notification System). In addition to SCANS, these Informational Software Updates can also be accessed in the 5ESS Switch electronic media documentation. They are located on the menu for 5ESS Switch documentation on-line or on CD-ROM.

Each secured feature is described in Division 2, Section 4A, identified by its SFID. For example, CPNP (Calling Party Number Presentation) has SFID 50 and is documented in D2S4A50 (Division 2, Section 4A50).

FEATURE NAME	SFID	SOFTWARE RELEASE	SOFTWARE UPDATE / FEATURE RELEASE	INFO SOFTWARE UPDATE / FEATURE RELEASE
MDNL (Multiple Directory Numbers per Line)	1	5E4(2) 5E5 5E6	SU 880057 GA GA	SU 880096 GA GA
OSPS 0-/0+ Rate Differential	2	5E4(2) 5E5 5E6	SU 880104 GA GA	SU 890035 GA GA

VPATH 7/10 Digit Outpulsing	3	5E4(2) 5E5 5E6	SU 890044 GA GA	SU 890071 GA GA
OSPS DA And C-ACD Full Monitoring Path (Open Mike)	4	5E4(2) 5E5 5E6	SU 890070 GA GA	SU 890063 GA GA
ANI (Automatic Number Identification) Over Private Facilities	5	5E4(2) 5E5 5E6 5E7	SU 900067 SU 900081 SU 900054 GA	SU 900057 SU 900071 SU 900036 GA
CST (Circuit Switched Trunk)	6	5E4(2) 5E5 5E6	SU 890127 SU 890060 GA	SU 890119 SU 890045 GA
SIC (Service Indicator Code) Expansion	7	5E4(2) 5E5 5E6 5E7	SU 910004 SU 910006 SU 910004 GA	SU 900056 SU 900106 SU 900044 GA
108 Test Line	8	5E6 5E7 5E8	SU 920060 SU 920096 GA	SU 920056 SU 920080 GA
CICP (Carrier Identification Code Parameter)	9	5E8 5E9(1) 5E9(2)	SU 940015 SU 940026 GA	SU 940016 SU 940062 GA
LDP Enhanced DAL (Data Access Link)	10	5E15	GA	GA
EAOSS (Exchange Access Operator Services System) Signaling for Operator Service Calls	11	5E8 5E9(1) 5E9(2)	SU 930045 SU 940006 GA	SU 930079 SU 940013 GA
DC-ACVT (Direct Connect) Capability through the ISDN ACVT (Attendant Control of Voice Terminals) feature for analog lines)	12	5E8 5E9(1)	SU 930033 GA	SU 930050 GA
SCD (Selective Carrier Denial)	13	5E5 5E6	GA GA	GA GA
Executive Ringer Cutoff	14	5E5 5E6	SU 890021 GA	SU 890014 GA
OSPS Custom Toll and Assistance Branding	15	5E5 5E6	GA GA	GA GA
OSPS/ACD C-ACD Direct Agent Access	16	5E5 5E6	SU 900074 GA	SU 900066 GA
OSPS 10XXX Unblocking Fraud Prevention	17	5E5 5E6	SU 900065 GA	SU 900049 GA
TGSR for ISUP Trunks	18	5E5 5E6 5E7	SU 900110 SU 900048 GA	SU 900086 SU 900010 GA
Pre-Compliant FGB CIC Expansion	19	5E6 5E7 5E8	SU 900048 GA GA	SU 900035 GA GA
OSPS C-ACD Alternated External Dialing	20	5E5 5E6 5E7	SU 900085 SU 900031 GA	SU 900077 SU 900027 GA
OSO AMA Recording For ANI Delivery	21	5E5 5E6 5E7	SU 900129 SU 900066 GA	SU 900098 SU 900046 GA
OSPS 891 Format Credit Card Service	22	5E5 5E6 5E7	SU 900130 SU 910072 NA	SU 900128 - NA
OSPS Virtual Card	23	5E8 5E9(1)	SU 930035 GA	SU 930053 GA

OSPS Purchase Limits Balance Quotation - Phase 1	24	5E8 5E9(1)	SU 930039 GA	SU 930063 GA
TRS (OSPS Telephone Relay Service Call Handling)	25	5E8 5E9(1)	SU 930033 GA	SU 930048 GA
OSPS BNS (Billed Number Screening) Fraud Control	26	5E8 5E9(1)	SU 930027 GA	SU 930045 GA
Forced Calling Number Privacy on CCS Trunks	27	5E6 5E7 5E8 5E9(1)	SU 930003 SU 930005 SU 930007 GA	SU 930003 SU 930003 SU 930009 GA
800 Post Dial Delay MF Signaling Transmission Reduction (for End Office)	28	5E6 5E7 5E8 5E9(1)	SU 930002 SU 930004 SU 920019 GA	SU 920093 SU 920136 SU 920138 SU 920025 SU 920043 GA
800 Post Dial Delay MF Signaling Response Reduction (for Access Tandem Office)	29	5E6 5E7 5E8 5E9(1)	SU 930002 SU 930004 SU 920019 GA	SU 920093 SU 920136 SU 920026 SU 920044 GA
MCLD (Modified Called Line Disconnect) Enhancement	30	5E8	GA	GA
OSPS Interworking with SSP 800	31	5E6 5E7 5E8	SU 920060 SU 920096 GA	SU 920055 SU 920079 GA
AM Based Protocol Monitoring Translator	32	5E6 5E7 5E8	SU 920035 SU 920064 GA	SU 920034 SU 920046 GA
AR/AC with Privacy Number ID for AMA (Return Call AMA)	33	5E6 5E7 5E8	SU 920004 SU 920005 GA	SU 910159 SU 910023 GA
Proportionate Bidding	34	5E6 5E7 5E8	SU 920027 SU 920104 GA	SU 920006 SU 920066 GA
OSPS Position Release of NPA-131 Calls	35	5E6 5E7	SU 910095 GA	SU 910093 GA
LASS Validation and Screening for NPA Split	36	5E6 5E7 5E8	SU 910133 SU 910033 GA	SU 910114 SU 910019 GA
Multi-Distinctive Ringing II / Enhanced MDNL (Depends on SFID 1, see Division 2, Section 4A1)	37	5E6	GA	GA
Flexible ANI	38	5E6	GA	GA
Enhanced INWATS-Type AMA Records	39	5E6	GA	GA
Calling Name Delivery Phase 0	40	5E6 5E7 5E8	SU 910142 SU 920005 GA	SU 910112 SU 910020 -
Calling Name Delivery Phase 2	40	5E7 5E8	SU 920105 GA	SU 920087 -
Calling Name Delivery Phase 2.1	40	5E8 5E9(1)	SU 930010 GA	SU 920029 GA
OSPS C-ACD Call Interaction Interface of Inbound Call Management (Call Vectoring Command PROMPT)	41	5E6	GA	GA
OSPS C-ACD Conference And Transfer For Outgoing TM/TS Calls	42	5E6 5E7	SU 910007 GA	SU 910005 GA
Limited 2-Level COT/AC (Customer Originating	43	5E6	SU 910014	SU 910011

Trace/Automatic Callback)		not 5E7	NA	NA
ITSE (Incoming Trunk Service Evaluation)	44	5E6	SU 900054	SU 900035
		5E7	GA	GA
OSPS Automated Operator	45	5E6	SU 910022	NONE
		5E7	GA	GA
OSPS ANI II Digit Treatment	46	5E6	SU 900073	SU 900061
		5E7	GA	GA
UCR (Unidentified Call Rejection)	47			
- Base		5E5	SU 910089	SU 910084
- Base		5E6*	SU 910052	SU 910042
- Dial Code Activation of UCR		5E6	SU 910063	SU 910162
- UCR Announcement for Dial Code		5E6	SU 920004	SU 910156
- Base		5E7	SU 920035	SU 910018
POLIN (Privacy Option For Last Incoming Number)	48	5E6	SU 910004	SU 910003
		5E7	GA	GA
Remove ISDN COT Agency	49	5E6	SU 910052	SU 910043
		5E7	GA	GA
CPNP (Calling Party Number Presentation)	50	5E6	SU 910100	SU 910083
		5E7	GA	GA
ASP Feature Release 0.1A (ASP Enhancement)	51	5E6	SU 920027	SU 910155
(Depends on SFID 58, see Division 2, Section 4A58)		5E7	SU 920052	SU 910017
		5E8	GA	GA
OSPS ANI Forwarding	52	5E6	SU 900073	SU 900060
		5E7	GA	GA
Operator Line Verification Interaction With Call Forwarding Busy Line	53	5E6	SU 910052	SU 910041
		5E7	GA	GA
OSPS Emergency Interrupt AMA	54	5E6	SU 910032	SU 910021
		5E7	GA	GA
OSPS Feature Group B Prepay Coin Access Charge Recording	55	5E6	SU 910032	SU 910023
		5E7	GA	GA
OSPS Missing LIDB Data Call Handling Modifications	56	5E6	SU 910050	SU 910035
		5E7	GA	GA
OSPS Unblock 900 For Rate Quotes	57	5E6	SU 910050	SU 910034
		5E7	GA	GA
ASP Base Feature Lock	58	5E6	SU 910077	SU 910060
		5E7	GA	GA
IDDD Routing via SFG	59	5E6	SU 910077	SU 910062
		5E7	GA	GA
Metro Hub	60	5E6	SU 910092	SU 910084
		5E7	GA	GA
E911 (Enhanced 911)	61	5E7	GA	GA
CFDA (Call Forward Don't Answer) after Call Waiting	62	5E7	GA	GA
CLSS (Calling Line Side Supervision)	63	5E7	GA	GA
Music On Hold	64	5E7	SU 920085	SU 920084
		5E8	GA	GA
OSPS Automated Position Call Type Determination	65	5E7	GA	GA
OSPS Automated Sequence Dialing Following Operator Release	66	5E7	GA	GA
OSPS OAP 15 Minute Traffic Report MECH Usage Data	67	5E7	GA	GA
OSPS OAP 24 Hour Traffic Report MECH Usage Data	68	5E7	GA	GA
OSPS Specialized Handling for 700 Calls	69	5E7	GA	SU 920032
CLAMA (Coin Line Automatic Message Counting)	70	5E7	GA	SU 920040
Transfer From ARU to ACD	71	5E7	SU 920035	SU 910030
		5E8	GA	GA
5E8 Base Lock for ISTF	72	5E7	GA	GA
		5E8	GA	GA
OSPS Real Time Rating Improvements for DACC	73	5E7	GA	GA

PBX Trunk Access to OSPS	74	5E7	GA	SU 920011
OSPS OLS Before DACC Prompt	75	5E7	GA	GA
OSPS OLS - Alternate Routing	76	5E7	SU 920019	SU 920011
		5E8	GA	GA
OSPS Block 900 Calls for 10+4 Cards	77	5E7	SU 920019	SU 920011
		5E8	GA	GA
OSPS Completion of Inter-LATA calls Accessing	78	5E7	SU 920057	SU 920050
Directory Assistance		5E8	GA	GA
OSPS ACCS for 0+800 Calls From Wireless Service	79	5E7	SU 920081	SU 920074
Providers		5E8	GA	GA
Intra-Switch Analog Line Transfer	80	5E7	SU 920131	SU 920015
		5E8	SU 930006	SU 920102
		5E9(1)	GA	GA
OSPS LIDB - Change Handling of Indeterminate	81	5E7	SU 920096	SU 920092
Reply Codes		5E8	GA	GA
OSPS ACQS Rate Distinction Based on Quote	82	5E8	SU 930027	SU 930039
Delivery		5E9(1)	GA	GA
OSPS Feature Group D Incoming Signaling for	83	5E8	SU 930027	SU 930043
Special Applications		5E9(1)	GA	GA
OSPS Alternate Access to Language Specific	84	5E8	SU 930010	SU 930013
Operator Services		5E9(1)	GA	GA
OSPS FTS/NRA	85	5E8	SU 930012	SU 930025
		5E9(1)	GA	GA
OSPS EABS (Exchange Alternate Billing Services)	86	5E8	SU 930008	SU 930010
Alternate Routing		5E9(1)	GA	GA
OSPS Volt Delta DA Interface	87	5E8	SU 930008	SU 930006
		5E9(1)	NA	NA
Circuit Switched Trunk Enhancement	88	5E8	SU 930010	SU 930020
(Depends on SFID 6, see Division 2, Section 4A6)		5E9(1)	GA	GA
OSPS Specialized Handling for 700 Calls Release	89	5E8	SU 930010	SU 930012
2.1		5E9(1)	GA	GA
OSPS Subaccount Billing - ANI Screening	90	5E7	SU 920096	SU 920088
		5E8	GA	GA
Call Waiting with Distinctive Tones/Ringing for Long	91	5E8	GA	GA
Distance Calls				
Bridging Onto Conference Call, Multiple Bridgers,	92	5E8	GA	GA
RHR of Cong. Call				
Advanced Service Interface Proxy	93	5E8	SU 930015	SU 930001
		5E9(1)	GA	GA
OSPS MECH Zip Tone	94	5E8	GA	GA
OSPS Independent Company, Announcement	95	5E8	GA	GA
Branding				
OSPS OLS - Customized Market Announcements	96	5E8	GA	GA
OSPS Original Line Number Screening Before DACC	97	5E8	GA	GA
- Phase 2				
OSPS Purchase Limits - Alert Tone Prior to	98	5E8	GA	GA
Disconnect				
OSPS Originating Station Class for DA Call	99	5E7	SU 920083	-
Completion		5E8	GA	GA
OSPS VMS Service Code Measurements	100	5E8	SU 920015	SU 920031
		5E9(1)	GA	GA
OSPS International Billed Number Screening	101	5E8	SU 920015	SU 920028
		5E9(1)	GA	GA
OSPS 0- Transfer Over Feature Group D Trunks	102	5E8	SU 920020	SU 920040
		5E9(1)	GA	GA
AP (Applications Processor) Link Diversification	103	5E8	GA	GA
AMA - Recording of Calls from Wireless Service	104	5E8	SU 930006	SU 930002
Providers		5E9(1)	GA	GA
CENTREX PRI (Primary Rate Interface)	105	5E8	SU 930037	SU 930047
Enhancements		5E9(1)	GA	GA

(Depends on SFID 60, see Division 2, Section 4A60)				
Usage-Sensitive Three-Way Calling	106	5E8 5E9(1)	SU 940001 GA	SU 930058 GA
OSPS AIBNS (Automated Inward Billed Number Screening)	107	5E8 5E9(1)	SU 930008 GA	SU 930004 GA
Dual ESA for E911	108	5E8 5E9(1)	SU 920020 GA	SU 920017 GA
ALIC-5 (Analog Line to Integrated Carrier on the 5ESS Switch)	109	5E8 5E9(1)	SU 930010 GA	SU 920049 GA
OSPS CICADA (Completion of Calls Accessing Inter-LATA Directory Assistance II Block/Unblock 809 (Depends on SFID 78, see Division 2, Section 4A78)	110	5E8 5E9(1)	SU 930008 GA	SU 930007 GA
AC (Automatic Callback) Blocked to Private Number	111	5E8 5E9(1)	SU 930012 GA	SU 930015 GA
OSPS AMA Identification of 800 Access Calls	112	5E8 5E9(1)	SU 930019 GA	SU 930030 GA
OSPS Intraflow to Interflow Call Handling	113	5E8 5E9(1)	SU 930024 GA	SU 930040 GA
ISDN PSAP (Public Safety Answering Point) (Depends on SFID 61, see Division 2, Section 4A61)	114	5E8 5E9(1) 5E9(2)	SU 940012 SU 940011 GA	SU 940008 SU 940022 GA
OSPS CICADA Mute Back to Connect Operator (Depends on SFID 78, see Division 2, Section 4A78)	115	5E8 5E9(1)	SU 930015 GA	SU 930022 GA
CPN (Calling Party Number) Delivery on E911 Calls (Depends on SFID 61, see Division 2, Section 4A61)	116	5E8 5E9(1) 5E9(2)	SU 940012 SU 940011 GA	SU 940008 SU 940020 GA
OSPS Enhancements to DA and DACC for Wireless Users	117	5E8 5E9(1) 5E9(2)	SU 930045 SU 940006 GA	SU 930077 SU 940005 GA
15A Announcement	118	5E9(1) 5E9(2)	SU 940024 GA	SU 940068 GA
Alternate Language LASS Announcement	119	5E8 5E9(1) 5E9(2)	SU 940007 SU 940023 GA	SU 940001 SU 940010 GA
Originating AR/AC Destination Point Code	120	5E14	SU	SU
ACD (Automatic Call Distributor/BRCS DN Provisioning)	121	5E9(1)	GA	GA
ACD (Automatic Call Distributor/BRCS Position Provisioning (Depends on SFID 121, see Division 2, Section 4A121)	122	5E9(1)	GA	GA
ACD (Automatic Call Distributor/BRCS Agent Login (Depends on SFID 122, see Division 2, Section 4A122)	123	5E9(1)	GA	GA
Call Park	124	5E9(1)	GA	GA
Fractional DS1 Switching - N x DS0	125	5E9(1)	GA	GA
ASP (Advanced Service Platform) Release 0.1B (Depends on SFID 51, see Division 2, Section 4A51)	126	5E9(1)	GA	GA
AMATRC (AMA Trace) Enhancements	127	5E9(1)	GA	GA
AMA Capabilities for Type 2A Cellular Interconnections	128	5E9(1)	GA	GA
Software Update Process Automation	129	5E9(1)	GA	GA
Digital Cellular Switch (Digital AMPS TDMA)	130	5E9(1)	SU 930005	-

		5E9(2)	GA	GA
ELINK (E-Link Access and Alternate A-Link Set Routing)	131	5E9(1)	GA	GA
FPCR (Full Point Code Routing)	132	5E9(1)	GA	GA
CIDCW (Calling Identity Delivery on Call Waiting) (Depends on SFID 140, see Division 2, Section 4A140)	133	5E9(1) 5E9(2)	SU 940017 GA	SU 940024 GA
ATTS (Automatic Trunk Test Scheduler)	134	5E9(1)	GA	GA
ASP Distinctive Ringing (Depends on SFID 126, see Division 2, Section 4A126)	135	5E9(1) 5E9(2)	SU 940020 GA	SU 940069 GA
ASP Default Routing for Termination Attempt Triggers (Depends on SFID 126, see Division 2, Section 4A126)	136	5E9(1) 5E9(2)	SU 940020 GA	SU 940045 GA
ASP BRCS OHD Interworking (Depends on SFID 126, see Division 2, Section 4A126)	137	5E9(1) 5E9(2)	SU 940016 GA	SU 940017 GA
ASP OHD LASS Interworking (Depends on SFID 126, see Division 2, Section 4A126)	13 7	5E9(1) 5E9(2)	SU 940033 GA	SU 940077 GA
Vector Prompt Enhancement (Depends on SFID 41 and 123, see Division 2, Section 4A41 and Division 2, Section 4A123)	138	5E9(1) 5E9(2) 5E10	SU 940037 SU 950003 GA	SU 940089 SU 950005 GA
ASP Interworking with NISDN and ISATs (Depends on SFID 126, see Division 2, Section 4A126)	139	5E9(1) 5E9(2)	SU 940016 GA	SU 940023 GA
Switch-to-CPE Analog Off-Hook FSK Data Interface	140	5E9(1) 5E9(2)	SU 940017 GA	SU 940024 GA
Dual ESA (Emergency Services Adjunct) for E911 Enhancements (Depends on SFID 108, see Division 2, Section 4A108)	141	5E9(1) 5E9(2)	SU 940023 GA	SU 940051 GA
Flexible ANI Enhancements (Depends on SFID 38, see Division 2, Section 4A38)	142	5E9(1) 5E9(2)	SU 940024 GA	SU 940044 GA
Pinnacle ACD E911 Service (Depends on SFID 114 and 123, see Division 2, Section 4A114 and Division 2, Section 4A123)	143	5E9(1) 5E9(2)	SU 940034 GA	SU 940067 GA
Dual Circuit FX (Foreign Exchange) Plugs	144	5E9(1) 5E9(2)	SU 950001 GA	SU 940037 GA
Call Waiting Deluxe - Phase I (Depends on SFID 140, see Division 2, Section 4A140)	145	5E9(1) 5E9(2) 5E10	SU 950007 SU 950014 GA	SU 950011 SU 950041 GA
A-I-Net LASS-SCN/Intelligent Peripheral Interworking (Depends on SFID 139, see Division 2, Section 4A139)	146	5E9(1) 5E9(2) 5E10	SU 940037 SU 950003 GA	- SU 950010 GA
ASP Busy/No Answer Subsequent Event Detection (Depends on SFID 126, see Division 2, Section 4A126)	147	5E9(1) 5E9(2) 5E10	SU 950010 SU 950016 GA	SU 950013 SU 950035 GA
ASP Interworking with SMDR (Station Message Detail Recording) (Depends on SFID 58, see Division 2, Section 4A58)	148	5E9(1) 5E9(2)	SU 940017 GA	SU 940052 GA
ICLATA (Inter-LATA Carrier's Intra-LATA) Capability	149	5E9(1)	SU 940037	SU 940103

		5E9(2)	SU 950008	SU 950029
		5E10	GA	GA
Additional ASP OHD Interactions with Account Code and CPN/BN (Depends on SFID 126, see Division 2, Section 4A126)	150	5E9(1)	SU 940033	SU 940084
		5E9(2)	GA	GA
Protocol Monitoring Translator for National ISDN (Depends on SFID 32, see Division 2, Section 4A32)	151	5E9(1)	SU 950019	SU 950043
		5E9(2)	SU 960001	SU 950080
		5E10	GA	GA
ASP 3/6/10 Digit Trigger Screening (Depends on SFID 58, see Division 2, Section 4A58)	152	5E9(1)	SU 940035	SU 940094
		5E9(2)	SU 940006	SU 940005
		5E10	GA	GA
ASP Default Routing for 3/6/10 Digit Triggers (Depends on SFID 126, see Division 2, Section 4A126)	153	5E9(1)	SU 950009	SU 950016
		5E9(2)	SU 950020	-
		5E10	GA	GA
Toll Connecting Routing and Billing Enhancement	154	5E9(1)	SU 950004	SU 950006
		5E9(2)	SU 950005	SU 950023
		5E10	GA	GA
Call Forwarding Over Private Facilities/Don't Answer	155	5E9(1)	SU 950016	SU 950031
		5E9(2)	SU 950019	SU 950060
		5E10	GA	GA
Spontaneous Usage Sensitive 3-way Calling	156	5E9(1)	SU 95A015	SU 950029
		5E9(2)	SU 960001	SU 950065
		5E10	GA	GA
Toll-Free Treatment for NPA 888 Phase 1	158	5E9(1)	SU 950018	SU 950035
		5E9(2)	SU 950020	SU 950064
		5E10	GA	GA
ASP Trunk Trigger for Toll (Depends on SFID 126, see Division 2, Section 4A126)	159	5E9(1)	SU 950009	SU 950019
		5E9(2)	SU 950010	SU 950044
		5E10	GA	GA
Type 2A/2B CMC (Cellular Mobile Carrier) via CCS (Common Channel Signaling) (Depends on SFID 128, see Division 2, Section 4A128)	160	5E9(1)	SU 950018	SU 950039
		5E9(2)	SU 960003	SU 950075
		5E10	SU 960001	SU 950016
		5E11	GA	GA
Redirecting Number Parameter Delivery on PRI	161	5E9(1)	SU 950018	SU 950041
		5E9(2)	SU 960001	SU 950077
		5E10	SU 96A004	SU 960012
		5E11	GA	GA
ASP Multiple Rate Center Support (Depends on SFID 126, see Division 2, Section 4A126)	162	5E9(1)	SU 95A017	SU 950036
		5E9(2)	SU 950022	SU 950066
		5E10	GA	GA
ISUP Message Loop Detection	163	5E11	GA	GA
TRFC30 30 to 60 Minute Collection	164	5E9(1)	SU 950018	SU 950040
		5E9(2)	SU 960001	SU 950076
		5E10	SU 960006	SU 960017
		5E11	GA	GA
Toll Digital Exchange Basic Call Processing for Toll 5ESS-2000 Switch	165	5E10	SU 96A004	SU 960008
		5E11	GA	GA
AMA Recording For AIN Busy And Don't Answer Calls (Depends on SFID 126, see Division 2, Section 4A126)	166	5E10	SU 960002	SU 960004
		5E11	GA	GA
AMA Capabilities for Type 1 Cellular Access	167	5E10	SU 960009	SU 960007
		5E11	GA	GA
Enhanced Poke Confirmation Feature	168	5E10	SU 96A010	SU 960020
		5E11	GA	GA

Increase Collection Unit for ROP - Section 144	169	5E11	GA	GA
SSNCI (Subsystem Number Capacity Increase)	170	5E10	SU 96A008	SU 960021
(Depends on SFID 126, see Division 2, Section 4A126)		5E11	GA	GA
TCAP Improvements for a Switch Spanning Multiple LATAs	171	5E11	GA	GA
Increase Number of Trunk Groups to 4000	172	5E11	GA	GA
AIN Toll Free Service Phase 2	173	5E11	GA	GA
(Depends on SFID 236, see Division 2, Section 4A236)				
LRN (Local Number Portability)	174	5E11	SU 970020	-
(Depends on SFID 126, see Division 2, Section 4A126)				
Expanded SLS (Signaling Link Selection)	175	5E11	GA	GA
Improved SLT (Signaling Link Test)	176	5E11	GA	GA
MTP (Message Transfer Part) Node Restart	177	5E11	GA	GA
Pre-Query Screening for OHD Triggers	178	5E10	SU 960013	SU 960033
(Depends on SFID 58, see Division 2, Section 4A58)		5E11	GA	GA
Enhanced Professional Office	179	5E11	SU 970005	SU 970011
NP - Basic LRN AMA	180	5E11	SU 970005	-
		5E12	GA	GA
Centrex Network	181	5E9(2)	GA	GA
Centrex Network with ISVM	182	5E9(2)	GA	GA
(Depends on SFID 181, see Division 2, Section 4A181)				
Centrex Network for Government Security	183	5E9(2)	GA	GA
(Depends on SFID 181, see Division 2, Section 4A181)				
Far Access Remote	184	5E9(2)	GA	GA
ASP NESS (Network Element Services Signaling)	185	5E9(2)	SU 950007	SU 950018
(Depends on SFID 139, see Division 2, Section 4A139)		5E10	GA	GA
Suppressed Ringing	186	5E9(2)	SU 950021	SU 950074
		5E10	GA	GA
IXE Tandem Calls via 2 Local Access Tandems	188	5E9(2)	SU 950022	SU 950078
		5E10	SU 950005	SU 950021
		5E11	GA	GA
ASP Originating Busy/No Answer Triggers with Extended Ringing	189	5E11	SU 97A016	SU 970041
(Depends on SFID 126, see Division 2, Section 4A126)		5E12	GA	GA
ASP Enhancements to Multiple Rate Center Support	190	5E10	SU 960017	SU 960040
(Depends on SFID 51, see Division 2, Section 4A51)		5E11	GA	GA
IS-634 A2 Interface	191	5E13	GA	GA
ICLID Enhancement for MLHG	192	5E10	SU 96A008	SU 960026
		5E11	GA	GA
E911 Trunk Failure Alarms	193	5E11	-	-
		5E12	GA	GA
A/B Link and No Path Access Delay and Blockage	194	5E11	GA	GA
TCAP Message Tandem	195	5E11	GA	GA
MLPP (Multi-Level Precedence and Preemption) on SS7-Stage 1	196	5E11	SU 970024	SU 970046
		5E12	SU 970007	SU 970001
		5E13	GA	GA
MLPP (Multi-Level Precedence and Preemption) on SS7-Stage 2	197	5E11	SU 970024	SU 970046
(Depends on SFID 196, see Division 2, Section 4A196)		5E12	SU 970007	SU 970001
		5E13	GA	GA

Number Portability - NPA-NXX Growth	198	5E12	GA	GA
NP - AMA Access Billing (Depends on SFID 180, see Division 2, Section 4A180)	199	5E11 5E12	SU 970006 GA	SU 970019 GA
Automatic SPID Download	200	5E10 5E11 5E12	SU 970003 SU 970015 GA	SU 970004 SU 970009 GA
Deny Automatic Callback on Intra-LATA PIC Calls - Per CIC Control	201	5E10 5E11 5E12	SU 960020 SU 97A016 GA	SU 960057 SU 970032 GA
LDP Multiple CIC Support (Depends on SFID 165, see Division 2, Section 4A165)	202	5E11 5E12	SU 970006 GA	SU 970007 GA
LDP Data Calls (Depends on SFID 165, see Division 2, Section 4A165)	203	5E11 5E12	SU 970006 GA	SU 970007 GA
Decoupling of AM/CM for CM-Only Initialization	204	5E12	GA	GA
Multiple Tandem Cut Through to IXC (Inter—Exchange Carrier) for CAP (Competitive Access Provider) (Depends on SFID 154, see Division 2, Section 4A154)	205	5E10 5E11	SU 960019 GA	SU 960050 GA
Data Only for PRI (Primary Rate Interface)	206	5E10 5E11 5E12	SU 970004 SU 970002 GA	SU 970005 SU 970002 GA
LDP Multiple ANI Support (Depends on SFID 165, see Division 2, Section 4A165)	207	5E12	GA	GA
Call Information Display	208	5E10 5E11 5E12	SU 97A013 - GA	- - GA
Repeat Dial Interworking with AIN Originating Busy Trigger (Depends on SFID 189, see Division 2, Section 4A189)	209	5E11 5E12	- GA	SU 970058 GA
ASP Inhibiting of Originating Busy/No Answer Office Triggers (Depends on SFID 189, see Division 2, Section 4A189)	210	5E11 5E12	- GA	SU 970056 GA
ASP Provisioning of Originating Busy/No Answer Office Triggers (Depends on SFID 189, see Division 2, Section 4A189)	211	5E12	GA	GA
Call Screening for ASP Originating Busy/No Answer Office Triggers (Depends on SFID 189, see Division 2, Section 4A189)	212	5E11 5E12	- GA	SU 960057 GA
Route International Calls by Country Code (Depends on SFID 159, see Division 2, Section 4A159)	213	5E10 5E11 5E12	SU 960025 SU 960004 GA	SU 960025 SU 960004 GA
TBCT (Two B-Channel Transfer) on PRI (Primary Rate Interface) and ISDN TBCT Notify to Controller	214	5E13	GA	GA
CDMA Data Services - Circuit Mode (Depends on SFID 221, see Division 2, Section 4A221)	215	5E12	GA	GA
NP - Non-Conditional 10-Digit Trigger for LRN	216	5E11	SU 970061	SU 970061

(Depends on SFID 174, see Division 2, Section 4A174)		5E12	GA	GA
General MINT Capability, Alpha Signaling (Depends on SFID 165, see Division 2, Section 4A165)	217	5E12 5E13	SU 980024 GA	- GA
5ESS-2000 LN (Local Nodal) EO (End Office) (Depends on SFID 38, see Division 2, Section 4A38)	218	5E12	GA	GA
PRI Call-by-Call Service Selection for Hotel/Motels and SCOCs	219	5E11	GA	GA
Calling Name for ISDN PRI	220	5E11	GA	GA
CDMA (Code Division Multiple Access) (Depends on SFID 130, see Division 2, Section 4A130)	221	5E10	GA	GA
Third Party Call Control Request Route (Depends on SFID 121, see Division 2, Section 4A121)	222	5E10 5E11	SU 960002 GA	SU 960001 GA
CCITT Recommendation E.164 Compliance for 15 Digit IDDD (International Direct Distance Dialing)	223	5E10	GA	GA
PHA (Protocol Handler for Asynchronous Transfer Mode)	224	5E10	GA	GA
National ISDN 5E10 BRI Package	225	5E10	GA	GA
ASP BRCS/OHD Interworking Extensions (Depends on SFID 137, see Division 2, Section 4A137)	226	5E10	GA	GA
ASP Call Routing Parameters (Depends on SFID 126, see Division 2, Section 4A126)	227	5E10	GA	GA
ISDN PCS (Personal Communications Services) Interworking (Depends on SFIDs 137, 146, 147, 150, 185, 225, and 227, see appropriate Division 2, Section 4A)	228	5E10	GA	GA
AIN 0.2 Send To Outside Resource (Local) (Depends on SFID 126, see Division 2, Section 4A126)	229	5E10 5E11	SU 96A007 GA	SU 960018 GA
TLWS (Trunk Line Workstation Metallic Test Capability on SM2000 Using SLIM 2 (Subscriber Line and Instrument Measurements 2))	230	5E10	GA	GA
Third Party Call Control Redirect Alerting Call (Depends on SFID 122, see Division 2, Section 4A122)	231	5E10 5E11	SU 960002 GA	SU 960001 GA
Third Party Call Control Transfer/Conference Position Call (Depends on SFID 122, see Division 2, Section 4A122)	232	5E10 5E11	SU 960002 GA	SU 960001 GA
Third Party Call Control Originate Call (Depends on SFID 122, see Division 2, Section 4A122)	233	5E10 5E11	SU 960002 GA	SU 960001 GA
Switch Verification for Multiple Directory Numbers	234	5E10	GA	GA
Toll Digital Exchange ANI Table Processing (Depends on SFID 165, see Division 2, Section 4A165)	235	5E10 5E11	SU 96A004 GA	SU 960008 GA
ANI Toll Free Phase 1 (Depends on SFID 126, see Division 2, Section 4A126)	236	5E10 5E11	SU 960022 GA	SU 960053 GA
ASP Interworking with CSD (Circuit Switched Data) (Depends on SFID 126, see Division 2, Section 4A126)	237	5E10 5E11	SU 960022 GA	SU 960054 GA

4A126)				
Automatic Association of Default Service	238	5E10	SU 950005	SU 950019
		5E11	GA	GA
ASP (Advanced Service Platform) Selective NPA	239	5E10	SU 970010	SU 970015
Deletion for ASP Multiple Rate Center Support		5E11	-	-
(Depends on SFID 51, see Division 2, Section 4A51)		5E12	GA	GA
Line Blocking Enhancement for ISVM (Inter-Switch Voice Messaging)	240	5E10	SU 970002	SU 970002
		5E11	SU 970003	SU 970006
		5E12	GA	GA
AIN Send to Outside Resource (Remote)	241	5E11	SU 980001	SU 980001
(Depends on SFID 229, see Division 2, Section 4A229)		5E12	GA	GA
VPN-LDP (Virtual Private Network - Long Distance Platform)	242	5E11	SU 970020	SU 970053
(Depends on SFIDs 235, 203, and 202, see Division 2, Section 4A235 or, Division 2, Section 4A203, or Division 2, Section 4A202)		5E12	GA	GA
Carrier Routing / Call Processing By Facility Presence	243	5E11	SU 97A021	SU 970054
(Depends on SFID 126, see Division 2, Section 4A126)		5E12	GA	GA
Modified Redirecting Number Parameter Origination on PRI	244	5E10	SU 970011	SU 970013
		5E11	SU 970015	SU 970030
		5E12	GA	GA
RTCD (Real Time Call Detail) Platform/Application	245	5E12	GA	GA
(Depends on SFID 165, see Division 2, Section 4A165)				
MINT Beta Signaling	247	5E12	SU 980024	-
(Depends on SFID 217, see Division 2, Section 4A217)		5E13	GA	GA
MINT Gamma Signaling	248	5E12	SU 980024	-
(Depends on SFID 217, see Division 2, Section 4A217)		5E13	GA	GA
Reroute Queuing	249	5E12	SU 980024	-
		5E13	GA	GA
MINT Reroute on Release	250	5E12	SU 980024	-
		5E13	GA	GA
MINT Time Dependent routing	251	5E12	SU 980024	-
		5E13	GA	GA
AIN Announcement ID Expansion	252	5E12	GA	GA
(Depends on SFID 126, see Division 2, Section 4A126)				
Restrict Usage of ASP Triggers	254	5E11	SU 97A021	SU 970052
(Depends on SFID 126, see Division 2, Section 4A126)		5E12	GA	GA
ASP Originating Triggers	255	5E11	SU 97A021	SU 970052
(Depends on SFID 126, see Division 2, Section 4A126 - For more information see Division 2, Section 4A254)		5E12	GA	GA
ASP Dialing Plan Triggers	256	5E11	SU 97A021	SU 970052
(Depends on SFID 126, see Division 2, Section 4A126 - For more information see Division 2, Section 4A254)		5E12	GA	GA
ASP Terminating Triggers	257	5E11	SU 97A021	SU 970052
(Depends on SFID 126, see Division 2, Section 4A126)		5E12	GA	GA

4A126 - For more information see Division 2, Section 4A254)				
National ISDN Call Park	258	5E12	SU 99A002	SU 980055
		5E13	GA	GA
Switched Based TDMA (Time Division Multiple Access) Vocoders (Depends on SFID 130, see Division 2, Section 4A130)	259	5E12	GA	GA
Protocol Monitor for CCS Signaling Links	260	5E12	SU 98A021	-
		5E13	GA	GA
LDP Operator Routing Based on Called Party Number (Depends on SFID 165, see Division 2, Section 4A165)	261	5E12	GA	GA
IBDS (Internally Bridged Dual Services), Package 1	262	5E11	SU 980005	SU 970073
		5E12	SU 980006	SU 970006
		5E13	GA	GA
IBDS (Internally Bridged Dual Services), Package 2 (Depends on SFID 262, see Division 2, Section 4A262)	263	5E12	SU 980006	SU 970007
		5E13	GA	GA
Telephone Status Monitor and Select	264	5E12	SU 980005	SU 980015
		5E13	GA	GA
Selective Manual RC Output Priority	265	5E12	GA	GA
Prohibit REX on BRI Lines Per Office	266	5E11	SU 97A021	SU 970055
		5E12	GA	GA
		5E13	GA	GA
Prohibit REX on BRI Lines Per Line	267	5E11	SU 97A021	SU 970055
		5E12	GA	GA
		5E13	GA	GA
Two Simultaneous Voice Calls on BRI	268	5E11	SU 970019	SU 970051
		5E12	GA	GA
Alternate Local Service Provider Routing	269	5E12	SU 990004	SU 990005
		5E13	GA	GA
VPN (Virtual Private Network) Expansion Package A (Depends on SFID 242, see Division 2, Section 4A242)	270	5E12	SU 98A022	-
		5E13	GA	GA
DNIS (Dialed Number Identification Service)	271	5E12	GA	GA
DALs (Direct Access Links) (Depends on SFID 126, see Division 2, Section 4A126)	272	5E12	GA	GA
Call Forward on Trunks	273	5E11	SU 97A025	SU 970075
		5E12	SU 970005	SU 970008
		5E13	GA	GA
Signaling System 7 F-Links	274	5E12	GA	GA
Feature Interactions with 10-Digit Office Dialing Plan	275	5E10	SU 970011	SU 970016
		5E11	SU 970014	SU 970038
		5E12	SU 980001	SU 970017
		5E13	GA	GA
NP Service Provider Portability AMA Enhancements (Depends on SFID 199, see Division 2, Section 4A199)	276	5E11	SU 98A013	SU 980023
		5E12	SU 98A017	SU 980028
		5E13	GA	GA
VFDE (Voice Frequency Data Enhancement)	277	5E11	SU 980008	SU 980010
		5E12	SU 980008	SU 980010
		5E13	GA	GA
Local Trunk Billing Enhancement	278	5E11	SU 980006	SU 980006
		5E12	SU 980007	SU 980006
		5E13	GA	GA

GETS (Government Emergency Telecommunications Service) High Probability of Call Completion	279	5E13	GA	GA
IBDS (Internally Bridged Dual Service) - Package 3 (Depends on SFID 263, see Division 2, Section 4A263)	280	5E13	GA	GA
Operator & Directory Assistance Billing for Unbundled Local Switching	281	5E11 5E12 5E13	SU 98A011 SU 98C014 GA	SU 980019 SU 980025 GA
II Digits Screening (Depends on SFID 165, see Division 2, Section 4A165)	282	5E13	GA	GA
Ability to stop RST:TRK, TKGMN	283	5E12 5E13	SU 980011 GA	SU 980011 GA
Recovery from ABD (Alternate Boot Disks)	284	5E13	GA	GA
CDMA Data Services-Packet Mode (Depends on SFID 130, see Division 2, Section 4A130)	285	5E13	-	-
TDMA Data Services-Circuit Mode (Depends on SFIDs 259 and 130, see Division 2, Section 4A259 or Division 2, Section 4A130)	286	5E13	-	-
5ESS-2000 LDP (Long Distance Platform) MINT Expansion Package A (Depends on SFID 165, see Division 2, Section 4A165)	287	5E13 5E14	SU 990009 GA	SU 990031 GA
OSPS CSG (Communications Services Group)	288	5E9(1)	SU 940020	-
Secured Feature Office Identifier		5E9(2)	GA	GA
LDP (Long Distance Platform) RTI (Route Index) Expansion/List	289	5E13	-	-
LDP (Long Distance Platform) Final Route Trigger (Depends on SFID 237, see Division 2, Section 4A237)	290	5E13	-	-
Deny Transfer of Digit Screened Calls	291	5E12 5E13	- GA	- GA
Simplified Custom ISDN Attendant	292	5E12 5E13	- -	- -
E911 Call Error Detection and Alarm	293	5E11 5E12 5E13	SU 980011 SU 98C014 GA	SU 980017 - GA
Route Outage AML (Automatic Maintenance Limit) E911 Call Error Detection and Alarm	294	5E11 5E12 5E13	SU 98A011 SU 98C014 GA	SU 980017 SU 980022 GA
ASP Persistent Transactions Enhancements (Depends on SFID 126, see Division 2, Section 4A126)	295	5E12 5E13	SU 990009 SU 980007	SU 990007 -
Delete Warning Display for Essential Services	296	5E11 5E12 5E13	SU 980009 SU 980011 GA	SU 980020 SU 980024 GA
ASM (Administrative Services Module) Base	297	5E12 5E13	- GA	- GA
Wireless E911 (Depends on SFID 61, see Division 2, Section 4A61)	298	5E12 5E13	SU 98A016 GA	- GA
FGD (Feature Group D) Interface to E911 (Depends on SFID 61, see Division 2, Section 4A61)	299	5E12 5E13	SU 980013 GA	- GA
Number Portability - Test Query for LRN (Depends on SFID 126, see Division 2, Section 4A126)	300	5E11 5E12	SU 98A011 SU 980016	SU 980027 SU 980027

4A126)		5E13	GA	GA
ASP Network Busy Event (Depends on SFID 126, see Division 2, Section 4A126)	301	5E13	GA	GA
Enhanced Alternate Carrier Routing (Depends on SFID 126, see Division 2, Section 4A126)	302	5E13	GA	GA
LPN (Local Number Portability) on the LDP (Long Distance Toll Platform) (Depends on SFID 174, see Division 2, Section 4A174)	303	5E12 5E13	- GA	- GA
Number Portability - Non-Conditional Trigger for DID Trunks (Depends on SFID 216, see Division 2, Section 4A216)	304	5E11 5E12 5E13	SU 980014 SU 980021 GA	SU 980038 SU 980051 GA
Global Recent Change Interaction with LASS AR (Depends on SFID 189, see Division 2, Section 4A189)	305	5E11 5E12 5E13	SU 980016 SU 98A022 GA	SU 980040 SU 980040 GA
5E Acceptance of 1A Wink NPD and ANI for 911 Routed Calls (Depends on SFID 61 and 193, see Division 2, Section 4A61 or Division 2, Section 4A193)	314	5E11 5E12 5E13	SU 980003 SU 980017 GA	- SU 980046 GA
Incoming/Outgoing Trunk Group Usage Counts	315	5E13 5E14	- GA	- GA
OSDE (On-Site Data Evolution) (Depends on SFID 297, see Division 2, Section 4A297)	316	5E12 5E13	- GA	- GA
Packet Pipe Enhancements (Depends on SFID 221, see Division 2, Section 4A221)	317	5E13 5E14	- GA	- GA
CNAM (Originating Switch Calling Name)	318	5E13	GA	GA
NP Service Provider Portability AMA Enhancements II (Depends on SFID 199, see Division 2, Section 4A199)	319	5E11 5E12 5E13 5E14	SU 980013 SU 98A017 GA GA	SU 980032 SU 980028 GA GA
Feature Deployment via the Data Services Module (Depends on SFID 297, see Division 2, Section 4A297)	320	5E12 5E13	- SU 99A004	- -
AMA Recording for Resale and Unbundling	321	5E12 5E13 5E14	- - GA	- - GA
Recent Change Front End on the ASM (Depends on SFID 297, see Division 2, Section 4A297)	322	5E13	GA	GA
Trunk Group Hunt Sequence Enhancements	323	5E13	GA	GA
OSPS Listing Services - International Directory Assistance	324	5E12 5E13 5E14	SU 980023 SU 980002 GA	SU 980078 - GA
City Code Routing on International Calls	325	5E12 5E13	SU 980026 SU 980004	- SU 980006
Number Portability - Officewide Reserved Marketing (Depends on SFID 174, see Division 2, Section 4A174)	326	5E12 5E13 5E14	SU 98A021 SU 980005 GA	SU 980064 SU 980013 GA
ADSI Acknowledgment Timer Optional Value (Depends on SFID 140, see Division 2, Section 4A140)	327	5E12 5E13 5E14	SU 980025 SU 980004 GA	SU 980060 - GA
Support for AMADNS Phase 1	328	5E12	-	-

(Depends on SFID 297, see Division 2, Section 4A297)		5E13	SU 990005	SU 990012
		5E14	GA	GA
OSPS Limit for Customer-Controlled Reconnect to LS/DA	329	5E12	SU 990004	SU 980057
		5E13	SU 990003	-
		5E14	GA	GA
Tandem to Tandem E911 (Depends on SFID 61, see Division 2, Section 4A61)	330	5E12	SU 990005	SU 990010
		5E13	SU 980006	SU 990014
		5E14	GA	GA
Talking Call Waiting	331	5E12	SU 99B006	SU 990017
		5E13	SU 99A005	SU 990019
		5E14	GA	GA
Pay Phone Compensation for Tollfree Calls, Tollfree Calling Enhancement for Flexible ANI II	332	5E11	SU 990002	SU 990001
		5E12	SU 990007	SU 990018
		5E13	SU 990007	SU 990026
		5E14	GA	GA
ASP Send to Outside Resource Interworking with Orig Busy/No Answer with Extended Ringing (Depends on SFID 126, 189, and 229, see Division 2, Section 4A126 or Division 2, Section 4A189 or Division 2, Section 4A229)	333	5E12	SU 990006	SU 990016
		5E13	-	-
		5E14	GA	GA
Call Forward Don't Answer - Ring Control	335	5E12	SU 990004	SU 990006
		5E13	SU 99A004	SU 990009
		5E14	GA	GA
NPA to NPD Translation Table for E911 Calls (Depends on SFID 61, see Division 2, Section 4A61)	337	5E12	SU 990009	SU 990011
		5E13	SU 990007	SU 990015
		5E14	GA	GA
OSPS DIALECT by OLS	338	5E12	-	-
		5E13	-	-
		5E14	GA	GA
OSPS Customized Operator Service - Release 1	339	5E12	-	-
		5E13	-	-
		5E14	GA	GA
866 - 822 Toll Free Service (Depends on SFID 158, see Division 2, Section 4A158)	340	5E12	-	-
		5E13	-	-
		5E14	GA	GA
Distinctive Call Forwarding Alert	341	5E12	-	-
		5E13	-	-
		5E14	GA	GA
Module 55803 Enhancement	342	5E13	SU 990010	-
		5E14	GA	GA
ASP Mid Call Event Detection (Depends on SFID 126, see Division 2, Section 4A126)	343	5E13	-	-
		5E14	-	-
		5E15	-	-
Raw Formatted Output for Office Records	344	5E12	IMR 664621	IMR 664621
		5E13	IMR664621	IMR664621
		5E14	GA	GA
ASP Mid Call Event Detection (Depends on SFID 126, see Division 2, Section 4A126)	345	5E13	-	-
		5E14	-	-
		5E15	GA	GA
NP - Append BAF Module 164 with CNA (Chargeable Account Number)	346	5E13	GA	GA
Announcement on Detection of NPA Split	347	5E13	FR4	-
		5E14	FR3	-
		5E15	GA	GA
LDP AMA Correlation Module	348	5E13	IMR 671818	SU 990060
		5E14	GA	GA
TSI Nailup of Consecutive DS0s for DNU-S	349	5E13	FR1 IMR 674164	99-0073

		5E13	FR2 IMR 674164	99-0024
		5E14	GA	GA
Multiline Hunt Group Capacity Expansion	351	5E15	GA	GA
OSPS Interflow for Operator Conferences	361	5E9(1)	GA	GA
OSPS ICCV Call Screening	362	5E9(1)	GA	GA
OSPS CIID - Carrier Specific Routing	363	5E9(1)	GA	GA
OSPS Operator Trouble Report with Automated Position	364	5E9(1)	GA	GA
OSPS Card Based Speed Dialing - Phase 2	365	5E9(1)	SU 940002	SU 940017
		5E9(2)	GA	GA
OSPS Screening for Real Time Call Details	366	5E9(1)	SU 940008	SU 940019
		5E9(2)	GA	GA
OSPS Speed Dialing Auto Provisioning (Depends on SFID 365, see Division 2, Section 4A365)	367	5E9(2)	GA	GA
OSPS LIDB - Recognition of PSDI Value 4	368	5E9(1)	SU 940003	SU 940003
		5E9(2)	GA	GA
OSPS Enhanced AMA for Listing Services	369	5E9(1)	SU 940020	SU 940054
		5E9(2)	GA	GA
OSPS Automated Inward Line Screening	370	5E9(1)	SU 940023	SU 940106
		5E9(2)	SU 940009	SU 940009
		5E10	GA	GA
OSPS Terminating Point Restriction Expansion	371	5E9(1)	SU 940023	SU 940061
		5E9(2)	GA	GA
OSPS Prepaid Overtime for Coin Calls	372	5E9(1)	SU 940018	SU 940043
		5E9(2)	GA	GA
OSPS Feature Group D Incoming Signaling for Special Applications - Release 2	373	5E9(1)	SU 940018	SU 940048
		5E9(2)	GA	GA
OSPS Calling Card Screening by Carrier	374	5E9(1)	SU 940018	SU 940047
		5E9(2)	GA	GA
OSPS TCS Screen Code Expansion	375	5E9(1)	SU 940020	SU 940056
		5E9(2)	GA	GA
OSPS Recall from Subscriber Deactivation	376	5E9(1)	SU 940023	SU 940053
		5E9(2)	GA	GA
OSPS 800 Access Using Feature Group D Signaling	377	5E9(1)	SU 940026	SU 940075
		5E9(2)	GA	GA
OSPS Carrier Specific Branding on Seizure for ACCS and ACTS	378	5E9(1)	SU 940030	SU 940079
		5E9(2)	SU 940009	SU 940004
		5E10	GA	GA
OSPS LEC Feature Group D Incoming Signaling/Special Handling of Calls	379	5E9(1)	SU 940030	SU 940086
		5E9(2)	SU 940009	SU 940004
		5E10	GA	GA
OSPS Network Access Interrupt	380	5E9(1)	SU 940038	SU 940095
		5E9(2)	SU 950002	SU 940022
		5E10	GA	GA
OSPS Customer Controlled Reconnect to DA	381	5E9(1)	SU 94A037	SU 940105
		5E9(2)	SU 950005	SU 950020
		5E10	GA	GA
OSPS Forward Number Interdigit Timing Change	382	5E9(1)	SU 940034	SU 940092
		5E9(2)	SU 950002	SU 940018
		5E10	GA	GA
OSPS Feature Group D Enhancements (Depends on OFID 617, see Division 2, Section 4A617)	383	5E9(1)	SU 940034	SU 940091
		5E9(2)	SU 950002	SU 940002
		5E10	GA	GA
OSPS ASAP - Release 2	384	5E9(1)	SU 94A037	SU 940099
		5E9(2)	SU 950002	SU 940025
		5E10	GA	GA
OSPS Inmate Calling Service	385	5E9(2)	SU 950009	SU 950033

		5E10	GA	GA
OSPS International Billed Number Screening - Release 2	386	5E9(1)	SU 940002	SU 940116
		5E9(2)	SU 950004	SU 940026
		5E10	GA	GA
OSPS TPR Expansion for International Numbers	387	5E9(2)	SU 950004	SU 950002
		5E10	GA	GA
OSPS ACCS for Commercial Credit Cards	388	5E9(2)	SU 950004	SU 950004
		5E10	GA	GA
OSPS Extending Round Trip Delay for OSC	389	5E10	GA	GA
OSPS ACCS Thank You Branding Timer	390	5E9(2)	SU 950005	SU 950026
		5E10	GA	GA
OSPS Teleconferencing Service Signaling Interface	391	5E9(2)	SU 950010	SU 950030
		5E10	GA	GA
OSPS AMA Recording of the Access ID for CAP Calls	392	5E9(2)	SU 950007	SU 950022
		5E10	GA	GA
OSPS BNS Query Message Enhancements	393	5E9(1)	SU 950004	SU 950004
		5E9(2)	SU 950005	SU 950017
		5E10	GA	GA
OSPS Expanding Interflow Incoming Trunks	394	5E10	GA	GA
Incoming ISUP (SS7) to OSPS	395	5E10	GA	GA
OSPS 1+ Time And Charges	396	5E9(1)	SU 950007	SU 950012
		5E9(2)	SU 950011	SU 950032
		5E10	GA	GA
OSPS Specialized AMA for 15 Digit International	397	5E10	GA	GA
OSPS ASAP for Language Specific Operator	398	5E9(2)	SU 950007	SU 950027
Services Using Route Number		5E10	GA	GA
OSPS Early Position Release of International Calls	399	5E9(2)	SU 950013	SU 950038
		5E10	GA	GA
OSPS Purchase Limits Balance Quotation	400	5E9(2)	SU 950016	SU 950050
Business/Residential Cards		5E10	SU 950003	SU 950008
OSPS AATOS Fraud Control	401	5E9(2)	SU 950018	SU 950054
		5E10	GA	GA
OSPS Quiet Hear	402	5E9(2)	SU 950020	SU 950061
		5E10	SU 950006	SU 960007
		5E11	GA	GA
OSPS AATLSOS - Automated Access Prompt	403	5E9(2)	SU 950020	SU 950063
		5E10	SU 950006	SU 950003
		5E11	GA	GA
OSPS Closed End Branding for Operator Handling Calls	404	5E9(2)	SU 950021	SU 950070
		5E10	SU 950005	SU 950015
		5E11	GA	GA
OSPS 800 Toll Free Services NPA Expansion	405	5E10	GA	GA
OSPS Allow Leading 1 and 011 for Automated Phone Number Collection	406	5E9(2)	SU 950022	SU 950067
		5E10	SU 950004	SU 950001
		5E11	GA	GA
OSPS DACC AMA Record with Operator Entered Forward Number	407	5E9(2)	SU 950022	SU 950071
		5E10	SU 960002	SU 960020
		5E11	GA	GA
OSPS Automation of T&A Information	408	5E10	SU 960002	SU 960022
		5E11	GA	GA
OSPS Automation of TCS/CPS Override	409	5E10	SU 96A010	SU 960028
		5E11	GA	GA
OSPS Universal T1.5 Access Signaling Changes	410	5E11	GA	GA
OSPS Identification of Calls Originated Through Special Access Methods	411	5E10	SU 960009	SU 960025
		5E11	GA	GA
OSPS Automated Access Prompting using Call Processing Data Links	412	5E10	SU 960025	SU 960046
		5E11	GA	GA
OSPS OLS Call Routing for Special Services	413	5E10	SU 96A010	SU 960024
		5E11	GA	GA

OSPS ASAP Language Specification Operator Services Rating Changes	414	5E10 5E11 5E12	SU 960017 SU 960007 GA	SU 960044 SU 960001 GA
OSPS Record and Playback	415	5E10 5E11 5E12	SU 960019 SU 960006 GA	SU 960052 SU 960004 GA
OSPS Bill To Third Fraud Control Based on Third Number NPA	416	5E10 5E11 5E12	SU 960016 SU 960005 GA	SU 960037 - GA
OSPS Local Number Portability for Local Exchange Carrier Offices	417	5E11 5E12	SU 960007 GA	SU 970007 GA
OSPS VMS Access Dialing Changes	418	5E10 5E11 5E12	SU 960028 SU 970001 GA	SU 960068 SU 960015 GA
OSPS Local Number Portability for AT&T Version	419	5E11 5E12	SU 960007 GA	SU 970007 GA
OSPS Customer Account Services International Intercept	420	5E10 5E11 5E12	SU 960025 SU 960005 GA	SU 960061 SU 960003 GA
OSPS Inmate Calling Services Allow Coin Handling	421	5E10 5E11 5E12	SU 960023 SU 960006 GA	SU 960060 SU 960006 GA
OSPS AMA Recording for Listing Services Search Types	422	5E10 5E11 5E12	SU 970002 SU 970002 GA	SU 960075 SU 970004 GA
OSPS 800 Universal International Numbering	423	5E11 5E12	SU 97A008 GA	SU 970018 GA
OSPS CICADA Release 3	424	5E10 5E11 5E12	SU 960028 SU 970002 GA	SU 960069 SU 970003 GA
OSPS DIALECT (Direct Integrated Access to Language Enhanced Capabilities)	425	5E11 5E12	SU 97A019 GA	SU 970047 GA
OSPS NPA Handling by Trunk Group	426	5E11 5E12	SU 97A008 GA	SU 970024 GA
OSPS LS: Automated Directory Assistance System Release 1 (Depends on SFID 415, see Division 2, Section 4A415)	427	5E10 5E11 5E12	SU 97A006 SU 97A009 GA	SU 970009 SU 970025 GA
OSPS Rate for Flat and Measured Service	428	5E11 5E12	SU 970016 GA	SU 970033 GA
OSPS LSCC with SS7 Redirection	429	5E11 5E12	SU 970023 GA	SU 970040 GA
OSPS TCS-NPA Expansion	430	5E11 5E12	SU 970018 GA	SU 970039 GA
OSPS AMA - Record ANI II Digits - Interim	431	5E11 5E12	SU 97A009 GA	SU 970026 GA
OSPS ACCS - Special Calling Card Handling - LEC Pin Prompt	432	5E11 5E12	SU 970014 GA	SU 970036 GA
OSPS ACCS - Special Calling Card Handling - 10 Digit True Choice Calling Card	433	5E11 5E12	SU 970014 GA	SU 970036 GA
OSPS AMA - Record ANI II Digits	434	5E11 5E12 5E13	SU 97A019 SU 97B007 GA	SU 970049 SU 970010 GA
OSPS DIOR with Commercial Credit Card Capability	435	5E11 5E12 5E13	SU 970023 SU 980005 GA	SU 970064 SU 970011 GA

OSPS 800 Peel Out for Calling Card	436	5E12	SU 980005	SU 980007
		5E13	GA	GA
OSPS 800 Peel Out for Multiple Card	437	5E12	SU 980005	SU 980007
		5E13	GA	GA
OSPS CDR Charging Records (Depends on SFID 245, see Division 2, Section 4A245)	438	5E12	SU 980005	SU 980007
		5E13	GA	GA
OSPS Automated Sequential Card Queries	439	5E12	GA	GA
OSPS PLBQ With Add-On Capability	440	5E11	SU 980003	SU 980002
		5E12	SU 980007	SU 980001
		5E13	GA	GA
OSPS CCS7 Incoming Signaling Wireless Call Indicator	442	5E11	SU 980005	SU 980008
		5E12	SU 980006	SU 980016
		5E13	GA	GA
OSPS National DA 00-Access LSCC with SS7 Redirection	443	5E11	SU 980001	SU 980003
		5E12	SU 980002	SU 980002
		5E13	GA	GA
OSPS CAS TCAP Query Changes for International Terminating Numbers	444	5E11	SU 970024	SU 970066
		5E12	SU 97B006	SU 970012
		5E13	GA	GA
OSPS IBNS Call Blocking	445	5E11	SU 980005	SU 970078
		5E12	SU 980006	SU 970016
		5E13	GA	GA
OSPS Acceptance of New Parameters in LIDB BNS and Card Replies	446	5E11	SU 980006	SU 980005
		5E12	SU 980003	SU 980003
		5E13	GA	GA
OSPS Credit Key Blocking	447	5E11	SU 980005	SU 980009
		5E12	SU 980006	SU 980009
		5E13	GA	GA
OSPS AMA - Record ANI II Digits - Release 2	448	5E11	SU 980003	SU 970071
		5E12	SU 980009	SU 980004
		5E13	GA	GA
OSPS NPA Code Expansion	449	5E12	SU 980024	SU 980063
		5E13	GA	GA
OSPS Flexible Automated Call Type Determination	450	5E13	GA	GA
OSPS 0- LEC Calls Maintenance Assert Handling	451	5E13	GA	GA
OSPS Originating Line Number Screening	452	5E12	SU 980024	SU 980069
		5E13	SU 990003	SU 990003
		5E14	GA	GA
OSPS DIOR 800 Services	453	5E12	SU 98A021	SU 980048
		5E13	GA	GA
OSPS ATT LNP (Local Number Portability) Using Single Number Query	454	5E12	SU 980022	SU 980049
		5E13	GA	GA
OSPS Flexible ANI Enhancement	455	5E11	SU 98A009	SU 980025
		5E12	SU 98C014	SU 980031
		5E13	GA	GA
OSPS AATLSOS-Automated Access Prompting Non-Tariffed Announcement	457	5E11	SU 98A009	SU 980026
		5E12	SU 980A17	SU 980030
		5E13	GA	GA
		5E14	GA	GA
OSPS ESP 5ESS Operator Services Overlay Interface Control (and ES System Integrity/Reliability (99-5E-4327.A) see Division ???)	458	5E12	-	-
		5E13	-	-
		5E14	GA	GA
OSPS DA Listing in AMA Record	459	5E12	SU 990004	SU 990004
		5E13	SU 990003	SU 990008
		5E14	GA	GA
OSPS Control of DACC per LS/DA Transporting	460	5E12	SU 980025	SU 980068

Carrier		5E13	SU 980004	SU 980001
		5E14	GA	GA
OSPS DIOR Calling Card Restrictions to Domestic Terminations	461	5E12	SU 980025	SU 980076
		5E13	SU 990002	SU 980012
		5E14	GA	GA
OSPS Rate Announcement on 0+ Call, Release 2	462	5E12	SU 980023	SU 980071
		5E13	SU 980004	SU 980004
		5E14	GA	GA
OSPS ANSI Incoming Signaling System No. 7 from End Office	463	5E14	GA	GA
OSPS Listing Services Call Completion Service Measurements	464	5E12	SU 990005	SU 990003
		5E13	SU 990005	SU 990007
		5E14	GA	GA
OSPS - Rate Announcement on 0+ Calls	465	5E15	GA	GA
OSPS Provide Account Owner to LSDB	466	5E14	GA	GA
NP Verify Office for LRNs	505	5E14	GA	GA
DRM-2000	506	5E14	GA	GA
ASP Terminating Busy/NoAnswer Triggers and Subsequent Event Detection (Depends on SFID 126, see Division 2, Section 4A126)	507	5E14	-	-
		5E15	GA	GA
ASP Display on BRI (Depends on SFID 126, see Division 2, Section 4A126)	508	5E14	-	-
		5E15	GA	GA
CALEA - Core	509	5E14	GA	GA
Wireless Digital Loop Carrier (RDT on a Switch) (Depends on SFID 221, see Division 2, Section 4A221)	510	5E14	GA	GA
Message Waiting Indicator MWI Via PRI NOTE: FEATURE CANCELLED	511	5E14	GA	GA
FGD (Feature Group D) Cut Through Enhancements (Depends on SFID 165, see Division 2, Section 4A165)	512	5E13	SU 990009	SU 990030
		5E14	GA	GA
PINNACLE Third Party Call Control Enhancements 1 (Depends on SFID 123, see Division 2, Section 4A123)	513	5E13	-	-
		5E14	GA	GA
National ISDN Smart Attendant Service	514	5E14	GA	GA
Proprietary.	515	5E14	GA	GA
Default Routing for Off-Hook Delay Triggers (Depends on SFID 126, see Division 2, Section 4A126)	516	5E14	GA	GA
AIN Furnish AMA Information Component (Depends on SFID 126, see Division 2, Section 4A126)	517	5E14	GA	GA
AC/AR by Destination Point Code	518	5E13	SU 980005	SU 980010
		5E14	GA	GA
Release Link for Toll - ANSI Standard Protocol and TOPS Nonstandard Protocol (Depends on SFID 165 and OFID 788, see Division 2, Sections 4A165 and 4B788)	520	5E14	GA	GA
Release Link for Toll - TOPS Nonstandard Protocol (Depends on SFID 165 and OFID 788, see Division 2, Sections 4A165 and 4B788)	521	5E14	GA	GA
SS7 PSU MTP Routing Enhancements	522	5E14	-	-
Improved RC Verify	523	5E13	-	-
		5E14	GA	GA
LD CIC at Terminating Tandem	524	5E14	-	-
		5E15	GA	GA

DRM (Distinctive Remote Module)	525	5E14	GA	GA
Call Screening	526	5E14	-	-
Verify Office Capability for Long Distance Platform	527	5E14	FR1	SU990008
		5E15	GA	GA
ASP Toll Free Service Interaction with Flexible ANI Features	528	5E13	-	-
(Depends on SFID 332, see Division 2, Section 4A332)		5E14	-	-
		5E15	GA	GA
CALEA PHASE III	529	5E14	GA	GA
1000 Block Number Pooling Using Number Portability	530	5E14	FR3	-
(Depends on SFID 174, see Division 2, Section 4A174 and OFID 955, see Division 3, Section 5AS)		5E15	GA	GA
TCP/IP Interface for Traffic Measurements	532	5E15	GA	GA
CNA CC720 Modification	533	5E14	FR2	-
(Depends on SFID 180, see Division 2, Section 4A180)		5E15	GA	GA
ASP AMA Recording for Abandoned STOR Connections	534	5E13	FR3	-
(Depends on SFID 229, see Division 2, Section 4A229)		5E14	FR2	-
		5E15	GA	GA
MDR (Multi-Distinctive Ringing)/CW (Call Waiting/CF (Call Forwarding) Interaction Enhancement (FAX Ring)	535	5E14	GA	GA
60 Minute Traffic Reporting Option	537	5E14	GA	GA
Type 1/2A/1B CMC ID Enhancement	538	5E14	FR1	SU990003
(Depends on SFIDs 128, 160, and 167. Refer to Division 2 Section 4A538)		5E15	GA	GA
Proxy Database Phase 1 Proxy Database	539	5E15	GA	-
Easy Access to Voice Mail	540	5E15	GA	GA
Proprietary.	541	5E15	GA	GA
64KBPS X.75/X.75 Trunk Group	542	5E13	FR3	SU 000007
		5E14	FR2	SU 000014
		5E15	GA	GA
OSPS DA Custom Branding by Account Owner	543	5E13	FR3	SU 000011
(Depends on OFID 970)		5E14	FR2	-
		5E15	GA	GA
Usage Sensitive Call Forwarding (USCF)	544	5E15	GA	GA
Multi Services Platform Summary Alarm Status	545	5E14	FR2	-
		5E15	GA	GA
Terminating Trunk Group Trigger (Depends on SFID 126, see Division 2, Section 4A126.)	546	5E15	GA	GA
Proprietary.	547	5E15	FR1	-
Proprietary.	548	5E15	FR2	-
Audible Calling Name on *69 (Automatic Callback)	549	5E14	FR3	-
(Depends on OFID 971. See Division 2, Section 4B971.)		5E15	GA	GA
PBX Calling ID	550	5E14	FR3	-
		5E15	GA	GA
Flexible DNIS (Dialed Number Information Service)	551	5E14	FR3	-
		5E15	GA	GA
Echo Cancellation for CDMA	552	5E15	GA	GA
Usage Sensitive Six-Way Calling	553	5E15	GA	GA
Dial Code Terminal Make Busy for MLHGS	555	5E15	GA	GA
II/OLI Delivery for National ISDN PRI	556	5E14	FR3	-
		5E15	GA	GA
ASP CDP on PRI	557	5E15	GA	GA
TCW - Inter-LATA Call Enhancements	558	5E14	FR3	-
		5E15	GA	GA
DA Automatic Position Release	559	5E14	FR3	-
(Depends on OFID 977. See Division 2, Section				

4B977.)				
ASP Extended TSTRC Timer	560	5E15	GA	GA
Rate Area Exchange Increase	561	5E15	GA	GA
ASP Monitor for BRI and Multiline Hunt Group	563	5E15	FR1	-
DAS Increase	564	5E15	GA	GA
AMA Module 104 Direction Indicator	565	5E14	FR3	-
		5E15	GA	GA
Customer Recent Change Input For Critical Translations Protection	566	5E15	GA	GA
ATM Global Routing and Signaling	567	5E15	FR1	-
OSPS Commercial Credit Card Alternate Access Methods	568	5E14	FR4	-
		5E15	GA	GA
VTOA [Voice Telephony Over ATM (Asynchronous Transfer Mode)] LS (Local Services)	569	5E15	FR-PSAX	-
(Depends on SFID 567. See Division 2, Section 4A567.)		5E16	GA	GA
Proxy Database Phase 1 Recent Change and SQUAL	570	5E15	GA	-
Proxy Database Phase 1 User Defined Database	571	5E15	GA	-
ASP Unrestricted FCD Trigger	572	5E15	FR1	-
Non-Restrictive ANI over Private Facility	573	5E14	FR3	-
		5E15	GA	GA
LTSB Interworking with Home Intercom	575	5E15	FR2	-
		5E16	GA	GA
Per Use Three Way Calling with Call Transfer	577	5E15	FR3	-
This feature requires a USTWC feature to be active, therefore ACT must be "Y" for SFID 106 or SFID 156.		5E16	GA	GA
Visual Call Pickup	578	5E15	FR2	-
		5E16	GA	GA
Talking Call Waiting with Caller ID	579	5E16	GA	GA
AIN Operator Services Trigger	584	5E16	GA	-
Furnish AMA Recording for Abandoned STOR Connections	585	5E15	FR2	-
			GA	GA
Direct Call Transfer to Voice Mail	586	5E16	GA	GA
Simultaneous Ringing	587	5E16	GA	GA
Call Transfer Enhancements	588	5E16	GA	GA
ESN (Emergency Service Number) Expansion for E911 (Depends on SFID 61. See Division 2, Section 4A61.)	589	5E16	GA	GA
Talking Call Waiting - Distinctive Call Waiting Tones	590	5E16	GA	GA
FCCS (Forwarded Call - Call Screening) Enhancement	592	5E16	GA	GA
AIN Ping Ring in a Forward Call Message	593	5E15	FR 2	-
		5E16	GA	GA
Code Conversion Expansion for N11	594	5E15	FR3	-
		5E16	GA	GA
RC Security for View and Class with Login ID	595	5E15	FR3	-
		5E16	GA	GA
Trunk Group Register Expansion	596	5E15	FR3	-
		5E16	GA	GA
Carrier Selection Information Default Handling for the Long Distance Platform Feature	597	5E14	-	-
		5E15	-	-
		5E16	GA	GA
Expanded Virtual Terminal Access for ASM	598	5E16	GA	GA
G.168-2000 Compliance and Acoustic Echo Cancellation on PHV5	599	5E16	GA	GA
Use of NPA for E911 Default Routed Calls	600	5E15	FR3	-
		5E16	GA	GA
Billing and Comptrollers	601	5E15	FR3	-

7R/E Packet Solutions 4.0 ATM Transport Solution	602	5E16	GA	GA
SS7 Using Operator Services	603	5E16	FR2	-
PRI Calling Name for the Canadian Market	604	5E15	-	SU 010046
		5E16	GA	GA
TCP/IP for SCCS/NFM	608	5E15	IMR 731330	SU 10058
External Interface Infrastructure Expansion	609	5E15	IMR 731330	SU 10061
Increased ASM Disk Space For AMADNS	610	5E15	IMR 732254	SU 10062
FAT Numbering	614	5E16(2)	FR 5	-
SS7-PSU Remove Routing Data From Dedicated Host GSM	615	5E15	FR5	-
FAT Conflict	616	5E16(2)	FR 4	-
CNI Network ID Expansion	619	5E16(1)	GA	GA
CNI/PSU Support for 128K ISUP Trunk	622	5E15	SU 20006	SU 20001
IWG PCT Link Reservation (Feature has been canceled)	624	5E16(2)	-	-
Network Management Hard-To-Reach	625	5E16(2)	GA	GA
Network Management Code Specific Reroute	626	5E15 FR4.5	FR4.5	-
		5E16	GA	GA
Increase Terminal Sessions for Read Only RC on ASM	627	5E15	FR4	SU 20018
TCP/IP Security Enhancements for CALEA	628	5E15 FR5	FR5	-
		5E16	GA	GA
EAI (Emergency Action Interface) via ASM	631	5E15 FR5	FR5	-
		5E16	GA	GA
Digital Trunk Interface for TAU (Test Access Unit).	632	5E15	FR1	-
		5E16	GA	GA
Critical Alarms (DCS) Improvement	633	5E16(1)	SU 2A004	SU 20008
Voice and Data Channel Counts	635	5E16(2)	GA	GA
Dual PSU RTU feature for 1 SM (See Division 2, Section 7BK.)	636	5E16	FR2	-
Dual PSU RTU feature for 2 SMs (See Division 2, Section 7BK.)	637	5E16	FR2	-
Dual PSU RTU feature for 3 SMs (See Division 2, Section 7BK.)	638	5E16	FR2	-
Dual PSU RTU feature for 4 SMs (See Division 2, Section 7BK.)	639	5E16	FR2	-
Dual PSU RTU feature for 5 SMs (See Division 2, Section 7BK.)	640	5E16	FR2	-
Dual PSU RTU feature for 6 SMs (See Division 2, Section 7BK.)	641	5E16	FR2	-
Dual PSU RTU feature for 7 SMs (See Division 2, Section 7BK.)	642	5E16	FR2	-
Dual PSU RTU feature for 8 SMs (See Division 2, Section 7BK.)	643	5E16	FR2	-
Dual PSU RTU feature for 9 SMs (See Division 2, Section 7BK.)	644	5E16	FR2	-
Dual PSU RTU feature for 10 SMs (See Division 2, Section 7BK.)	645	5E16	FR2	-
Dual PSU RTU feature for 11 SMs (See Division 2, Section 7BK.)	646	5E16	FR2	-
Dual PSU RTU feature for 12 SMs (See Division 2, Section 7BK.)	647	5E16	FR2	-
Dual PSU RTU feature for 13 SMs (See Division 2, Section 7BK.)	648	5E16	FR2	-
Dual PSU RTU feature for 14 SMs (See Division 2, Section 7BK.)	649	5E16	FR2	-
Dual PSU RTU feature for 15 SMs (See Division 2, Section 7BK.)	650	5E16	FR2	-
Dual PSU RTU feature for 16 SMs (See Division 2, Section 7BK.)	651	5E16	FR2	-
Dual PSU RTU feature for 17 SMs	652	5E16	FR2	-

(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 18 SMs	653	5E16	FR2	-
(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 19 SMs	654	5E16	FR2	-
(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 20 SMs	655	5E16	FR2	-
(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 21 SMs	656	5E16	FR2	-
(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 22 SMs	657	5E16	FR2	-
(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 23 SMs	658	5E16	FR2	-
(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 24 SMs	659	5E16	FR2	-
(See Division 2, Section 7BK.)				
Dual PSU RTU feature for 25 SMs	660	5E16	FR2	-
(See Division 2, Section 7BK.)				
CM3 TMS Fabric Expansion	662	5E16(2)	GA	GA
(see Division 2, Section 7BO)				
CM3 TMS Fabric Expansion	663	5E16(2)	GA	GA
(see Division 2, Section 7BO)				
CM3 TMS Fabric Expansion	664	5E16(2)	GA	GA
(see Division 2, Section 7BO)				
GETS Enabled Edge Switch	665	5E16(2)	GA	GA
(depends upon SGID 279 and SFID 218)				
New Traffic Measurements for NxTMS	666	5E16(2)	GA	GA
Call Transfer/COT/AC Enhancements	667	5E16	GA	GA
AIN Activity Test Message (Depends on SFID 126. See Division 2, Section 4A126.)	668	5E16(2)	FR1	SU 30001
Patch Space Recovery Tool	669	5E16(2)	FR 1	-
SAAL SS7 High Speed Signaling Links	670	5E16(2)	FR 1	GA
Assert Mnemonics on the ROP	671	5E16(2)	GA	GA
RC/V Security Logging and Verbose Enhancements	674	5E16(2)	GA	GA
FCCS (Forwarded Call - Call Screening)	678	5E16(2)	GA	GA
Announcement Modification				
High Capacity APT Enhancements	682	5E16(2)	FR1	GA
OIU SIP-T	684	5E16(2)	FR3	GA
IMLT Access Improvements and Metallic A-Link	685	5E16(2)	FR1	GA
Blockage Notification				
3B21D/RTR High Speed Performance Improvement	686	5E16(2)	FR1	SU 30013
TCP/IP via ASM for CIA	689	5E16(2)	FR2	GA
ASM Model 1 Support Extension	690	5E16(2)	FR2	-
ASM Model 1 Support Extension	691	5E16(2)	FR2	-
Rate and Route Translation Simplification - Exception	694	5E16(2)	FR5	GA
Routing				
Rate and Route Translation Simplification - Code	695	5E16(2)	FR5	GA
Blocking				
Rate and Route Translation Simplification -	696	5E16(2)	FR5	GA
OPER/EMER Routing				
CIC Routing Solution	697	5E17(1)	FR3	GA
Proprietary	698	5E16(2)	FR4	GA
Proprietary	699	5E16(2)	FR4	GA
IP Backhaul	762	5E19(1)	FR1	GA
(depends upon SFID 221)				
(See division 2, Section 7CN)				
RLU (Remote Line Unit) Secondary Control Facilities	764	5E16(2)	FR4	GA
SIP without Encapsulated ISUP	769	5E16(2)	FR6	GA
Enhanced 5E Traffic Measurement Interface	776	5E20(1)	GA	GA
Secured Feature Module Growth Update Automation	NA	5E5	SU 900085	-
		5E6	GA	GA

Notes:

- = Software Release Feature. No Informational Software Update available.

GA = Feature available in the General Availability Software Release.

NA = Feature no longer uses SFID or is not available for this Software Release.

* = When multiple software updates are listed for a single software release, all of the software updates for that software release must be installed for the feature to function.

FR = Feature is available with a feature release; e.g., FR2 indicates Feature Release 2.

Figure 1 SECURED FEATURE ID NUMBERS AND CORRESPONDING FEATURE NAMES

SEC. 4A1: MULTI-DISTINCTIVE RINGING

1. FEATURE DESCRIPTION

Multi-Distinctive Ringing is available with 5E4(2) and later Software Releases. It allows multiple TNs (dependent TNs) with distinctive ringing to be assigned to a single analog line (Master TN) termination. An unlimited number of Dependent TNs may be assigned to the Master TN, but only 4 distinctive ringing patterns are available to be assigned to Dependent TNs. The Master TN will receive ringing pattern A unless the Distinctive Ringing feature, defined on the DRFD form (5606-1 Record), is assigned to the Master TN.

All BRCS features (except Distinctive Ringing) that are assigned to the Master TN will be applied to the Dependent TNs. The Call Forwarding and Call Waiting features are enhanced with the Multi-Distinctive Ringing feature.

When Call Waiting is assigned to the Master TN, distinctive call waiting tones which correspond to the distinctive ringing tones will be applied to the Dependent TNs.

When Call Forwarding Variable is assigned to the Master TN, one of the following options may be chosen:

- All calls to the Master TN and its dependents will be forwarded.
- Only calls to the Master TN will be forwarded.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MTNDR	5550	3	6A	1.9
SFSYS	5713-1	3	5AR	8.22
CFWFD	5614-1/2	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22

MTNDR form (5550 Record) - Used to assign multiple TNs with distinctive ringing to a single analog line.

SFSYS form (5713-1 Record) - Used by the SEE (Lucent Technologies System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 1 must be set to "S<170 on the SFSYS form to make this feature functional for the office.

CFWFD form (5614-1/2 Record) - Used to define the Call Forwarding feature. The DDNCFI field is used to

indicate whether or not dependent DNs are forwarded for Call Forward Variable.

CFWLPA form (5614-3 Record) - Used to assign Call Forwarding parameters to an individual line. The DDNCFI field is used to indicate whether or not dependent DNs are forwarded for Call Forward Variable.

SEC. 4A3: VPATH 7/10 DIGIT OUTPUTSING

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A5: AUTOMATIC NUMBER IDENTIFICATION OVER PRIVATE FACILITIES

1. FEATURE DESCRIPTION

For 5E4(2) and later Software Releases, the PFA (Private Facility Access) feature allows customers to have dial code access to various types of public and private switching networks. The ANI (Automatic Number Identification) over PF (Private Facility) Special Feature provides ANI in a form similar to that employed by FG-D (Feature Group-D) signaling. The similarities to FG-D provided by this special feature are, two ANI information digits and outputting the billing number before the called number. Prior to this feature, billing information on PF trunks was available in a CAMA (Centralized Automatic Message Accounting) format, where the called number was outputted before the single ANI information digit and the billing number.

The following two tables describe the differences in format between the ANI over Private Facility Special Feature format, and CAMA format:

ANI Over Tie Trunk Format	
ANI II + Billing Number	First Stage
Called Number	Second Stage
MF Signaling (Required)	First and Second Stage
CAMA Format	
Called Number	First Stage
ANI I + Billing Number	Second Stage
MF Signaling (Required)	Second Stage Only

The following is the office-to-office signaling that occurs for the ANI over Private Facility Special Feature:

1. User dials access code + called number
2. Near end seizes trunk
3. Far office returns wink
4. ANI is outputted to far office
5. The called number is outputted to far office
6. Far office returns acknowledgement wink
7. Near end waits for answer supervision.

The ANI over Private Facility Special Feature will only be implemented over senderized, wink start, PF trunks with multifrequency signaling. Trunk access will be limited to PFA and ARS dialed calls only. Cut through

and/or FX trunks will not be allowed. This feature will expect the trunk class at far end to accept the signaling format used by this feature. The ANI over Private Facility Special Feature provides ANI over PF trunks (in a format similar to FG-D) to a Private Network for generating station level billing records of remote access calls.

Customers of a PF group access these facilities by dialing a PFA code which can be defined on either an IDPDCA form (5601-1/2 Records), PDIT form (5300-2 Record) or CFGGRP form (5964 Record) with ACTION equal to "PFUSE". Currently the ANI is not outpulsed during PFA.

This feature will provide a new trunk signaling protocol for PF trunks, which allows the ANI to be outpulsed over multifrequency trunking facilities to the private network.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MCRTIDX	5304	3	3Q	10.4
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22

MCRTIDX form (5304 Record) - This form is used to determine routing for various BRCS capabilities.

For 5E7 and later, SIGNALING PROTOCOL must be "PNANI", a new entry added to the SIGNALING PROTOCOL field. When "PNANI" is entered, CI ROUTE TYPE must be "OTHER", OVERLAP OUTPULSING must be "N", and ANI OUTPULSING must be "Y". "PNANI" may not be entered unless the ANI over PF secured feature has been activated with FEATURE ID 5 set to "Y" on the SFSYS form (5713-1).

RTIDX form (5303 Record) - This form is used to define each Route Index in a 5ESS office.

For 5E7 and later, SIGNALING PROTOCOL must be "PNANI", a new entry added to the SIGNALING PROTOCOL field. When "PNANI" is entered, CI ROUTE TYPE must be "OTHER", OVERLAP OUTPULSING must be "N", and ANI OUTPULSING must be "Y". "PNANI" may not be entered unless the ANI over PF secured feature has been activated with Secured Feature ID 5 set to "Y" on the SFSYS form (5713-1).

SFSYS form (5713-1 Record) - This form is used to enable Secured System Optional Features for an entire 5ESS Switch or for selected switching modules. The Secured Feature ID 5 must be set to "Y" to make ANI Over Private Facilities functional for the office.

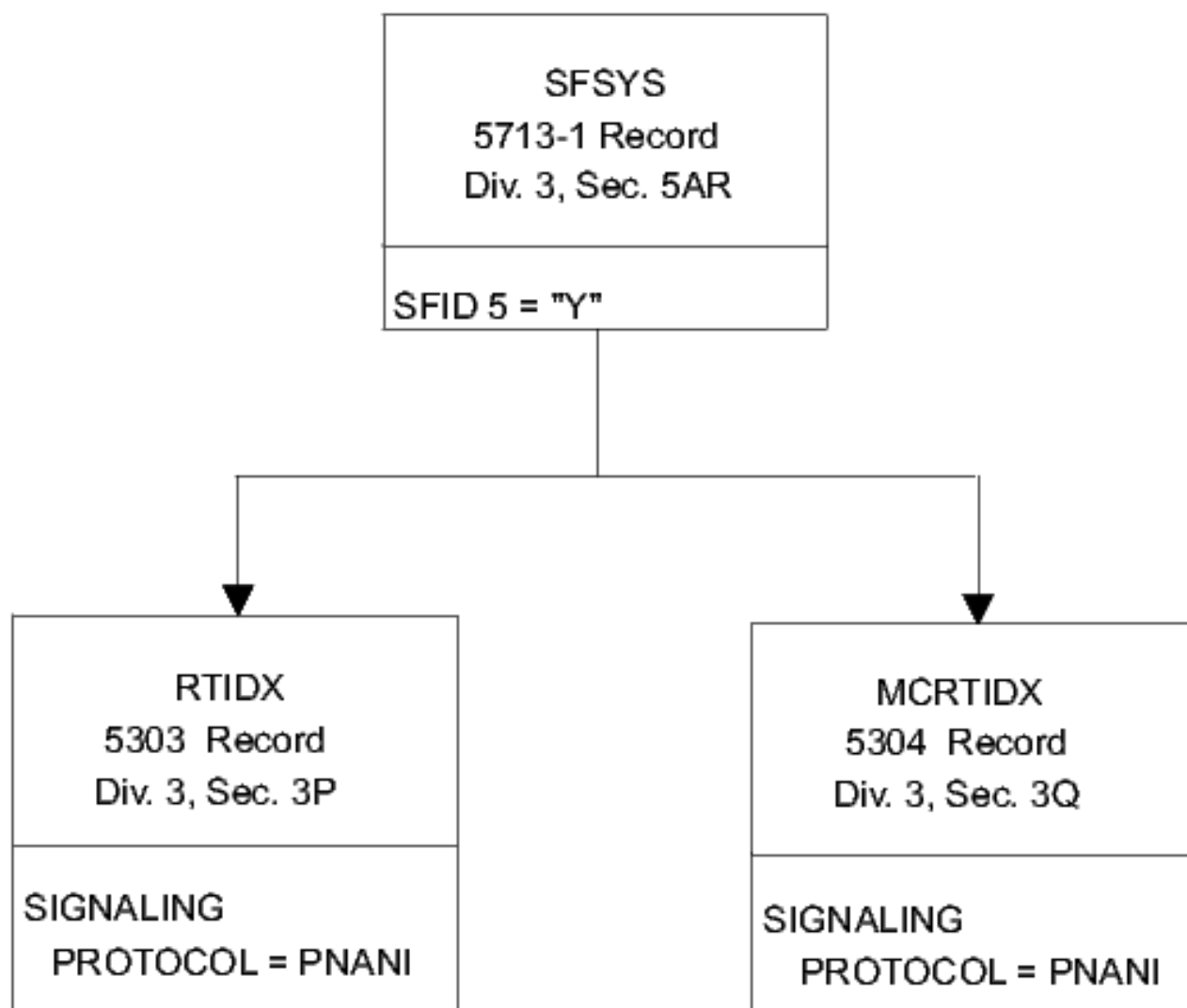


Figure 1 FORM FLOW FOR ANI OVER PRIVATE FACILITIES

SEC. 4A6: CIRCUIT SWITCH TRUNK

1. FEATURE DESCRIPTION

The CST (Circuit Switch Trunk) feature is available for 5E5 and later. This secured feature (SFID 6) is a Number Service that provides call routing capability from end users to ESPs (Enhanced Service Providers) based on the dialed number. End users in an EAEO (Equal Access End Office) dial a 7- or 10-digit access code to place a call to the ESP. The 7- or 10-digit code is assigned to the CST service. The CST Tandem receives calls from EAEOs and routes the calls to ESPs.

2. FEATURE ASSIGNMENT

This secured feature must be enabled by setting the ACT field for SFID 6 to "Y" on the SFSYS form (5713-1 Record).

The following must be entered on the ICF form (5305 Record):

- CARRIER TYPE must be "PSEUDO"
- DIG ROUTING must be "Y".

Outgoing trunks to the ESP should appear similar to trunks going to an Interexchange Carrier.

The SSP/800 feature must be equipped and operational in order to use the CST feature.

3. TRANSLATION REQUIREMENTS

There are no new or changes forms for this feature.

SEC. 4A9: CARRIER IDENTIFICATION PARAMETER

1. BACKGROUND

Prior to this feature, a given IXC (Inter-Exchange Carrier) was assigned more than one CIC (Carrier Identification Code) for various services; separate dedicated trunk groups were provided in order to identify each assigned carrier code for different services.

2. FEATURE DESCRIPTION

Available with Software Release 5E8 and later, the CIP (Carrier Identification Parameter) feature is a secured feature using SFID (Secured Feature ID) 9 and must be purchased before being activated. The feature number for this feature is 99-5E-1526.

The CIP feature

- provides the capability for 5ESS-2000 to deliver the CIC over a shared ISUP (Integrated Services - User Part) trunk to an IXC to identify various services.
- enables IXCs to combine a variety of services into one trunk group between the LEC (Local Exchange Carrier) EAEO (Equal Access End Offices)/AT (Access Tandem) and IXC location so that trunking facilities can be used more efficiently.

The CIP feature supports all InterLATA, FGD (Feature Group D), 700, 800-NXX, 900-NXX, and 800 database calls except the FGB (Feature Group B) with traditional signal (SIG_PRO is set to FGB on ODA form RTIDX (5303 Record) and international calls.

This feature only applies to delivery of the CIP to carrier by the ISUP trunks.

3. FEATURE ASSIGNMENT

See Figure 2 for form flow.

The CIP feature is a secured feature and must be activated before the capability can be provisioned to deliver the CIC to IXC on per routing index basis. Therefore, the ACT field for SFID 9 on the SFSYS form (5713-1 Record) must be set to "Y".

To enable the CIP to be delivered over the RTI (Routing Index) (pointed by Carrier XXX[X]) to IXC, the RTI must be entered and CIP SUBSC set to "Y" on the RTIDX form (5303 Record). Otherwise, set CIP SUBSC to "N".

To block CIP from being delivered over the RTI to IXC if the interworking connection came from MF trunk (incoming trunk to this office is an MF trunk), OFFICE ID must be specified and CICIP BLOCK set to "Y" on the OFCOPT form (5509 Record). Otherwise, set CICIP BLOCK to "N".

The two tables in Figure 1 show the CIP delivery based on the subscription parameters.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
OFCOPT	5509	3	5I	8.1, 8.15
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. The CICIP BLOCK field was added to determine whether a Carrier Identification Code Parameter is to be included in the outgoing IAM (Initial Address Message) which is part of the ISUP protocol for interworking between Multi-Frequency and CCS7 trunks.

RTIDX form (5303 Record) - This form is used to define each Route Index for the 5ESS-2000 Switch. The CICIP SUBSC field was added to indicate whether or not the CICIP should be included in the IAM sent from the originating end office to the far switch.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 9 to "Y".

5. GLOSSARY

AT	Access Tandem
CCS7	Common Channel Signaling, CCITT Version 7
CIC	Carrier Identification Code
CIP	Carrier Identification Parameter
EAEO	Equal Access End Offices
FGB	Feature Group B
FGD	Feature Group D
IAM	Initial Address Message
ISUP	Integrated Services - User Part
IXC	Inter-Exchange Carrier
LATA	Local Access And Transport Area
LEC	Local Exchange Carrier
RTI	Routing Index
SFID	Secured Feature ID

CIP Delivery For EO-IXC				
Call Type	CIP Capable	CIP Subscribed	MF Block	Will IXC Receive CIP?
-	N	-	-	N
-	Y	N	-	N
InterLATA(7/10)	Y	Y	-	Y
FGD 10[1X]XXX	Y	Y	-	Y
10[1X]XXX+700	Y	Y	-	Y
700	Y	Y	-	Y
800-NXX	Y	Y	-	Y
800 Query Call	Y	Y	-	Y
900-NXX	Y	Y	-	Y
Others*	Y	Y	-	N

*: FGB calls with traditional signal (SIGNALING PROTOCOL is set to FGB on the RTIDX form (5303 Record) is not supported. FGB with non-traditional signal (SIGNALING PROTOCOL is set to EA on the RTIDX form) is based on the subscription of the RTI to either deliver or not deliver the CIP.

CIP Delivery For EO-AT-IXC								
EO Conditions Call Type	AT Conditions							
	CIP Capable	CIP Subscribed	EO-AT Trunk	Will AT Receive CIP?	CIP Capable	CIP Subscribed	MF Block	Will IXC Receive CIP?
-	N	-	CCS	N	Apply Table 1 treatment			
Non-FGB	Y	-	CCS	Y	Y	Apply Table 1 treatment		
Non-FGB	Y	-	CCS	Y	N	-	-	Y
FGB%	-	-	CCS	N	-	-	-	N
-	-	-	MF	N	N	-	-	N
-	-	-	MF	N	Y	N	-	N
-	-	-	MF	N	Y	Y	Y	N
-	-	-	MF	N	Y	Y	N	Y/N#

#: FGB call with non-traditional signaling (SIGNALING PROTOCOL is not set to FGB on the RTIDX form) will deliver the CIP to AT.

#: The CIP will be delivered only for those call types specified in the Table 1.

Figure 1 CIP DELIVERY BASED ON SUBSCRIPTION PARAMETERS

Enable Feature

SFSYS 5713-1 Record Div. 3, Sec. 5AR
SFID 9 ACT="Y"

Suscribe CIP
based on Routing
Index?

RTIDX 5303 Record Div. 3, Sec. 3P
RTI CICP SUBSC

Block CIP for
MF-to-ISUP
interaction?

OFCOPT 5509 Record Div. 3, Sec. 5I
OFFICE ID CICP BLOCK

Figure 2 FORM FLOW FOR CARRIER IDENTIFICATION PARAMETER

SEC. 4A10: LDP ENHANCED DAL (DATA ACCESS LINK)

1. FEATURE DESCRIPTION

The LDP (Long Distance Platform) Enhanced DAL (Data Access Link) feature is a secured feature (SFID 10) that is being made available in the 5E15 Software Release. The feature number for this feature is 99-5E-7346.

A DAL is a direct access link (trunk) to the 5ESS Switch from a PBX (Private Branch Exchange) or other key systems. The ability to connect a PBX directly to a 5ESS Long Distance Switch gives the PBX providers greater flexibility in services that can be offered to their customers, as well as allowing them to by-pass the LEC (Local Exchange Carrier). Calls can also terminate to a PBX via a trunk that is directly connected to the 5ESS Long Distance Platform Switch. This is called a terminating DAL, even though there is no indication on the 5ESS Switch that the trunk is connected to a PBX instead of another 5ESS Switch or an End Office Switch.

Currently available with the 5ESS LDP Switch is DAL processing that requires all calls originating on the DAL to be processed by a SCP (Service Control Point). No LDP "on-switch" features can be used to process the call. This feature provides the ability to process a DAL without required SCP interaction that can be used with the 5ESS Switch Long Distance Platform features. DAL originated calls can be processed "on-switch" with the ability to use most of the LDP features, including ANI (Automatic Number Identification), CIC (Carrier ID), and II Digits Table Processing.

Also included with this feature is the ability for calls that terminate to a PBX trunk that requires a special protocol (specified by SPC (Secondary Point Code) PBX on the TKGRP form (5202 Record) and RC/V (Recent Change/Verify) 5.1), to overflow to any trunk to provide alternate routes that can be used to terminate the call.

In addition, there will be Carrier Compare Functionality for SCP DAL Post-Query Processing. With the SCP DAL feature (99-5E-4307) (for information on this feature, see Division 2, Section 4A272), when the LDP Switch receives a response from the SCP for the DAL originated call, the LDP Switch processes this response as if it was being received by the non-LDP switch process. That is, if a CIC is returned from the SCP, the switch routes the call based on the carrier (carrier routing instead of digit routing).

Therefore, when the SCP response contains a CIC for one of the carriers being supported by the LDP Switch, the call has to be "looped-around" to the same switch to complete the routing of the call. This is not how the LDP switch performs Post-Query Processing for other types of SCP responses, instead it uses the "carrier compare" process for the call. To align the SCP DAL feature with the other LDP features, the Enhanced DAL feature adds the "carrier compare" process to the SCP DAL feature.

The "carrier compare" process examines the CIC returned by the SCP, and attempts to match it against the carriers provisioned on the LDP Carrier Table (LDPCTBL form (5562 Record) and RC/V 8.52) or the office default (OFCOPT form (5509 Record) and RC/V 8.1). When the returned CIC matches one of these, digit routing of the call is performed instead of carrier routing. When the returned CIC does not match one of these, carrier routing is performed.

2. FEATURE ASSIGNMENT

For 5E15 and later, to provision this feature:

SFSYS form (5713-1 Record)

- Set the ACT field for SFID 165 to "Y".
- Set the ACT field for SFID 10 to "Y".

TKGRP form (5202 Record)

- Set the LDP field to "Y".
- Set the DAL ACCESS field to "Y".
- Set the TRK DIR field to "INC" or "2W".
- Set the TRKCLS field to "EDSL", "EDSLHM", or "PF".
- If TRKCLS is set to "EDSL" or "EDSLHM", set the INPUTSING field to "DCHN".
- If TRKCLS is set to "PF", set the INPUTSING field to "MF" or "TT", and set the BILLING DN field with the proper billing number.
- Set the ASP TOLL field to "N".
- Set the CARRIER TRIG field to "N".
- Set the LN TYPE field to "NONE".
- Set the NCD SCREENING field to "NONE".
- Set the CMC field to "N".
- Set the VPN ACCESS field to "N".
- Set the BRCS field to "N".
- The TRIG NBR field must be blank.
- The CUT THRU TRIG field must be blank.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate SFIDs (Secured Feature IDs). This feature is activated by setting the ACT fields for SFID 165 and SFID 10 to "Y" on this form.

TKGRP form (5202 Record) - The 5202 Record is used to define each Trunk Group in a 5ESS Switch. Added data rules to CARRIER ID, PREF NPA, ANI PROCESS, and DAL ACCESS fields.

SEC. 4A11: EAOSS SIGNALING FOR OPERATOR SERVICES CALLS

1. BACKGROUND

Two types of MF (Multifrequency) signaling are being used to provide the LEC (Local Exchange) network interconnection to ICs (Interexchange Carriers) and INCs (International Carriers). EA (Equal Access) signaling, also known as Feature Group D signaling, is used for signaling calls from an Equal Access End Office to an IC/INC either directly or through an Access Tandem. Operator Services signaling is used on calls that require operator services to pass information to an IC/INC that provides such services.

EA signaling provides for combining of Direct Distance Dialed traffic for different ICs/INC's on a single trunk group between an EAEO and an AT. Operator services signaling requires separate trunk groups for each IC/INC. This leads to significant trunking inefficiencies as the number of ICs and INCs served increases. EAOSS (Exchange Access Operator Services Signaling) permits much greater trunk efficiency by allowing different types of traffic (e.g., operator and non-operator, coin and non-coin, LEC and IC/INC, etc.) for all carriers to be routed over a single, large trunk group. However, Inward calls will continue to be routed over different trunk groups.

2. FEATURE DESCRIPTION

The feature number for EAOSS Signaling for Operator Services Calls Special Feature is 99-5E-2234. This secured feature is available for 5E8 and later.

The Exchange Access Operator Services Signaling feature for local switches includes enhancements to Equal Access Signaling that allows operator and non-operator traffic to be routed over a single trunk group. In conjunction with office data, the EAOSS feature allows the AT (Access Tandem) to recognize the information received from the EAEO and determine whether to route the information to an IC/INC or a LEC operator system. The information is transferred through signaling information fields via digits between a KP (Key Pulse) signal and an ST (Start Signal) and also via variations of KP and ST signals. In the case where the call is delivered to the LEC OSPS by the AT, the EAOSS feature allows the OSPS to recognize the received information. In the case where no direct link exists between the LEC operator system and an IC/INC operator system, the LEC operator system transfers the information to the IC/INC via the AT after providing the appropriate operator services.

The EAOSS Signaling for Operator Services Calls feature allows a 5ESS Switch/5ESS-2000 Switch EAEO (Equal Access End Office) to combine the following types of traffic on a single trunk group connecting to an AT (Access Tandem) serving as an OSS (Operator Services System):

- Operator services traffic being tandemed to the OSSs of one or more IC/INC's (InterLATA Carriers/International Carriers or Consolidated Carriers which serve as both an IC and an INC.)
- LEC (Local Exchange Carrier) operator services traffic.
- IC/INC operator services traffic which the LEC OSS is handling for one or more IC/INC's.

The feature supports both coin and non-coin originations.

EAOSS Signaling for Operator Services Calls supports three MF signaling protocols that are designed to be combined on the same trunk group, MEA, EOSS, and EAOSS.

MEA - Modified EA signaling, which is similar to FGD (Feature Group D) signaling developed at the time of divestiture, except that the IC/INC returns an off-hook rather than an Acknowledgement Wink at the end of

signaling. The off-hook initiates an operator hold condition allowing the EAEO to accept specialized operator signaling from the IC/INC OSS. Modified EA signaling may be used on direct trunk groups to IC/INCs or on tandem trunk groups. When used on tandem trunk groups, it allows calls for different IC/INCs to be combined on a common trunk group. Modified EA signaling is used when an IC/INC is providing its own operator services.

Modified EA signaling for coin calls was developed with the TAISP (Tandem Access for InterLATA Sent-Paid Coin Calls) feature. EAOSS Signaling for Operator Services Calls extends that capability to include non-coin operator services calls. It also allows the IC/INC to use either IS (Inband Signaling) or EIS (Expanded Inband Signaling) for providing special operator functions. (Only EIS was supported with TAISP.)

EOSS - Exchange Operator Services System signaling. EOSS signaling is used to signal local operator services calls handled by the LEC (Local Exchange Carrier). It improves upon TSPS signaling by sending two ANI information digits rather than one, 10-digit calling party identification rather than 7-digit, and by varying the ANI KP (Key Pulse) signal to indicate whether DP (Dial Pulse) or DTMF (Dual Tone Multifrequency) signaling was used on the call. Both IS and EIS are supported with EOSS signaling.

EAOSS - Exchange Access for Operator Services System signaling. EAOSS signaling supports interLATA calls directed to IC/INCs which are being provided operator services by the LEC. Like MEA signaling to an AT OSS, EAOSS signaling is also an extension of FGD signaling. EAOSS signaling looks like MEA signaling except that an ST' is signaled in the first stage of outpulsing to indicate that LEC operator services are to be provided, and the KP in the ANI sequence is varied to indicate if 10XXX for 5E8 or 10XXXX for 5E9(1) and later was dialed and whether DP or DTMF signaling is allowed on the line. Both IS and EIS are supported with EAOSS signaling.

The ability to accept EOSS, EAOSS, or MEA signaling at a 5ESS Switch/5ESS-2000 Switch OSPS office or 5ESS Switch/5ESS-2000 Switch Local/Toll office is not provided by this feature.

See Figure 1 for an example of how the signaling protocols provided by this feature might be used to reconfigure operator services traffic in an EAEO to consolidate trunk usage.

With EAOSS Signaling for Operator Services Calls Special Feature, the service provider is able to designate, for calls routed to the common trunk group, the types that should be signaled with each of the three signaling protocols. A new common trunk group should be defined or calls should be routed over an existing trunk group that matches the translations requirements. (See table below.) One or more new route indexes or one or more modified existing route indexes should be used for calls to be routed over the shared trunk group. The route index indicates the signaling protocol (i.e. EAOSS, EOSS, or MEA) to be used. The following table indicates the type of signaling that may be accepted at a 5ESS Switch/5ESS-2000 Switch OSPS office.

LEC OS	SIGNALING PROTOCOL	CI CALL TYPE	SIGNALING PROVIDED
N	INCM	STG	MEA
N	INCM	DTG	MEA
N	MEA	STG	MEA
N	MEA	DTG	MEA

MEA and EAOSS signaling are both designated with signaling protocols of MEA, for domestic calls, and INCM, for international calls. The two types of signaling are distinguished by a new field, LEC OS, which has been added to the Route Index RTIDX form. LEC OS is set to "Y" for EAOSS signaling, and set to "N" for MEA.

Like EAOSS signaling, EOSS signaling is designated with a signaling protocol of MEA and "Y" entered in the LEC OS field. EOSS signaling is used if the call is an intraLATA operator services call for which no IC has been designated, or if the call is a corridor call for which the LEC has been designated as carrier. EAOSS signaling is used if the call is interLATA that is not handled by the LEC (except for the LEC-handled corridor

calls), or if an interLATA carrier has been designated to handle the call.

With each of the three types of signaling described above, return of the off-hook by the OSS signifies the start of an operator hold condition. During operator hold, the EAEO is prepared to accept IS (or EIS, if provisioned) from the OSS. The originator may recall the operator with a switchhook flash (operator recall is not supported for lines which have subscribed to features that offer recall dial tone upon flash, or during calls accepted with a call waiting feature). Also, during operator hold, the EAEO does not release the connection until the OSS disconnects from the call or the originating station has remained on-hook with no operator signals from the OSS for longer than the operator hold timeout interval, which is four minutes. If no signal is received and the time out is exceeded, the call is disconnected and the trunk is given "High and Wet" treatment.

Since AMA records for those calls signaled with EOSS and EAOSS signaling are generally made at the AT/OSS, the EAEO has the option of not entering AMA records. This is done by appropriately provisioning the charging information using the existing procedure as with any signaling change.

The service provider must ensure that the 5ESS Switch/5ESS-2000 Switch EAEO does not begin to signal calls using MEA, EOSS or EAOSS signaling before the AT has been configured to receive and correctly process the signaling.

3. FEATURE ASSIGNMENT

EAOSS Signaling for Operator Services Calls is a secured feature that must be activated before the capability to route a non-coin call with MEA signaling or before any call with EOSS or EAOSS signaling can be provisioned.

The following sample data descriptions are for an EAEO. The EAOSS special feature is enabled in the office and the office parameter of EXPANDED INBAND SGNLING is set to "Y" on the OFCOPT form (5509 Record):

- Define the new shared trunk group or use an existing trunk group from EAEO to the AT. For example, enter the following fields on the TKGRP form (5202 Record).

TKGRP Form (5202 Record)	
Field	Entry
TGN	500
TRK DIR	OUTGO
HUNT TYPE	FIFO
TRKCLS	TSPS
CARRIER ID	(not entered)
INC TND WNK	N
OUTPULSING	MF
FREE ANS	Y
SIGNAL	INBAND or EXINBND
FREE TERM	N
INIT	N
FINAL	Y
TSPS TYPE	COMBINED

- Define new routing information for EAOSS or EOSS signaling using the new shared trunk group for domestic calls. For example, enter the following fields on the RTIDX form (5303 Record).

RTIDX Form (5303 Record)	
Field	Entry
ROUTE INDEX	79
TRUNK GROUP NUMBER	500
PREFIX DIGITS	099

SIGNALING PROTOCOL	MEA
ANI OUTPUTSING	Y
CI ROUTE TYPE	STG
REMARKS	EAOSS or EOSS with MEA signaling protocol
LEC OS	Y

- Define new routing information for EAOSS signaling using the new shared trunk group for international calls. For example, enter the following fields on the RTIDX form (5303 Record).

RTIDX Form (5303 Record)	
Field	Entry
ROUTE INDEX	80
TRUNK GROUP NUMBER	500
PREFIX DIGITS	199
SIGNALING PROTOCOL	INCM
ANI OUTPUTSING	Y
CI ROUTE TYPE	STG
REMARKS	EAOSS with INCM signaling protocol
LEC OS	Y

- Define the new dedicated trunk group from EAEO to the AT. For example, enter the following fields on the TKGRP form (5202 Record).

TKGRP Form (5202 Record)	
Field	Entry
TGN	501
TRK DIR	OUTGO
HUNT TYPE	FIFO
TRKCLS	TSPS
CARRIER ID	288
INC TND WNK	N
OUTPUTSING	MF
FREE ANS	Y
SIGNAL	INBAND/EXINBND
FREE TERM	N
COINRTN INT	N
COINRTN FNL	Y

- Define new routing information for MEA signaling using the new shared trunk group for domestic calls with CI ROUTE TYPE set to "DTG". For example, enter the following fields on the RTIDX form (5303 Record).

RTIDX Form (5303 Record)	
Field	Entry
ROUTE INDEX	83
TRUNK GROUP NUMBER	501
PREFIX DIGITS	(not entered)
SIGNALING PROTOCOL	MEA
ANI OUTPUTSING	Y or N
CI ROUTE TYPE	DTG
REMARKS	MEA signaling protocol
LEC OS	N

- Define new routing information for MEA signaling using the new shared trunk group for domestic calls with CI ROUTE TYPE set to "STG". This example is allowed when the EAOSS special feature is disabled in the office and the office parameter of EXPANDED SIGNALING is equal to "Y" on the OFCOPT form. In addition, the SIGNAL on the TKGRP form must be "EXINBND". For example, enter the following fields on the RTIDX form (5303 Record).

RTIDX Form (5303 Record)

Field	Entry
ROUTE INDEX	82
TRUNK GROUP NUMBER	500
PREFIX DIGITS	099
SIGNALING PROTOCOL	MEA
ANI OUTPUTSING	Y or N
CI ROUTE TYPE	STG
REMARKS	MEA signaling protocol
LEC OS	N

- Define new routing information for MEA signaling using the new shared trunk group for international calls with CI ROUTE TYPE set to "STG". This example is allowed when the EAOSS special feature is disabled in the office and the office parameter of EXPANDED SIGNALING is equal to "Y" on the OFCOPT form. In addition, the SIGNAL on the TKGRP form must be "EXINBND". For example, enter the following fields on the RTIDX form (5303 Record).

RTIDX Form (5303 Record)

Field	Entry
ROUTE INDEX	84
TRUNK GROUP NUMBER	501
PREFIX DIGITS	199
SIGNALING PROTOCOL	INCM
ANI OUTPUTSING	Y or N
CI ROUTE TYPE	STG
REMARKS	MEA signaling protocol
LEC OS	N

- Define new routing information for MEA signaling using the new shared trunk group for international calls with CI ROUTE TYPE set to "DTG". This example is allowed when the EAOSS special feature is disabled in the office and the office parameter of EXPANDED SIGNALING is equal to "Y" on the OFCOPT form. In addition, the SIGNAL on the TKGRP form must be "EXINBND". For example, enter the following fields on the RTIDX form (5303 Record):

RTIDX Form (5303 Record)

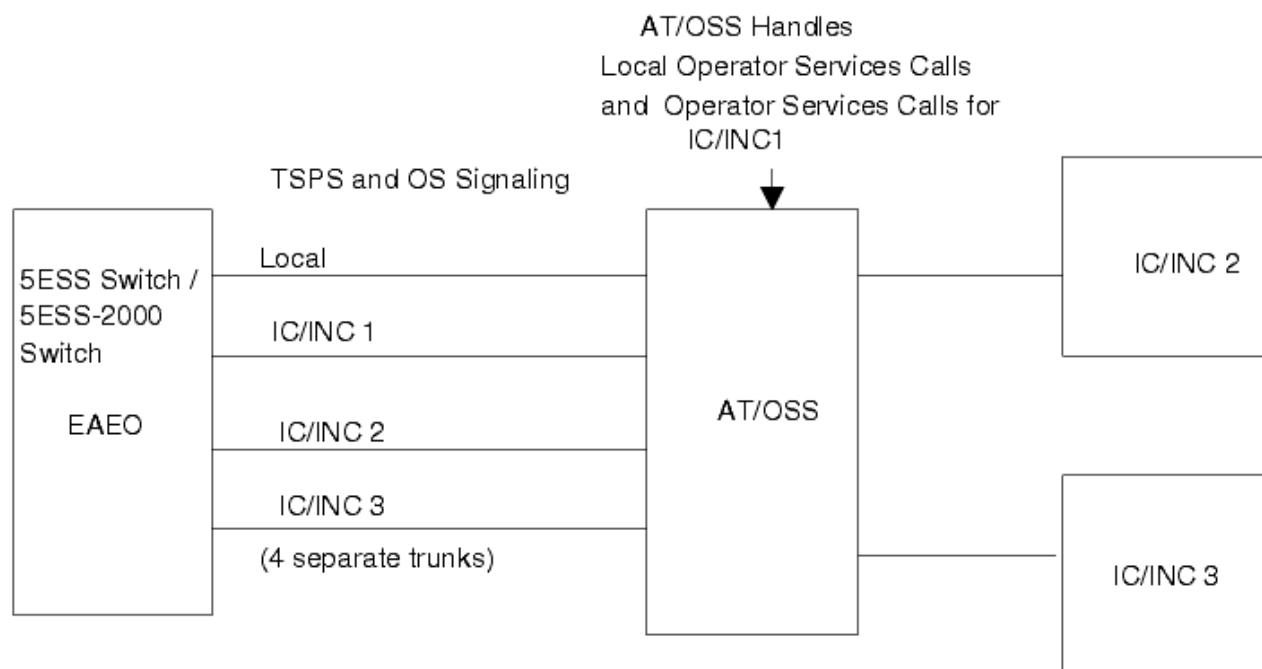
Field	Entry
ROUTE INDEX	85
TRUNK GROUP NUMBER	501
PREFIX DIGITS	199
SIGNALING PROTOCOL	INCM
ANI OUTPUTSING	Y or N
CI ROUTE TYPE	DTG
REMARKS	MEA signaling protocol
LEC OS	N

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
RTIDX	5303	3	3P	10.2

RTIDX form (5303 Record) - This form is used to define the route indexes for routing a call. The LEC OS field was added for this feature to indicate if operator services were provided by the LEC or by the IC.



With the EAOSS Signaling for Operator Services Calls Feature active:
operator services traffic might be routed and signaled as depicted below:

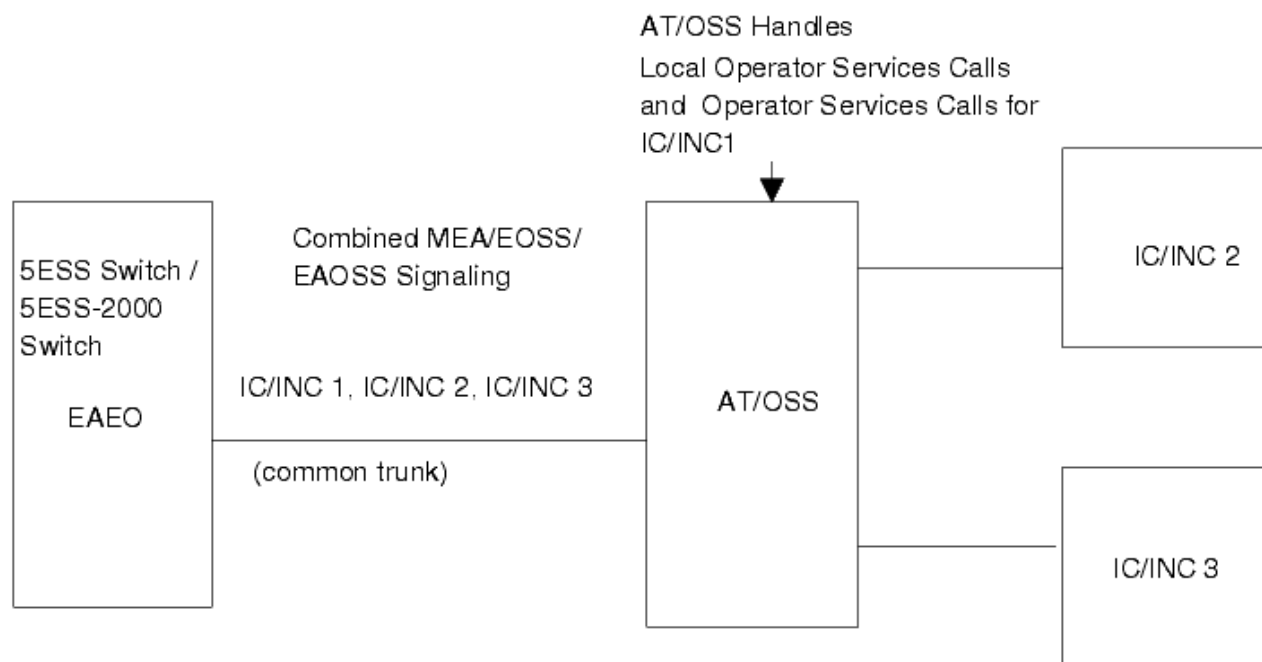


Figure 1 TRUNK CONFIGURATION FOR EAOSS SIGNALING FOR OPERATOR SERVICES

SEC. 4A12: DIRECT CONNECT CAPABILITY THROUGH THE ISDN ACVT FEATURE FOR ANALOG LINES

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-104 ISDN Feature Descriptions*.

SEC. 4A13: SELECTIVE CARRIER DENIAL

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A14: EXECUTIVE RINGER CUTOFF

1. DESCRIPTION

ERCO (Executive Ringer Cutoff) is a Secured System Optional Feature available with 5E5 and later Software Releases.

ERCO allows the ISDN key set user to press a feature button on an ISDN key set to turn audible ringing on or off for all incoming calls except Key set ICOM (Intercom) calls, 911 emergency calls and ringback calls from ACBC (Auto Call Back Calling). When ringing is turned off by ERCO, the user will still be alerted visually of an incoming call and may still pick up the call. ERCO allows the primary shared DN user to have incoming calls screened by another person on a shared DN line.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
DSLUSR	5908	5	1I	23.2
CFGGRP	5964	6	7A	12.5

SFSYS form (5713-1 Record) - Enable Secured System Optional Features for an entire 5ESS Switch or for selected Switching Modules. Secured Feature ID 14 must be set to "S" on the SYSYS form to make this feature functional for the office.

DSLUSR form (5908 Record) - Assign ERCO to a BRCS shared DN line.

CFGGRP form (5964 Record) - Assign ERCO to a button on an ISDN key set.

3. FEATURE ASSIGNMENT

If AT&T has enabled the ERCO feature for the office, ERCO is assigned to a primary shared DN on a DSLUSR form by entering "Y" in the ERCO ASGN field. In addition, if ERCO is assigned to an ISDN key set button on a CFGGRP form (see below), the Configuration Group name defined on the CFGGRP form must be entered in the CONFIG GRP field on the DSLUSR form.

ERCO is assigned to an ISDN key set button by setting the ACTION field, for the appropriate BUTTON, on a CFGGRP form (5964 Record) to "ERCO".

SEC. 4A16: OSPS DIRECT AGENT ACCESS

1. FEATURE DESCRIPTION

Please see Division 2, Section 3D - OSPS Commercial ACD features for translation information for Direct Agent Access Secured Feature.

SEC. 4A18: TERMINAL GROUP STATION RESTRICTION FOR ISUP (ISDN USERS PART) TRUNKS

1. FEATURE DESCRIPTION

TGSR (Terminal Group Station Restriction) is a BRCS feature that will allow the customer to restrict calls within a terminal group. The ISUP trunks are dedicated trunks between two switches. Calls between the terminal groups containing the ISUP trunks will be treated as intra-terminal group even though the call is interswitch. It should be noted that the actual terminal group values may be different between the switches; the ISUP trunk must be set up to be part of the correct terminal group within each switch.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1
TGSRFD	5607	4	8A	12.21
SFSYS	5713-1	3	5AR	8.22

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. The BRCS paragraph was altered to specify the changed form checks.

TGSRFD form (5607 Record) - These records are used to define the Terminal Group and Station Restriction Feature Definition. This form was altered to accommodate a new cross check.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. TGSR for ISUP Trunks Secured Feature ID 18 must be set to "S" to make the feature functional for the office.

SEC. 4A19: PRE-COMPLIANT FEATURE GROUP B CARRIER IDENTIFICATION CODE EXPANSION

1. FEATURE DESCRIPTION

Available with 5E6 and later, FGB CIC (Feature Group B Carrier Identification Code Expansion) expands the range of FGB CICs which can be supported by the 5ESS Switch in both End Office and Access Tandem applications. The secured feature ID for this secured feature is 19

Prior to this feature only CICs in the range of 000 - 999 were supported. In order to expand the range, this pre-compliant feature provides support for 4-digit CICs in the 2000 - 9999 range.

Carriers with 3-digit CICs will continue to be defined on the ICF (interLATA carrier feature) form. Carriers with 4-digit CICs will be defined via modifications to the routing and charging translations that will cause existing carrier selection to be bypassed.

2. TRANSLATION EXAMPLE

This section describes the steps necessary to define translations for this feature. Additionally, an example translations will be provided for the definition of FGB CICs 2000-2009.

1. On ODA form TKGRP, build the trunk group which will connect to the IC (Inter-Exchange Carrier) or to the FGB TANDEM.

In our example:

- Set TRKCLS based on DATA CONFIGURATION Figure 1.
- CARRIER ID is required for IC trunks. Since 4-digit carriers are not supported on the TKGRP form, insert a 3-digit carrier code (for example, 000) that will not be used by FGB or FGD carriers.

2. Isolate existing 3-digit FGB CICs on the LDIT and MLDIT forms. Existing FGB digit analysis translations may need to be altered so that only 9500 and/or 9501 will continue to use 3-digit FGB CICs. Other digit analysis translations will be added for 950NXXX (N = 2 - 9) to define the 4-digit FGB CICs.

Note: Avoid non-FGB uses of the digits 950.

In our example:

- Define incoming digit strings 9500 and 9501 to handle existing 3-digit FGB calls. As desired for the local dialing plan, either define both strings with TYPE OF CI CALL "TRANS", or define one string with TYPE OF CI CALL "TRANS" and the other with "VACANT". Set both to "TRANS" when either 9500XXX or 9501XXX can currently be dialed for FGB calls. Set only one to "TRANS" when only one of the two dialed strings can currently be used for FGB calls.
- Set NBR OF DIGITS to 7 for both strings. The "TRANS" string(s) will continue to perform standard carrier selection for 3-digit FGB CICs using the ICF form.

3. As needed, define 7-digit dialing strings 950NXXX for the 4-digit FGB CICs. The CALL TYPE should be "NORMAL", TYPE CI CALL should be "NONCI", and NBR OF DIGITS should be seven. Specify a ROUTE INDEX and CODE INDEX for the carrier.

Also define rate and route information (screening indexes, route indexes, charge indexes, etc.) as needed.

In our example:

For each of the 10-digit strings 9502000 through 9502009, define a VACANT code or a 4-digit CIC as follows:

- Verify that the carrier's needs can be met according to Figure 1.
- Build digit string 950200X (where X is 0 - 9) on an LDIT or MLDIT form. Set CALL TYPE to "NORMAL" and TYPE CI CALL to "NONCI". NBR OF DIGITS should be 7.

- For each screening index, build an RAR (rate and route) form using the carrier's code index. The RTI (route index) on the RAR form should point to the carrier and agree with the ROUTE INDEX specified on the LDIT or MLDIT form.
 - The CHGI (charge index) should be defined on a CGIDX form with an AMA CALL TYPE of "FGBOL" (Feature Group B, Originating LATA).
 - Build an RTIDX (route index) form for any new route indexes defined.
4. Define all unused 950NXXX dialed strings as "VACANT" CALL TYPEs.
- In our example:
- A. To define 4-digit CICs of 2000 - 2009, build CICs 2010 - 9999 as VACANT as follows:
- Build digit strings 9503 through 9509 with a CALL TYPE of "VACANT" and NBR OF DIGITS of 7.
 - Build digit strings 95021 through 95029 with a CALL TYPE of "VACANT" and NBR OF DIGITS of 7.
 - Build digit strings 950201 through 950209 with a CALL TYPE of "VACANT" and NBR OF DIGITS of 7.
5. Other blocks of 10, 100 or 1000 can be opened up as needed. Care must be taken to see that each block is built out completely, i.e., if 9503305 is built, then 9503300 - 9503304 and 9503306 - 9503309 must also be built. In other words, holes should not be left in the dialing plan.
6. Terminating billing for a 4-digit carrier can be provided at the EO or FGBT if private facility trunks are used on the terminating end.

On the TKGRP (trunk group) form set TRKCLS (trunk class) to "PF" (Private Facility) and the BILLING DN to 950XXXX (where XXXX is the CIC). A unique SCR (screening index) is recommended.

Build RAR forms for the screening index with an RTI (route index of "REGL" (regular line termination) and if necessary, an NXX. The call should terminate to the line specified by the impulsed digits.

The CHGI (Charge Index) on the RAR form should be defined on a CGIDX form with AMA CALL TYPE of "DMRTM" (Detailed Message Rate Timed, MBI).

In our example:

- Build the TKGRP form with TRKCLS equal to "PF" and BILLING DN equal to 950200X (where X is 0 - 9 as defined in step 3 above). Appropriate RAR and CGIDX forms should also be built.

3. TRANSLATIONS REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable

the feature for the operating company. Secured Feature ID 19 must be set to "S" on the SFSYS form to make FGB CIC Expansion functional for the office.

CONFIGURATION		ODA FORMS AND FIELDS						
SPAN	ANI	LDIT MLDIT	RTIDX					TKGRP
		TYPE OF CI CALL				OVERLAP OUTPULSI NG	CI ROUTE TYPE	TRKCLS
EO to IC	YES	TRANS	FGB	(OPT)	N	N	DTG	CAMA
EO to IC	NO	TRANS	FGB	(OPT)	N	N	DTG	IC
EO to FGBT	YES	TRANS	FGB	(NU)	N	N	STG	CAMA
EO to FGBT	NO	TRANS	FGB	(NU)	N	N	STG	LTOLLCON
FGBT to IC	NO*	TRANS	FGB	(OPT)	N	N	DTG	IC

Key:

OPT - Option as requested by carrier

NA - Not available

NU - Not used

NO* - ANI is not available from FGBT to IC

SPAN NO* - ANI is not available from FGBT to IC- Types of offices connected

Figure 1 FGB INTERIM PLAN

SEC. 4A24: OSPS PURCHASE LIMITS BALANCE QUOTATION RELEASE 1/2

1. PURCHASE LIMITS BALANCE QUOTATION, RELEASE 1

1.1 Feature Description

The feature number for this capability is 98-5E-2220. The Purchase Limits Balance Quotation Release 1 is a secured feature, with a secured feature ID of 24 for 5E8 and later.

The PLBQ (Purchase Limits Balance Quotation) feature provides special handling for a subset of PL (Purchase Limits) cards known as "disposable cards." A disposable card is defined as a card that subscribes to PL (Purchase Limits) with an enforcement level of EWD (End With Disconnect) and the balance of that card cannot be replenished.

Calls that are billed to disposable cards receive a quotation of their remaining balance in dollars and cents prior to call completion. Calls billed to disposable cards can use a different set of rates from those that are used for other card calls, as long as the DIFFCARD feature is active and the rater supports disposable card rates.

The disposable cards can be distinguished by their numbering scheme. The OSPS recognizes a disposable card through its card recognition processing. The unique rating is automatically provided by the RTRS (Real Time Rating System) through its card differential rate schedules.

1.2 Feature Assignment

See Figure 1 for feature assignment form flow for the PLBQ feature.

Default input data for this feature has been entered in the ANNDG form (5532 Record) and ANNHD form (5531 Record).

The PL Disposable Card Issuer IDs should be defined on the TCCID form (5454 Record) by setting the DISPOSABLE CARD field to "Y".

The secured feature is activated by setting SFID 24 ACT field to "Y".

Activate the feature on the switch by setting the PLBQ ON field on the OSPSOPT form (5424 Record) to "Y".

1.3 Scenarios

Scenario: Automated PL Balance Quotation Call

The caller dials 0 + forward number.

OSPS gives the Bong Tone to the caller.

The caller enters the PL Disposable Card number.

OSPS sends a calling card query to validate the card to the CAS/NCP and receives a query reply of "ALLOW" with a PL TAP (Transaction Amount Parameter) containing an enforcement level of EWD and the card's balance.

OSPS sends an initial PL query to RTRS, which sends an initial PL query reply of a RATED call.

OSPS quotes the balance remaining on the PL disposable card, expressed in dollars and cents and then plays a thank you announcement (if applicable) and routes the call to the forward party.

The called party answers the phone and both parties talk for some time and then hang up.

OSPS, upon termination of the call, sends an ECDM to the CAS/NCP.

Scenario: Operator-Assisted PL Balance Quotation Call

Initial 0- seizure:

The caller makes a 0- call and provides the operator with the PL Disposable Card number followed by the forward number. The operator enters the PL Disposable Card number as dictated by the caller and enters the forward number.

OSPS sends a card validation query to the CAS/NCP. The "BLG CHECK" indicator is displayed.

OSPS then sends an initial PL query to RTRS, which returns an initial PL query reply of a RATED call.

The "BLG OK" is displayed at the operator terminal and a new message is displayed, indicating to the operator to quote the balance to the caller. The operator quotes the PL balance to the caller and floats the call.

The called party answers the phone and both parties talk for some time and then hang up.

Upon termination of the call, OSPS sends an ECDM to the CAS/NCP.

1.4 Translation Requirements

Form Name	Record Number	Division	Section	RC View
ANNDG	5532	3	5AF	8.60
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22
TCCID	5454	3	4BC	27.55

ANNDG form (5532 Record) - This form contains a list of inflection commands and phrases used to convert a digit string into a set of phrase identifications. For the PLBQ feature, default input data for INFLECTION IDs 121 - 141 for the "OSPSTA" application were added.

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. The default input data for announcement HEADER ID 191 was added for the PLBQ feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. To activate the PLBQ feature on the switch, the PLBQ ON field must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to enable secured features. To enable the secured feature PLBQ, the SFID 24 ACT field must be set to "Y".

TCCID form (5454 Record) - The TCCID form provides identification for telephone cards other than the 14 digit LEC card. The DISPOSABLE CARD field identifies the credit card number as a disposable card.

2. PURCHASE LIMITS BALANCE QUOTATION, RELEASE 2

2.1 Feature Description

For 5E9(1) and later, PLBQ2 (Purchase Limits Balance Quotation, Release 2) enhances the existing PLBQ1 feature by making the disposable card identification portable (when a card number can be assigned as a disposable card and later reassigned as a non-disposable card and vice-versa). It expands the balance quotation to a broader category of cards and supports unique rating by handling new information contained in the calling card query reply of calls whose card uses CAS7 signaling and is verified at the CAS/NCP (Customer Account Services/Network Control Point). In addition, PLBQ2 introduces the concept of formatting variable length queries and appending information modules at the end before they are sent to the RTRS (Real-Time Rating System) database for calls that require real-time rating. PLBQ2 is dependent on PLBQ1, which is secured feature (SFID 24). The feature number for this capability is 98-5E-2221.

In addition, the PLBQ2 feature introduces a new AMA Generic Data module to store the new card information received in the calling card query reply.

2.2 Feature Assignment

To activate the PLBQ2 feature:

1. PLBQ2 depends on PLBQ1 being turned on.
2. PLBQ2 ON field on the OSPSOPT form (5424 Record) must be set to "Y".

To activate the AMA Generic Data module, the AMA GENERIC DATA field on the OSPSOPT form must be set to "Y". (It depends on PLBQ2 being turned on.) The format of RTRS queries changes with this feature. The unused fields are deleted causing the queries to no longer be the same length. The variable length of the queries are not dependent on the feature activation.

2.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The activation parameters for PLBQ2 are PLBQ2 ON and AMA GENERIC DATA.

3. GLOSSARY

CAS	Customer Account Services
EWD	End With Disconnect
NCP	Network Control Point
PL	Purchase Limits
PLBQ	Purchase Limits Balance Quotation
RTRS	Real-Time Rating System
TAP	Transaction Amount Parameter

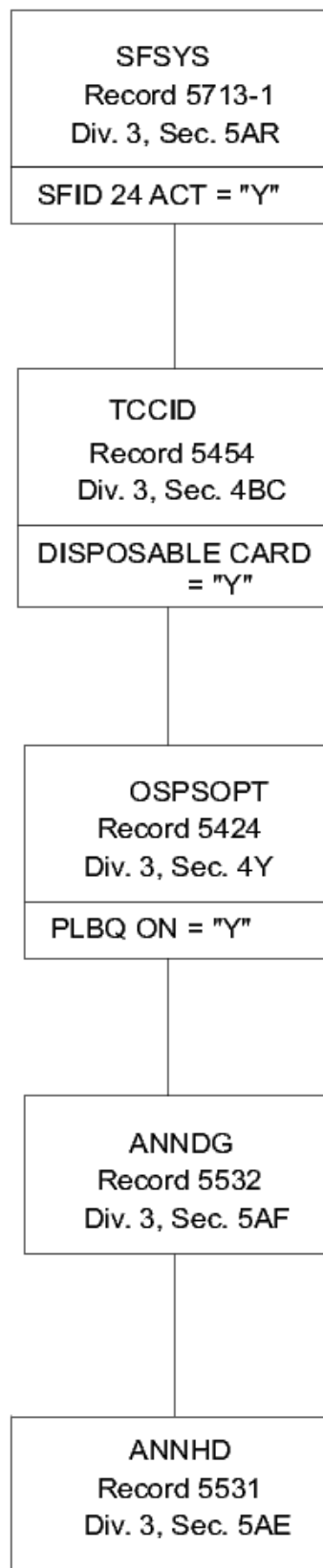


Figure 1 PURCHASE LIMIT BALANCE QUOTATION FEATURE FORM FLOW**SEC. 4A25: OSPS TELEPHONE RELAY SERVICE CALL HANDLING****1. FEATURE DESCRIPTION**

For 5E8 and later, the OSPS TRS (Telephone Relay Service) Call Handling is a secured feature (SFID 25) and an optioned feature (FID 575). The feature is activated after both the FID and SFID have been activated. The feature number for this capability is 98-5E-2115.

TRS is a service provided for the hearing and/or speech impaired. A Communications Assistant at the TRS center serves as a translator between the impaired person (using a TTY to communicate) and the hearing person. The TRS centers are operated by various carriers under contract to the center owners. In the past, the carrier operating the center provided the transport of the call. The Americans With Disabilities Act that became law in July, 1992, mandates that users of the TRS be able to select a carrier of their choice to transport the call. The TRS center must route the call to the chosen carrier via a signaling protocol acceptable to the equipment of both carriers. The carrier providing the transport is required to provide a discount to the TRS user. Thus, the billing information must contain data that identifies the call as a TRS call.

The OSPS TRS Call Handling special feature provides identification of TRS call billing restrictions based on received ANI Information Digits (ANI II), screening of calls originating in the area normally served by the receiving OSPS, and identification of the calls as TRS calls in the AMA records for billing purposes.

Due to the discounting requirement of TRS, the OSPS cannot correctly rate in real time the TRS calls. Except for Hotel Room Number (sent paid) calls from hotels within the normally served area of the OSPS, services and charging methods that require real time rating by OSPS are prohibited. The rating for the hotel calls will not include the discount. The 0+ or 0- calls have access to all OSPS features that do not require the operator services hold, through supervision, or real time rating.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for TRS Call Handling feature.

This feature is dependent upon the Feature Group D Incoming Signaling for Special Applications feature. The FGD Incoming Signaling is a secured feature (SFID 83) and an optioned feature (FID 572). The following data is needed in addition to the above:

- Add INFO DIGITS 60, 66, and 67 to the EASID form (5317 Record) and set both INTL and DOMESTIC fields to "EA10ANI".
- Trunk group class, TRKCLS field, must be "LATA" trunk on the OPRTK form (5417 Record), with the LATA TYPE set to "BOTH" and TRK TYPE set to "COMB". In addition, OL SCRN and ACQS SCRN should be set to "ASRCH". Both the WIRELESS SA field and the SELECTIVE OLS should be set to "N". Also, the ALLOW 7 DIGITS field and the FROM LOCAL OFC field must be "N".
- Populate the fields, TRS UNRESTRICTED, TRS RESTRICTED, and TRS HOTEL, on the OSPSOPT form (5424 Record) with the default values (60, 67, 66 respectively).
- The secured features and the optioned features for TRS Call Handling and FGD Incoming Signaling should be activated on the SFSYS form and FOSYS forms respectively.

3. SCENARIO

The following is a typical TRS call scenario. The TRS user dials the dedicated 800 number to access the non-AT&T TRS center. The LO (Local Office) routes the call to the TRS switch. The TRS switch uses its ACD capabilities to select an available CA (Communication Assistant) for the call. The CA at the non-AT&T TRS Serving Center determines that the customer wants AT&T as the carrier for the call.

The CA determines the calling number, if not signaled from the LO, proper ANI II digits, and the billing number if other than the calling number (e.g., calling card number). The CA enters the ANI II digits and calling number if necessary.

If the call can be carried by AT&T, the call is routed through an AT (Access Tandem) switch to an AT&T OSPA Switch.

The following information is received by the OSPA 5ESS Switch from the AT using the MF-FGD signaling protocol:

- One of three ANI II information digit pairs identifies the call as a TRS call and specifies billing restrictions for the call as follows:
 - Unrestricted (ANI II digits 60)—all types of billing allowed.
 - Restricted (ANI II digits 67)—sent paid billing not allowed.
 - Hotel (ANI II digits 66)—sent paid billing not allowed on calls with ANI outside the normally served area of the OSPA.
- A 10-digit ANI (originating calling number).
- The dialed call type: 1+ and 0+ or 0- (0 prefix on called number for dialed 0+ or 0-).
- 10-digit called number.

The OSPA 5ESS Switch analyzes this information and applies applicable screening.

- For 1+ sent paid POTS calls, no OSPA operator is needed. The AMA record is generated and the call completed. The billing number is the originating ANI.
- For 0+ calls, ACCS treatment is provided.
 - If the call is to be billed to a calling card and the CA has DTMF capability, the CA enters the number. The OSPA validates the card number.
 - If the call is not a card call or the CA does not have DTMF capability, the call is connected to an available position with an indication on the display that the call is a TRS call. The CA verbally provides the OSPA operator with additional information necessary to process the call such as calling card number, hotel room number, billing number for bill-to-third number billing, or the request for collect or person billing.
 - The OSPA operator provides the required assistance. Any restrictions that are applicable to the call are applied. For card calls, the card number is validated. When bill-to-third number billing is requested and acceptance is required, the OSPA operator places a call to the billing number. If the call terminates to a TTY using the ASCII protocol, the operator releases the connection immediately upon hearing the carrier signal and informs the CA that bill-to-third number billing cannot be allowed.

The OSPS 5ESS Switch signals the call forward for completion using the called number received in the MF-FGD signaling or entered by the operator at the request of the CA.

When the OSPS operator stays on the connection for collect billing acceptance or person verification and the call terminates to a TTY using the ASCII protocol, the operator releases the connection immediately upon hearing the carrier signal and informs the CA that the call cannot be completed by the OSPS.

Normal terminating treatment is applied and the appropriate AMA record is generated by the OSPS.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.22 (5E8) 8.31 (5E9(1))
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to enable Transparency and Special Features. FID 575 ACT must be set to "Y".

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The TRS parameters TRS UNRESTRICTED, TRS RESTRICTED, and TRS HOTEL should be set to their default values.

SFSYS form (5713-1 Record) - This form is used to enable secured features. SFID 25 ACT must be set to "Y" to enable the TRS Call Handling Feature.

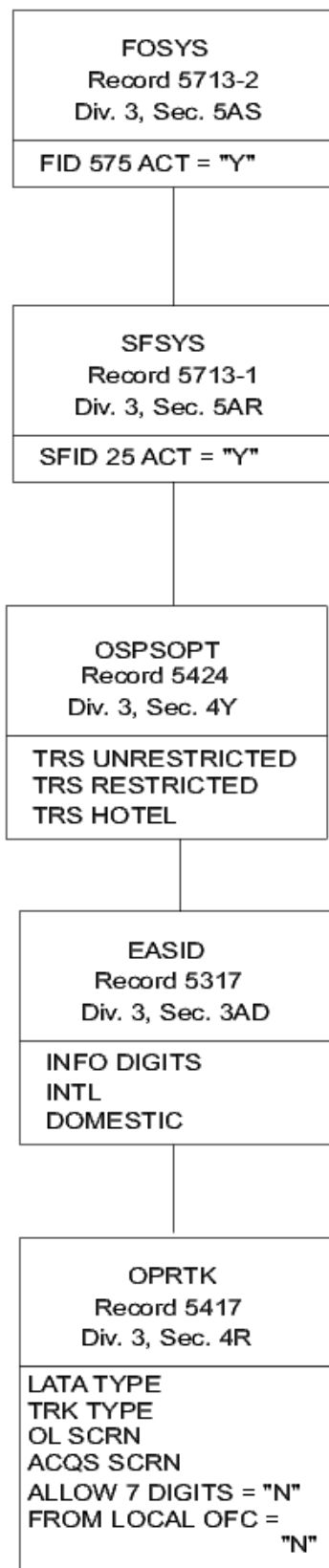


Figure 1 TRS CALL HANDLING FORM FLOW**SEC. 4A27: FORCED CALLING NUMBER PRIVACY ON CCS TRUNKS****1. BACKGROUND**

The CPN (Calling Party Number) is sent between offices over CCS (Common Channel Signaling) trunks. DN Privacy is normally used to mark the CPN as private for all calls in the office. LIGI (Limited Intragroup Individual Calling Line Identification) is used to display any non-private number within the terminal group. Some customers would like LIGI to work while marking the CPN private for all calls leaving the office. Thus, the desire is to have non-private numbers displayed in the terminal group while having the capability to mark the CPN as private for those calls leaving the office.

2. FEATURE DESCRIPTION

The Forced Calling Number Privacy on CCS Trunks feature is a secured feature using SFID (Secured Feature ID) 27 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-1627.

Available with 5E6 and later, Forced Calling Number Privacy on CCS Trunks provides the ability to mark the CPN as private for those calls leaving the office over CCS7 trunks. The Forced Calling Number Privacy on CCS Trunks feature sets the CCS7 IAM's (Initial Address Message's) Calling Party Presentation Restricted Indicator to restricted for all CCS7 calls leaving the office. This prevents the far-end office from displaying the originators directory number. The lines at the far end office which are provisioned with a Calling Number Display feature will have "PRIVATE NUMBER" displayed for calls originated from the office with this special feature active.

Calling Example 1 with feature inactive:

- User A (221-0000) in office Y with Forced Calling Number Privacy on CCS Trunks inactive.
- User B (979-1234) in office Z provisioned with CND (Calling Number Delivery) feature active.
- Office Y and Office Z are connected via CCS7 trunks.
- User A calls B.
- Call routes from office Y to office Z over CCS7 trunk.
- User B starts to ring.
- User B gets 708-221-0000 displayed.

Calling Example 2 with feature active:

- User A (221-0000) in office Y with Forced Calling Number Privacy on CCS Trunks active.
- User B (979-1234) in office Z provisioned with CND feature.
- Office Y and Office Z are connected via CCS7 trunks.
- User A calls B.

- Call routes from office Y to office Z over CCS7 trunk with Calling Party.
- Presentation Restricted Indicator set to restricted.
- User B starts to ring.
- User B gets "PRIVATE NUMBER" displayed.

3. FEATURE ASSIGNMENT

There are no new forms or new fields added for this feature.

This feature is a secured feature and is activated by setting the ACT field for SFID 27 to "Y" on the SFSYS form (5713-1 Record). No other translations are needed to activate this feature.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company.

SEC. 4A28: 800 POST DIAL DELAY MF SIGNALING TRANSMISSION REDUCTION (FOR END OFFICES)

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A29: 800 POST DIAL DELAY MF SIGNALING TRANSMISSION REDUCTION (FOR ACCESS TANDEM)

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A30: MODIFIED CALLED LINE DISCONNECT ENHANCEMENT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A31: OSPS INTERWORKING WITH SSP 800

1. FEATURE DESCRIPTION

The feature number for this capability is 98-5E-0446. For 5E6 and later, OSPS Interworking with SSP 800 (Service Switching Point for Basic 800 Service) secured feature enables the OSPS to interface with the SSP capability of the 5ESS Switch. The SSP capability allows the OSPS to query Telephone Company databases using Signaling System 7 and Transaction Capabilities protocols to implement Telephone Company NS (Number Services). Number Services are a group of services that require special numbers (e.g., 800) to be dialed, and provide special handling for these calls. The SSP feature provides the routing of 800 Service calls directly from the 5ESS Switch EAEO (Equal Access End Office) or an AT (Access Tandem) switch to either an IC (Interexchange Carrier) or within the Telephone Company. The database reply from the SCP (Service Control Point) database provides information used to route the call, or to respond with failure messages.

This feature allows calls that have been handed off to the OSPS and identified as NS 800 to interact directly with the SSP capability of the 5ESS Switch. Formerly, these calls were routed out of the 5ESS Switch on loop-around trunks in combined OSPS/SSP arrangements where they were handled by the 5ESS Switch Tandem capability. In those cases where the OSPS and the SSP 800 function did not reside in the same switch, the calls were routed out of the OSPS as call completions to the SSP 800 switch.

This feature allows the ICs and 800 subscribers to obtain calling number information for bill verification and market analysis on calls. It also eliminates the loop-around trunks, requires fewer switch ports, increases switch capacity, and decreases call setup and transmission delays.

NS 800 calls outpulsed while still at a position (where the operator enters the SEND key, i.e. not an early position release) will have calling number information available, but will continue to require loop-around trunks to access the SSP 800 function.

1.1 NS 800 Calls

The following OSPS-handled NS 800 calls are affected by the use of this feature:

- 0- call that is handled by an operator with early position release. The operator enters the forward NS 800 number, class charges the call as "AUTO COLLECT", and releases the call since it is eligible for early position release. Note that if the "SEND" key is used to connect the forward party, the SSP 800 functionality is not accessed directly from the OSPS and continues to require the use of loop-around trunks to access the SSP 800 function in combined OSPS/SSP arrangements.
- NS 800 number dialed as a sequence call.
- Customer-dialed 1+ NS 800 number encountering ANIF (Automatic Number Identification Failure) or ONI (Operator Number Identification) that is routed to a position for a back number entry. Upon the entry of the back number, the call is released from the position.

1.2 Scenario

The following is a typical NS 800 call handled by the OSPS.

1. A customer initiates an NS 800 call.
2. The call is routed to the LEC OSPS switch, if it is not the originating switch.
3. The ISP (Intermediate Switching Point) capability of the AT (Access Tandem) identifies the call as requiring OSPS treatment and passes control to OSPS.
4. The OSPS identifies the call as an NS 800 call and launches a query containing all the necessary information to the SCP (Service Control Point) database via the SSP capability resident on the

combined OSPS /Tandem switch.

5. The SCP database examines the contents of the SS7 query and determines the appropriate call treatment. A reply is formatted and returned to the SSP.
6. The SSP receives the reply from the SCP and applies the appropriate call treatment that may include the following:
 - Route the call via intraLATA.
 - Route the call using the interLATA carrier returned from the SCP.
 - Play an announcement.
 - Perform error handling.
7. At the completion of the call, an AMA record is made according to the requirement of the SSP 800 Tandem capability. In addition, an OSPS AMA record is generated if necessary.

1.3 Translations for Operator SENT Calls

The treatment of SSP 800 calls outpulsed from operator positions should not be changed by this feature. Early Position Release (entering the 800 number, pressing Auto Collect for class of charge, and then pressing Position Release) does not need a loop-around trunk. The translations for these 0- calls leaving the OSPS are SSP 800 translations given in Division 2, Section 1X.

However, if the operator enters the 800 number and presses the SEND key, these 0- 800 calls require a loop-around trunk. The translations from the operator position to the outside loop around trunk are as follows:

The outgoing loop-around trunk group from the OSPS switch to the Access Tandem should be a toll connecting type (Trunk Class is "TTOLLCON", "LTOLLCON", "PRINTOLL" on the TKGRP form (5202 Record)).

A pseudo carrier must be defined on the ICF form (5305 Record) for which the LEC may provide operator service. The following fields should be entered as shown:

LEC SERVICE should be "Y"

CARRIER TYPE should be "PSEUDO".

In the LDIT where the 800 numbers are translated, the following fields should be entered as shown:

INC DIGS should be "800NXX"

CALLTYPE should be "NORMAL"

CI TYPE should be "SAC".

SAC OWNER should be the pseudo carrier defined on the ICF form.

The route index which is obtained from digit analysis and routing is used to determine the characteristics for the outpulsing of this call. The fields on the RTIDX form (5303 Record) should be entered as follows:

RTIDX should be the route index from digit analysis

TGN should be the outgoing trunk number defined on the TKGRP form

PREFDIG should be 058

SIG PRO should be "EA"

ANI IND should be "Y"

RT DES TYPE should be "STG".

Once these translations have been made, the operator-entered 800 numbers are outpulsed to the Access Tandem using 3-Stage FGD signaling.

2. FEATURE ASSIGNMENT

This feature provides the OSPS a direct interface to the SSP 800 capability in a combined OSPS/Tandem switch. The SSP is integrated into the LEC (Local Exchange Carrier) network allowing the LEC the ability to route and handle 800 calls based on responses from the SCP databases. No new translations are required. See Division 2, Section 1X for SSP 800 translations.

This feature eliminates the use of loop-around trunks in combined OSPS/Tandem switches for all calls except those which are sent from the Operator Position with the SEND key.

This is a secured feature, therefore Secured Feature ID 31 must be activated for this feature to become operational.

For 5E9(1) and later, if the SSP 800 call is coming from a Remote SM, then the NS CDI and NS RTI fields should be entered on the RSMCAR form (5421 Record). If the NS CDI and NS RTI fields are not entered on the RSMCAR form, the default values will be the NS CDI and NS RTI fields are entered on the ICF form (5305 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RSMCAR	5421	3	4V	26.22
SFSYS	5713-1	3	5AR	8.22

RSMCAR form (5421 Record) - This form defines the routing indexes to a carrier from an RSM (Remote Switching Module). When an OSPS call is routed to a carrier, the routing information is normally on an ICF form (5305 Record). But, if the call came to the OSPS through an RSM, it is routed out of that same RSM to the desired carrier. For 5E9(1) and later, RSM 800 SSP calls require NS CDI and NS RTI entered on the RSMCAR form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The secured feature ID, SFID 31, should be set to "Y".

SEC. 4A32: AM BASED PROTOCOL MONITORING TRANSLATOR

1. FEATURE DESCRIPTION

The feature number for the AM Based Protocol Monitoring Translator feature is 99-5E-0796. This feature is controlled by SFID (Secured Feature ID) 32 and is deployed in a Software Update for the 5E6, 5E7, and 5E8 Software Releases.

The protocol monitoring feature provides for the recording and reporting of a limited amount of the CPE (Customer Premise Equipment) and switch ISDN (Integrated Services Digital Network) protocol exchange. The recorded data is reported directly to the requesting terminal and to the ROP (Receive Only Printer). The printed data is in a hexadecimal format that, in general, requires translation to extract the salient protocol information. This feature provides the translator tool based in the AM (Administrative Module) which takes this data and translates it into a user readable format.

This feature provides for:

The storage of the PM (Protocol Monitoring) output data into an AM disk file.

The translation of the PM data from hexadecimal format into a more appropriate English format.

Enhanced session monitoring capabilities to provide a means of interactively following the progress of the session.

The AM Based Protocol Monitoring Translator Feature provides for three input command formats:

EXC:PM

Invocation Message - start a PM session.

OP:PM

Query Message - display the current state of PM session.

STP:PM

Termination Message - stop a PM session.

The behavior of the session is determined by the invocation message (EXC:PM), and optionally by the termination message (STP:PM). The query message (OP:PM) is entirely for information purposes and has no effect on the progress of the session.

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID 32 on the SFSYS form (5713 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 32 to "Y".

SEC. 4A33: AR/AC WITH PRIVACY NUMBER ID FOR AMA (RETURN CALL AMA)

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-130 Local Area Signaling Services*.

SEC. 4A34: STATIC PROPORTIONATE BIDDING

1. FEATURE DESCRIPTION

Available with 5E6 and later, domestic Static Proportionate Bidding is a secured feature which uses secured feature ID 34. This feature provides traffic allocation capabilities similar to the static portion of the Proportionate Bidding feature available with the international 5ESS Switch. Specifically, this feature distributes outgoing international calls proportionately among competing carriers which carry traffic to a given location. For 5E8, the feature also measures the number of calls offered to each carrier.

Static Proportionate Bidding is in direct conflict with Equal Access as implemented in the United States. Therefore, this feature is currently targeted at foreign countries using domestic 5ESS switches. The main difference between the two access methods is that with Static Proportionate Bidding the caller does not choose the carrier. The carrier is chosen by the switch based on recent history of calls allocated to the carriers and the proportions specified by the user. With Equal Access, the caller chooses the carrier. There is no allocation of traffic. Equal Access and Static Proportionate Bidding would never be used in the same office.

Static Proportionate Bidding is defined by assigning a PB RTI (Proportionate Bidding route index) within digit analysis in place of the normal route index. In turn, this PB RTI will define a PROPBID form (5325 Record) which identifies up to four carriers and their particular information. See the PROPBID form section.

The PB RTIs are limited to a specific range. When a route index in this range is assigned in digit analysis and is not defined as a PB RTI on a PROPBID form, then it will be used as a regular route index rather than a PB RTI.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PROPBID	5325	3	3AL	10.37
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22

PROPBID form (5325 Record) - This form allows the customer to create, on a per Proportionate Bidding route index basis, a list of carriers (up to 4) used to route calls sent to this Proportionate Bidding route index from the digit analysis forms. This form specifies the carriers, what percentage of calls each carrier should handle and the route index each carrier uses to route out of the office.

RTIDX form (5303 Record) - This form defines each Route Index in a 5ESS switch. A new data rule has

been added for the NEXT ROUTE field.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 34 on the SFSYS form must be set to "S" to indicate that the feature has been purchased. This allows PROPBID forms to be entered to enable Static Proportionate Bidding.

3. FEATURE PROVISIONING

3.1 Secured Feature

Forms: SFSYS

Proportionate Bidding is a secured feature. SFID 34 on the SFSYS form (5713-1 Record) is set to "S" indicating that the feature has been purchased. This allows the remaining data for this feature to be entered.

3.2 Proportionate Bidding Tables

Forms: PROPBID, RTIDX

Outgoing carriers are grouped into 1 - 32 Proportionate Bidding groups of 1 - 4 carriers each. For each Proportionate Bidding group a PROPBID form is built. Each PROPBID form is keyed by a PB RTI (Proportionate Bidding route index) in the range of 1001 - 1032. This PB RTI is used to set up the digit analysis tables described below. For every PB RTI used, the PB RTI must be defined on an RTIDX form (5303 Record) with a ROUTE TYPE of "HUNT", "BUSY" or "REORDER". When this feature is active, each carrier's real route index, defined as CARRIER RTI on the PROPBID form, must be defined on an RTIDX form.

3.3 Digit Analysis, Routing and Charging

Forms: LDIT, PDIT, INDIT, RDIT, RAR.

Digit analysis tables are built in the usual manner. However, for routing to carriers through Proportionate Bidding groups, rather than routing directly via the route index given in digit analysis, that index is interpreted by the proportionate bidding tables as a PB RTI. Calls going to these PB RTIs are distributed proportionally among the CARRIERS defined on the appropriate PROPBID form. Each carrier's real route index is defined as CARRIER RTI on the PROPBID form.

SEC. 4A36: LASS NPA SPLIT RESOLUTION

1. BACKGROUND

When performing an NPA (Numbering Plan Area) split, a given line will at different times be identified by the original NPA and/or the new NPA. Other offices may or may not know of the proper NPA to be used for the line when using various LASS (Local Area Signaling Systems) functions, such as AR (Automatic Recall), AC (Automatic Callback) and SLE (Screen List Editing). Since LASS validation and screening are normally done on a 10-digit DN, this validation and screening can be disrupted as offices gradually convert DNs to the new NPA.

As an example, Person A (708-555-1111) and person B (312-555-2222) reside in offices 1 and 2 respectively. Office 1 has converted to the new NPA (708), but office 2 has not and is on the old NPA (312). Person A previously built a screening list that includes B's number, 312-555-2222. If person A tries to delete the number, then the implied NPA of Office 1, (708), would be prepended to B's number and the number will not

be deleted since 708-555-2222 does not exist in the screening list. If person A were to add B to the list, the implied NPA of 708 would be prepended to B's number, 555-2222, and the number 708-555-2222 would be added to the list. Now two numbers, 312-555-2222 and 708-555-2222 will be in the list. Since only 7 digits are displayed, the number 555-2222 will appear twice in the screening list.

2. FEATURE DESCRIPTION

Available for 5E6 and later, LASS NPA Split Resolution is a secured feature using secured feature ID 36. This feature provides a table, called the NPA split table, that relates the old and new NPAs involved in an NPA split. This feature also specifies which actions should or should not screen for both the old and the new NPAs involved in an NPA split to insure continuity in LASS feature functionality.

3. TRANSLATION REQUIREMENTS

3.1 5E6 - 5E7 Only Software Releases

New Or Modified ODA Forms For 5E6 And 5E7				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
FOSYS	5713-2	3	5AS	8.22
NPASPLIT	5546	3	5AV	8.25

SFSYS form (5713-1 Record) - This form is used by the AT&T SEE (System Equipment Engineer) to enable the feature for the operating company. The secured feature ID 36 on the SFSYS form must be set to "S" to provide offices with control of this feature.

NPASPLIT form (5546 Record) - For 5E6 and 5E7 Software Releases, this form allows customers to build data for a single NPA split. The OPTION 1 - OPTION 4 fields are for informational purposes only. These fields are controlled by setting/resetting TFOS ID 546, 547, and 548 on the FOSYS form (5713-2 Record).

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Transparency and Special features and as feature options to control various aspects of feature operation.

For 5E6 and 5E7, this feature requires three office options, one to control validation of TCAP (Transaction Capabilities Application Part) queries, one to control screening of incoming calls, and one to control SLE (Screening List Editing) addition/deletion of screening list entries. These options are controlled by TFOS IDs 546, 547, and 548 on the FOSYS form (5713-2 Record).

TFOS ID 546 controls the TCAP mismatch option. This option is used for TCAP queries to validate a DN in a TCAP query for AC (Automatic Callback), AR (Automatic Recall) or SLE (Screen List Editing). If TFOS ID 546 is "S" and the NPA in the TCAP query matches an NPA in the NPA split table, the DN in the TCAP query is considered valid.

TFOS ID 547 is the screening office option. This option is used when performing screening on an incoming call. If TFOS ID 547 is "S", screening is done on the seven digits, NXX-XXXX, of the calling DN. If the seven digits match a DN on the screening list, and if the calling NPA and the screening list NPA are associated with the same NPA split, a match has been found. If the screening list NPA is not associated with the same NPA split as the calling NPA, screening continues.

TFOS ID 548 is the SLE add/delete option. If TFOS ID 548 is "S" and the NPA of the DN being added/deleted from the screening list is in the NPA split table, SLE uses both old and new NPAs to check if the DN is on the screening list.

3.2 Old NPA - New NPA Correspondence

For 5E6 and 5E7, there is a one-to-one correspondence between an old NPA and a new NPA. A given old NPA can be split into only one new NPA. A given new NPA can be split from only one old NPA.

3.3 5E8 And Later Software Releases

New Or Modified ODA Forms For 5E8 And Later				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
NPASPLIT	5546	3	5AV	8.25

SFSYS form (5713-1 Record) - This form is used by the AT&T SEE (System Equipment Engineer) to enable the feature for the operating company. The secured feature ID 36 on the SFSYS form must be set to "S" to provide offices with control of this feature.

NPASPLIT form (5546 Record) - For 5E8 and later, this form allows customers to build data for a single NPA split.

3.4 Old NPA - New NPA Correspondence

For every NPA split one or more NPASPLIT forms are entered. For 5E8 and later, there can be a one-to-many and/or a many-to-one relationship between an old NPA and a new NPA. A given old NPA can be split into more than one new NPA. A given new NPA can be split from more than one old NPA. An NPASPLIT form is entered for every combination of old NPA and new NPA.

SEC. 4A37: MULTI-DISTINCTIVE RINGING II

1. FEATURE DESCRIPTION

Multi-Distinctive Ringing II is available with 5E6 and later Software Releases. This feature enhances the Multi-Distinctive Ringing feature by allowing distinctive ringing to be assigned to analog hunt lines which have multiple TNs.

When Call Forwarding Variable is assigned to the Master TN, one of the following options may be chosen:

- 0 - All calls to the Master TN and its dependents will be forwarded.
- 1 - Only calls to the Master TN will be forwarded.
- 2 - Only calls to the dependent TNs will be forwarded.

Also, the options may be changed by the user by activating the Call Forward Variable action code (defined on the PDIT (5300 Record) or IDPDCA form (5601 Record)). When the CFV is activated, a stutter tone will be provided, the user enters 0, 1 or 2 for the corresponding call forwarding option. After the option has been entered, Recall dial tone will be provided to allow the user to enter the forward to DN.

NOTE: Multi-Distinctive Ringing must be purchased along with this feature.

MDNL/CFPF (Multi-Distinctive Ringing/Call Forwarding to Private Facilities Interaction) modification to this feature removes the restriction that prevents enhanced MDNL from being used with CFPF. Thus, CFPF can be assigned to enhanced MDNL lines.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
CFWFD	5614-1/2	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22
MULTITN	5114	3	1N	3.3

MTNDR form (5550 Record) - This form is used to assign multiple TNs with distinctive ringing to a single analog line.

MULTITN form (5114 Record) - For 5E3 and later Software Releases, this form is used to assign multiple TNs to the following:

- Any hunted member of a Regular, Circular or a UCD (Uniform Call Distribution) hunt group.
- Any OUTDIAL member of a Regular, Circular or a UCD hunt group.
- The LISTED TN of a UCD hunt group.
- Any SUBTN(s) of a MUPH or ISAT group.,

With 5E6 and later Software Releases, this form was enhanced to allow distinctive ringing on multiple TNs. A ringing pattern other than "A" can be assigned only to Regular, Circular, and UCD analog hunt groups.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature IDs 1 (Multi-Distinctive Ringing) and 37 (Multi-Distinctive Ringing II) must be set to "S" on the SFSYS form to make Multi-Distinctive Ringing II functional for the office.

CFWFD form (5614-1/2 Record) - This form is used to define the Call Forwarding feature. The MDNL ENHANCED field was added and the DDNCFI field was replaced by MDNL FWD and MDNL RCF.

CFWLPA form (5614-3 Record) - This form is used to define the Call Forwarding feature. The MDNL ENHANCED field was added and the DDNCFI field was replaced by MDNL FWD and MDNL RCF.

SEC. 4A38: FLEXIBLE ANI INFORMATION DIGITS ASSIGNMENT

1. FEATURE DESCRIPTION

FLEX ANI (Flexible ANI Information Digits Assignment Feature) is the flexible assignment of two digit ANI Pairs. The feature is a secured feature and is available with 5E6 and later Software Releases.

FLEX ANI via Recent Change offers the purchaser the following capabilities:

- Allows the purchaser to assign new ANI pairs based on originating class of service.
- Allows the purchaser to assign new ANI pairs based on Route Index that can be entered via Recent Change.
- Leaves both existing service and class of service hard coded ANI pairs to co-exist with the Flexible ANI capability.

- Allows the purchaser to verify the current list of assigned ANI pairs.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
RTIDX	5303	3	3P	10.2
MCRTIDX	5304	3	3Q	10.4

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable Secured System Optional Features for an entire 5ESS Switch or for selected Switching Modules. Secured Feature ID 38 must be set to "S" on the SFSYS form to make FLEX ANI functional for the office.

RTIDX form (5303 Record) - Used to define each Route Index in a 5ESS office. The 5303 Record is intended to be used as an office record and as a source document for data entry into the RTIDX form.

MCRTIDX form (5304 Record) - Used to determine routing for various BRCS capabilities.

SEC. 4A39: ENHANCED INWATS-TYPE AMA RECORDS

1. FEATURE DESCRIPTION

EITA (Enhanced INWATS-Type AMA Records) is a Secured System Optional Feature available with 5E6 and later Software Releases.

EITA provides the ability to specify an ASFC (Alternate Service Feature Code) in the range 800 to 999 for each INWATS SFG (Simulated Facility Group). If an ASFC is specified, it replaces the default SFC of 8 in the AMA record. By using ASFCs, the Regional Accounting Office can distinguish among calls and bill them differently.

2. BACKGROUND

An SFC (Service Feature Code) is an enumeration that defines special services associated with a call. It appears in the AMA call record. Currently, all INWATS calls have an SFC of 8 written into the AMA records. EITA allows the operating company to override the default value of 8.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
PFAFSG	5609-3	4	10C	7.3

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 39 must be set to "S" on the SFSYS form to make EITA functional for the office.

PFAFSG form (5609-3 Record) - Specify the ASFC (Alternate Service Feature Code) for an INWATS SFG.

If AT&T has enabled the EITA feature for the office, an Alternate SFC can be specified for an INWATS

Simulated Facility Group in the ALT SFC field in the PFASFG form.

SEC. 4A40: ANALOG CALLING NAME DELIVERY

1. GENERAL

Analog Calling Name Delivery was released in phases. Each phase is dependent upon the implementation of the previous phase.

2. PHASE 0

2.1 Feature Description

Available for 5E6 and later, CNAM Phase 0 is a terminating line option for analog lines and provides the base functionality for delivering the name associated with a calling number to the called party's CPE (Customer Premise Equipment). The calling party's name is stored in the NNDB (Network Names Data Base) external to the switch (one name per directory number). The switch attempts to do queries on these numbers. The success of the queries is dependent on the information stored in the database. A successful database query delivers the name associated with the calling number to the appropriate Analog Calling Name Display CPE. If the calling DN (Directory Number) is private, "PRIVATE" is displayed on the customer's CPE. If the calling DN is public, the privacy indicator in the database is used for name delivery. If the calling DN is out of area, "OUT OF AREA" is displayed on the customer's CPE.

2.2 Feature Definition

NNDB queries made by this feature use the TCAP (Transaction Capability Application Part) of the CCS7 (Common Channel Signaling System 7) protocol. A new Direct Signaling Application type of "ACND" with the corresponding Translation Type and Subsystem Number must be defined on the DSAPP form in order to provide information required for these queries. CNAM Phase 0 is a secured feature and must be purchased before "ACND" can be defined on the DSAPP form.

A terminating switch option, BQPN (Block Query with Private Number), is available using an OFS (Optioned Feature System) ID to determine if a TCAP query is allowed when the calling DN is private. When OFS ID 541 is "Y" on the FOSYS form (5713-2 Record) and the calling DN is "private", a TCAP query is not made and "PRIVATE" is displayed on the customer's CPE.

CNAM Phase 0 is directly related to the ICLID (Individual Calling Line Identification) LASS (Local Area Signaling Services) CND (Calling Number Delivery) feature. An ICLID customer has the ability to subscribe to CND or both CND and CNAM Phase 0 causing the calling party number or both the calling party number and the name (in addition to time and date) to be delivered to the CPE upon successful queries of the NNDB. If the Calling Directory Number is private, "PRIVATE" will be displayed on the customer's CPE. If the calling DN is public, the privacy indicator in the database is used for name delivery. If the calling DN is out of area, "OUT OF AREA" is displayed on the customer's CPE.

CNAM Phase 0 is activated by assigning one of 4 new ICLID preconstructed features, defined on the LIDFD form (5966 Record), to an analog line via the LINEFA, MLHLNFA, CLUSTR, or BFG form. Because this feature is dependent on the ICLID CND feature in Phase 0, the line must also have a CND feature (defined on the LIDFD form) assigned.

2.3 CNAM Phase 0 Translation Requirements

New or Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
DSAPP	5537	3	5AK	8.17
FOSYS	5713-2	2	5AS	8.22
LIDFD	5966	6	9A	12.44
SFSYS	5713-1	3	5AR	8.22

DSAPP form (5537 Record) - This form is used to specify the Direct Signaling Application Type, Transaction Type and the Subsystem Number used by the direct signaling trunks which use the CCS7 (Common Channel Signaling System 7) signaling protocols. The enumeration "ACND" will be added to the already existing field APPLIC.

FOSYS form, (5713-2 Record) - This form is used to administer OFS IDs. The ability to block a query to the NNDB is controlled at the terminating switch by an option called BQPN (Block Query with Private Number) which is enabled by setting the OFS ID 541 field ACT to "Y". The BQPN option is honored only if the calling number is marked private. When the BQPN option is disabled (the default), TCAP queries for private DNs are allowed; in that case, the NNDB determines the private/public status of the calling name.

LIDFD form (5966 Record) - This form contains feature options and default values to construct Line Identification feature definitions. Four new preconstructed features were added for CNAM Phase 0.

- /LIRCMA - CNAM and CND all terminals feature.
- /LIRCNMP - CNAM and CND primary terminal only feature.
- /LIRDMA - CNAM and CND all terminals feature activation/deactivation.
- /LIRDNMP - CNAM and CND primary terminal only feature activation/deactivation.

SFSYS form (5713-1 Record) - This form is used by the AT&T SEE (System Equipment Engineer) to enable the feature for the operating company. The SFID 40 on the SFSYS form must have the field ACT set to "Y" to enable CNAM Phase 0.

3. PHASE 2

3.1 Feature Description

Available for 5E7 and later, CNAM Phase 2 provides enhancements to CNAM Phase 0, the terminating part of the CNAM feature, which provides the calling name to the called analog subscriber's special CPE. CNAM Phase 2 is a secured feature and requires that SFID 40 have the ACT field set to "Y" on the SFSYS form (5713-1 Record).

In addition to the basic functionality provided by CNAM Phase 0 described above, CNAM Phase 2 provides:

- Invocation of privacy dial codes for the originating side
- Billing at the originating side
- TCAP query control
- CNAM only feature

3.1.1 Invocation of Privacy Dial Codes

The originating part of this feature provides the caller (either analog or ISDN) with the ability to specify whether the caller's name and/or number are provided to the called party on a per-call basis. This feature is an enhancement to ICLID (Individual Calling Line Identification) which includes both CND (Calling Name Delivery) and DNP (Directory Number Privacy) features. The originating part of the feature is invoked when a caller with the proper Display and Privacy feature dials a CNAM privacy dial code before dialing the called DN. The new per-call CNAM privacy codes are as follows:

NNP - Name and Number Privacy (both name and number are forced private for the current call)

NAP - Name Privacy (toggles the default name privacy status retrieved from the NNDB)

NNDA - Name and Number Delivery Allowed (both name and number are forced public for the current call)

These privacy codes are provided, as for ICLID DN Privacy, within the definition of the Display and Privacy preconstructed modular feature (e.g., /DIDLX, /DIDNP, and /DIGA preconstructed features). No new Display features (/DIxxx) are defined. So with CNAM Phase 2, the caller may have per-call blocking and unblocking of number only, name only, or name and number.

This originating feature which provides the capability for users to dial these privacy codes (NAP, NNDA, NNP) is not secured. These privacy features are available on installation of the feature.

3.1.2 Billing

When a caller successfully dials a new CNAM privacy access code (NNP, NAP, or NNDA), a billing record is generated if the caller has access to a Privacy feature that is defined with TN PRIVACY set to "Y" on the DISPFD form (5965 Record). A maximum of one billing record is generated per privacy code per call. For example, if a caller dials the NNP code, then the NNDA code, then NNP again, this feature generates two billing records: one for the initial NNP code and another for the NNDA code. No billing record is generated for the second NNP code dialed on the call.

3.1.3 TCAP query control

The basic NNDB query functionalities are provided in CNAM phase 0. CNAM Phase 2 enables the 5ESS Switch to reduce queries to the CSS network NNDB database when the CCS7 network is congested. When the NNDB query response is received by the 5ESS Switch, the response may contain a component of information telling the 5ESS Switch to reduce future queries.

The ability to block a query to the NNDB is controlled at the terminating switch by an option called BQPN (Block Query with Private Number) which is enabled by setting the OFS ID 541 field ACT to "Y" on the FOSYS form (5713-2 Record). In CNAM Phase 2, the BQPN option is honored only if the calling number is marked private and no name indicator is present (i.e., no name privacy code was dialed). When the BQPN option is disabled (the default), TCAP queries for private DNs are allowed; in that case, the NNDB determines the private/public status of the calling name.

3.1.4 CNAM only feature

For CNAM Phase 0, an ICLID customer could subscribe to CND or both CND and CNAM Phase 0. With CNAM Phase 2, a customer can subscribe to CNAM only, to ICLID CND only, or to both CNAM and ICLID CND. The new preconstructed CNAM feature /LIRMA provides CNAM-only functionality without ICLID CND.

3.2 CNAM Phase 2 Restrictions

On the 5ESS Switch, it is possible to assign terminating CNAM features to ISDN lines, shared analog lines, or to B911 lines, but no name information will be delivered.

On the 5ESS Switch, when the controlling party of a three-way call has call waiting and goes on-hook for ringback, no name or number information is delivered.

On the 5ESS Switch, no name or number is delivered on a ringback given the following call scenario: a multiway subscriber has call waiting. The subscriber flashes to connect to the new caller. The subscriber goes on-hook and is rung back by the held party.

On the 5ESS Switch, no name or number information is delivered on ACBC (Automatic Call Back Calling) ringback.

As with ICLID PCP, the following line types are not allowed to access the privacy features: ISDN PRI, denied origination, trunks, and private facilities.

3.3 CNAM Phase 2 Translation Requirements

Translation requirements for CNAM Phase 2.0 include those for CNAM Phase 0.

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DISPFD	5965	6	8A	12.43
IDPDCA	5601-1/2	4	2B	9.13
LASSOP	5945	5	5F	8.21
LIDFD	5966	6	9A	12.44
PDIT	5300-2	3	3B	9.2

DISPFD form, (5965 Record) - This form allows the calling or called number and the time and date to be displayed at an ISDN station set, analog lines with special CPEs, and to inter-switch calls with the use of the CCS7 signaling network. The data rule for the TN PRIVACY field was modified so that when TN PRIVACY is "Y", the enumerations "CNPUSE", "NNPRV" and "NNPUB" are included as valid ACTION entries.

IDPDCA form, (5601-1/2 Record) - This form is used to define the dialed codes associated with IDPs (Individualized Dialing Plans). For the new dial codes, the enumerations "CNPUSE", "NNPRV" and "NNPUB" were added as valid ACTION entries on this form when the TN PRIVACY field on the DISPFD form is set to "Y".

LASSOP form, (5945 Record) - This form is used to supply global office parameters for the LASS features. The field CNAM TCAP was added. This field indicates the CNAM CCS7 TCAP query wait period in seconds. CNAM TCAP is a timer having a range of 1 to 6 seconds with a default of 3 seconds. When the CNAM TCAP timer is 3 seconds or less, the customer does not perceive delay to power ringing. If the CNAM TCAP timer value is set to greater than 3 seconds, the customer can experience a delay of as much as 3 seconds before the start of power ringing. The delay can be as large as the difference between the CNAM TCAP timer value and 3. For example, a CNAM TCAP timer value of 5 could result in a delay of as much as 2 seconds. This delay is caused by waiting for the TCAP response before power ringing.

LIDFD form (5966 Record) - This form contains feature options and default values to construct Line Identification feature definitions. The field CNAM was added. CNAM indicates whether or not the calling name is to be delivered to the terminating analog line. The new preconstructed ICLID feature, /LIRMA, was added to provide flat-rate CNAM-only functionality without ICLID CND.

PDIT form, (5300-2 Record) - This form provides information defining feature and operator access and prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). For the new dial codes, the enumerations "CNPUSE", "NNPRV" and "NNPUB" were added as valid ACTION entries on this form when the TN PRIVACY field on the DISPFD form is set to "Y".

4. PHASE 2.1

4.1 Feature Description

Available for 5E8 and later, CNAM Phase 2.1 is a secured feature. SFID 40 on the SFSYS form must have the field ACT set to "Y" to enable the CNAM feature.

In addition to providing the functionality of CNAM Phase 2 (see PHASE 2 above), CNAM Phase 2.1 allows CNAM to be assigned to subscribers on a usage-sensitive basis. (Only flat-rate billing was available for 5E7 and earlier).

When a customer is assigned flat-rate CND (Calling Number Delivery) and usage-sensitive CNAM, or usage-sensitive CNAM only, the AMA record produced contains the following counts:

- The number of times the calling name was delivered to the CPE.
- The number of times the calling name was "unavailable".

"Unavailable" either means that "O" (Out-of-Area) was delivered to the CPE indicating that the calling name or number was unavailable, or "P" (Private) was delivered to the CPE indicating that the calling name or number had privacy set, either per-call or by default.

It should be noted that unlike the ICLID feature, which contains data for three subscribers for the AMA record, CNAM AMA records contain data for a single subscriber.

No AMA record is generated when a customer is assigned to CNAM on a flat-rate basis.

When a customer is assigned usage-sensitive CNAM and usage-sensitive CND (Calling Number Delivery), no ICLID record will be generated for the subscriber. Only one record is created, instead of two, with both CNAM and CND information. The AMA record produced will contain the following counts:

- The number of times that both calling name and calling number are delivered to the CPE.
- The number of times that both calling name and calling number are "unavailable".
- The number of times that the calling name was delivered to the CPE and the calling number was "unavailable".
- The number of times that the calling number was delivered to the CPE and the calling name was "unavailable" to the CPE.

The above counts are strictly used in AMA recording and do not appear on any traffic reports. Generation of the counts occurs when the customer has the feature(s) active regardless of whether the CPE display is turned on or off. Deactivation of the feature will disable these counts automatically.

The AMA counts are collected, and an AMA record is written if at least one non-zero count exists. The AMA record is generated once during a scheduled daily collection cycle at approximately 3:12 a.m. An AMA record

will also be generated just prior to an overflow condition (e.g., if a count reached a value of 255).

If a full system initialization occurs, the billing counts accumulated since the last collection cycle will be zeroed.

4.1.1 Usage Sensitive Billing:

Usage-sensitive billing is only assigned to a terminating line. The billing is controlled by the Line Identification feature assigned to the line via the BFG, CLUSTR, LINEFA, or MLHLNFA form. The LID features are defined on LIDFD form (5966 Record); LID features which have the CNAM AMA field set to "Y" use usage-sensitive billing for CNAM. A billing record is only generated when a usage-sensitive feature is assigned. The following preconstructed LID features were added for usage-sensitive terminating billing:

/LIRDAMU - provides flat-rate CND and usage-sensitive CNAM all terminals feature activation and deactivation.

/LIRDNMU - provides both usage-sensitive CND and CNAM all terminals feature activation and deactivation.

/LIRMDU - provides usage-sensitive CNAM only activation and deactivation. The combination of CND and CNAM is selected by the LID feature assigned to the line. Only one /LI feature is allowed per line.

4.2 CNAM Phase 2.1 Translation Requirements

Translation requirements for CNAM Phase 2.1 include those for CNAM Phase 2.0 and CNAM Phase 0.

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LIDFD	5966	6	9A	12.44

LIDFD form (5966 Record) - This form contains feature options and default values to construct Line Identification feature definitions. CNAM AMA indicates whether usage-sensitive or flat-rate billing will be done for the terminating side. Three new preconstructed LID features were added for terminating usage-sensitive billing:

- /LIRDAMU - provides flat-rate CND and usage-sensitive CNAM all terminals feature activation and deactivation.
- /LIRDNMU - provides both usage-sensitive CND and CNAM all terminals feature activation and deactivation.
- /LIRMDU - provides usage-sensitive CNAM only activation and deactivation.

SEC. 4A43: LIMITED 2-LEVEL COT/AC

1. FEATURE DESCRIPTION

Limited 2-Level COT/AC (Customer Originating Trace/Automatic Callback) is a secured feature available with 5E6 and later Software Releases. The 2-Level COT/AC feature makes the dialing of a COT or AC use code only a preliminary request for feature activation. After being prompted by an interactive announcement, the subscriber may dial 1 to confirm the request or hang up to cancel the request. If the subscriber dials a string of digits (e.g., "1234") then only the first digit will be interpreted. The rest of the digits will be ignored. This

feature provides 2-Level activation for analog phones only.

2. FEATURE ASSIGNMENT

To activate the Limited 2-Level COT/AC secured feature, SFID 43 on the RC View 8.22 must be set to "Y". In addition, the COT ACT LVL and/or AC ACT LVL fields must be set to 2 on the RC View 8.21.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
ANNAPL	5529	3	5AC	8.64
ANNHD	5531	3	5AE	8.61
ANNDG	5532	3	5AF	8.60
PHRASE	5534	3	5AH	8.63
FIXRT	5301-1	3	3G	10.1
EQRAP	5822	8	36	20.10, 20.22

SFSYS form (5713-1 Record) - This form is used by the SEE to enable the feature for the operating company. Secured Feature ID 43 must be set to "S" to make Limited 2-Level COT/AC functional for the office.

ANNAPL form (5529 Record) - This form is used to enter the SMs (Switching Modules) where the DSU2-RAFs (Digital Service Unit Model 2 - Recorded Announcement Function) reside as well as the type of application announcements supported by that DSU2-RAF. A form keyed by "LASS" must be entered. This form is used by both the LASS (Local Area Signaling Services) SLE (Screen List Editing) application and the Limited 2-Level COT/AC application.

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. An announcement header enables a group of phrases (comprising an announcement) to be accessed with a "header identification number." Seven forms keyed by APPLICATION equal to "LASS" and HEADER IDs of 249 through 255 must be entered (these headers are used only by Limited 2-Level COT/AC and are not used by LASS). These headers will not be provided through standard data, but must always be entered by the office through RC or ODA.

ANNDG form (5532 Record) - This form contains a list of inflection commands and phrases used to convert a digit string into a set of phrase identifications. Eight forms keyed by APPLICATION equal to "LASS" and INFLECTION IDs of 1 through 7 and 10 must be entered. These ANNDG forms will be shared by the LASS SLE and Limited 2-Level COT/AC applications.

PHRASE form (5534 Record) - This form defines and describes phrase IDs which are provided on the DSU2-RAF (Digital Services Unit 2-Recorded Announcement Function) Announcement Storage circuit packs for each application. Forms keyed by APPLICATION equal to "LASS" and PHRASE IDs of 1 through 46, 65, 98, 104 through 177, or any customized phrase number used by the above mentioned ANNHD forms must be entered. PHRASE IDs 104 through 177 will not be provided through standard data, but must always be entered by the office through RC or ODA.

FIXRT form (5301-1 Record) - This form is used to define Routing and Charging treatment of Fixed Route Types. A form keyed by FIXED ROUTE TYPE equal to "ACSR" must be entered to provide a route for announcements from the DSU2-RAF.

EQRAP form (5822 Record) - This form is used to define the RAF (Recorded Announcement Function)

circuit packs. The RAF unit is defined on the EQRA form (5821 Record). The TN1053 Announcement Storage Circuit board for the RAF must use new firmware described on this form for the Limited 2-Level COT/AC.

SEC. 4A44: INCOMING TRUNK SERVICE EVALUATION

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A47: UCR (UNIDENTIFIED CALL REJECTION)

1. BACKGROUND

The introduction of the display feature in 5E4(2) made it possible to display the number of the calling party to the called party. Several features, such as all-call privacy and per-call privacy, were made available to allow the calling party to administer the presentation status as public or private. Currently, when a caller invokes DN (Directory Number) Privacy to prevent his/her number from being revealed to the called party, the called party who has ICLID (Incoming Calling Line Identification) CND (Calling Number Delivery) is simply informed that the number is private. Since the called party is not presented with the identity of the caller, the called party cannot choose whether to answer the call or not based on the identity displayed.

2. FEATURE DESCRIPTION

2.1 UCR Base Feature

For 5E5 and later, UCR (Unidentified Call Rejection) is a Secured Feature and must be purchased. UCR gives the called party the ability to automatically reject calls if the calling number has been marked private. The user, therefore, only receives calls for which the identity of the calling party is available. This feature discourages the use of DN Privacy (which displays calls as private to those having the Calling Number Delivery feature) by not allowing calls to complete to the called party if UCR is active.

UCR routes calls with the calling number marked private to a 13A/14A uninterruptible announcement that will indicate that the called party is not accepting calls from parties with private numbers. The called party is not alerted when calls are routed to the announcement. Calls, for which the calling party number is not available or is not marked private, are not affected.

UCR can be activated, and private calls rejected, even if Calling Number Delivery is not assigned to the line.

UCR should not be assigned to the base station of a customer who has Remote Call Forwarding on their line. Although the assignment of UCR will not be blocked in ODA, assignment of UCR to these lines would block receiving calls which were marked private.

UCR is available for unshared analog lines only.

2.2 UCR Options

A. Dial Code Activation of UCR

For 5E6 and later, this option allows the customer to activate and deactivate UCR by means of dial codes. Once dial codes have been defined within the IDP (Individualized Dialing Plan) or ODP (Office Dialing Plan) the customer has the capability to activate and deactivate UCR.

B. Charge/No Charge for UCR Rejection Announcement

When a subscriber with UCR active rejects a call from a calling party having a private number, the calling party will be rerouted to a 13A/14A announcement. For 5E6 and later, this billing option allows telephone companies to charge calling parties for connection time to a UCR call rejection announcement after having been rerouted from the line of a called UCR subscriber.

C. Confirmation Tone/Announcement Option for UCR Activation Dial Codes and Confirmation Tone/Announcement Option for UCR Deactivation Dial Codes

Available with 5E6 and later, these two options are independent of each other, and neither option is reliant upon the activation status of the other option for its operation. Each of these options can only be active or inactive for an entire office.

1. Confirmation Tone/Announcement Option for UCR Activation Dial Codes

Confirmation Tone/Announcement Option for UCR Activation Dial Codes allows telephone companies to exercise a per-office option of providing UCR subscribers with either confirmation tone or a confirmation announcement in response to a successful activation of UCR by dial code.

2. Confirmation Tone/Announcement Option for UCR Deactivation Dial Codes

Confirmation Tone/Announcement Option for UCR Deactivation Dial Codes allows telephone companies to exercise a per-office option of providing UCR subscribers with either confirmation tone or a confirmation announcement in response to a successful deactivation of UCR by dial code.

3. FEATURE ASSIGNMENT**3.1 UCR Base Feature Assignment**

For 5E5, the assignment of UCR to a line requires a service order setting UCR on the LINE form to "Y". When UCR is assigned, it is always active. Deactivation of UCR requires a service order setting UCR on the LINE form to "N".

For 5E6 and later, the assignment of UCR to a line requires a service order before UCR can be set on the LINE form to "Y". When initially assigned, UCR will not be active.

If UCR is ever unassigned from the line and later reassigned to the line, it will be reassigned as inactive (just as when it was first assigned to the line).

3.2 UCR Options**A. Dial Code Activation of UCR**

For 5E6 and later, once dial codes have been defined within the IDP (Individualized Dial Plan) or ODP

(Office Dialing Plan) by assigning "UCRACT" (for activation) or "UCRDCT" (for deactivation) to the ACTION field on the IDPDCA or PDIT form, the customer can activate and deactivate UCR by means of dial codes.

B. Charge/No Charge for UCR Rejection Announcement

For 5E6 and later, this billing option allows telephone companies to charge calling parties for connection time to 13A/14A announcement facilities when UCR announcements are given. When OFS ID 550 is set to "S" (OFS ID 550 has ACT set to "Y" for 5E9(1) and later) on the FOSYS form (5713-2 Record), the switch will provide answer supervision and the automatic generation of an AMA (Automatic Message Accounting) billing record when a calling party is rerouted from the line of a called UCR subscriber and connected to a UCR call rejection announcement. The AMA billing record is the same record that is used for normal, unfeatured telephone calls. When this option is disabled, answer supervision and billing will not be provided for UCR announcements.

C. Confirmation Tone/Announcement Option for UCR Activation Dial Codes and Confirmation Tone/Announcement Option for UCR Deactivation Dial Codes

For 5E6 and later, these two options apply only when:

- the UCR base feature has been purchased and made available to customers, and
- UCR activation and deactivation dial codes have been properly defined in a telephone office's ODP and in the IDPs of UCR subscribers.

Thus, subscribers are capable of activating/deactivating UCR via dial codes.

1. Confirmation Tone/Announcement Option for UCR Activation Dial Codes

Option inactive (Confirmation Announcement Provided)

If OFS ID 553 is blank (for 5E9(1) and later, OFS ID 553 has ACT blank or set to "N") on the FOSYS form (5713-2 Record), there are two possible scenarios:

- If an FIXRT form (5301 Record) exists with FIXED ROUTE TYPE set to "ACTUCR", the associated RTI (route index) should provide routing to 13A/14A UCR activation confirmation announcement. Customers that activate UCR by dial code will receive a UCR activation confirmation announcement. Wording for the UCR activation confirmation announcement is provided by the telephone company.
- If an FIXRT form is not populated as described above, a customer that activates UCR by dial code will receive confirmation tone instead of an activation confirmation announcement; however, an assert to indicate an error will print on the ROP (Read Only Printer) of the customer's office. The nature of the assert will be to inform craft personnel of the office that announcement data expected by the 5ESS Switch in conjunction with the UCR activation dial code action has not been populated or correctly populated

Option active (Confirmation Tone Provided)

If OFS ID 553 is set to "S" (for 5E9(1) and later, OFS ID 553 has ACT set to "Y") on the FOSYS form (5713-2 Record), an FIXRT form having FIXED ROUTE TYPE set to "ACTUCR" is not needed or expected by the switch. Therefore, an error condition will not occur, and the switch will not cause an assert to be printed on the ROP of the customer's office. A subscriber that activates UCR by dial code will receive confirmation tone as standard procedure.

2. Confirmation Tone/Announcement Option for UCR Deactivation Dial Codes

Option inactive (Confirmation Announcement Provided)

If OFS ID 557 is blank (for 5E9(1) and later, OFS ID 557 has ACT blank or set to "Y") on the FOSYS form (5713-2 Record), there are two possible scenarios:

- If an FIXRT form (5301 Record) exists with FIXED ROUTE TYPE set to "DCTUCR", the associated RTI (route index) should provide routing to 13A/14A UCR deactivation confirmation announcement. Customers that deactivate UCR by dial code will receive a UCR deactivation confirmation announcement. Wording for the UCR deactivation confirmation announcement is provided by the telephone company.
- If an FIXRT form is not populated as described above, a customer that deactivates UCR by dial code will receive confirmation tone instead of a deactivation confirmation announcement; however, an assert to indicate an error will print on the ROP (Read Only Printer) of the customer's office. The nature of the assert will be to inform craft personnel of the office that announcement data expected by the 5ESS Switch in conjunction with the UCR deactivation dial code action has not been populated or correctly populated.

Option active (Confirmation Tone Provided)

If OFS ID 557 is set to "S" (for 5E9(1) and later, OFS ID 557 has ACT set to "Y") on the FOSYS form (5713-2 Record), an FIXRT form having FIXED ROUTE TYPE set to "DCTUCR" is not needed or expected by the switch. Therefore, an error condition will not occur, and the switch will not cause an assert to be printed on the ROP of the customer's office. A subscriber that deactivates UCR by dial code will receive confirmation tone as standard procedure.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FIXRT	5301	3	3G	10.1
FOSYS	5317-2	3	5AS	10.19 for 5E5 8.22 for 5E6 - 5E8 8.31 for 5E9(1) and later
IDPDCA	5601-1	4	2B	9.13
LINE	5109	3	1I	1.6
PDIT	5302	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22

FIXRT form (5301 Record) - This form is used to define the Routing and Charging treatment of Fixed Route Types. For 5E5 and 5E6, a form keyed by FIXED ROUTE TYPE equal to "DENYORIG" must be entered to provide a route to an announcement when a call is rejected by UCR. For 5E7 and later, a form keyed by FIXED ROUTE TYPE equal to "UCRDENY" must be entered to provide a route to an announcement when a call is rejected by UCR.

For 5E6 and later, the enumerations "ACTUCR" and "DCTUCR" were added for the field FIXED ROUTE TYPE to provide routing to a confirmation announcement for subscribers activating or deactivating UCR by means of dial codes.

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 550 must be set to "S" (OFS ID 550 must have ACT set to "Y" for 5E9(1) and later) to enable the Charge/No Charge for UCR Rejection Announcement option. OFS ID 553 must be blank (OFS ID 553 must have ACT blank or set to "N" for 5E9(1) and later) for the office to provide Confirmation Tone/Announcement Option for UCR Activation allowing subscribers to have a confirmation announcement delivered when activating UCR with a dial code. OFS ID 557 must be blank (OFS ID 557 must have ACT blank or set to "N" for 5E9(1) and later) for the office to provide Confirmation Tone/Announcement Option for UCR Deactivation allowing subscribers to have a confirmation announcement delivered when deactivating UCR with a dial code.

IDPDCA form (5601 Record) - This form is used to define the dialed codes associated with IDPs. For 5E6 and later, the UCR dial codes are defined on this form. The ACTION entry "UCRACT" activates UCR. The ACTION entry "UCRDCT" deactivates UCR.

LINE form (5109 Record) - This form is used to define a line. The new field UCR was added for 5E5 and later. The UCR field must be set to "Y" to activate the UCR feature on a given line. For 5E5, all calls to this line marked with a presentation status of private will be rejected without alerting the called party. Rejected calls will be routed to an uninterruptible announcement. For 5E6 and later, calls receive the same processing only if the called party has activated the feature by means of a dial code.

PDIT form (5302 Record) - This form is used to define dialed codes associated with ODPs. For 5E6 and later, the UCR dial codes are defined on this form. The ACTION entry "UCRACT" activates UCR. The ACTION entry "UCRDCT" deactivates UCR.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. SFID 47 must be set to "S" (SFID 47 must have ACT set to "Y" for 5E9(1) and later) on the SFSYS form (5713-1 Record) before UCR can be set to "Y" on the LINE form (5109 Record) to make UCR functional for the office.

SEC. 4A48: POLIN (PRIVACY OPTION FOR LAST INCOMING NUMBER)

1. FEATURE DESCRIPTION

Available with 5E6 and later, the POLIN (Privacy Option For Last Incoming Number) feature ensures that the calling party number is not revealed and is treated as private by some features whose primary function is other than providing the calling party number. The number would be treated as private even if the calling party had not marked it as private. Features that are affected by this implementation are:

LASS Screening List Editing (SLE)

LASS Automatic Callback (AC)

LASS Automatic Recall (AR).

This feature will provide a per-office option so that offices may have the LICDN (Last Incoming Call Directory Number), which is stored in a line's ILHB (Incoming Line History Block), considered private when SLE or AC/AR try to retrieve it and voice-back or display it to the user.

Currently, the LICDN stored in a line's ILHB is also used by AC2L (Automatic Callback Two Level Activation) to

voice-back or display the LICDN to the user before call back. This feature will not change AC2L. This is to avoid a 1AESS Switch transparency issue. The 1AESS Switch allows the LICDN to be voiced back to the user by AC2L. A display of the calling party number is prevented by not providing the feature. There is a similar situation with the ICLID (Individual Calling Line Identification) feature. Display of the calling party number is one of ICLID's main functions, and it is possible to prevent the display by simply not providing the feature.

There are other features like Direct Access to Message Data Base, Message Retrieval Display, Print On Demand, and Voice Message System that may reveal the calling party number in different manners, which do not use the LICDN from the ILHB. This feature, POLIN will not prevent these features from revealing the calling party information.

2. FEATURE ASSIGNMENT

POLIN is a secured feature that is enabled by setting the Secured Feature ID 48 to "S" on the SFSYS form (5713-1 Record). Subsequently, the feature is activated on a per-office basis by setting the TFOS (Transparency Feature Optioning System) ID 534 to "S" on the FOSYS form (5713-2 Record).

NOTE: The TFOS should be activated or deactivated on a per office basis. Although it is possible to set each SM separately in the module field of FOSYS form, this should be avoided. The intent of this feature is to enable/disable the revealing of DN office-wide.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
SFSYS	5713-1	3	5AR	8.22
FOSYS	5713-2	3	5AS	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. Secured Feature ID 48 must be set to "S" to enable the feature and indicate that the feature has been purchased.

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. TFOS ID 534 on the FOSYS form must be set to "S" to activate this feature for the office.

SEC. 4A49: REMOVE ISDN COT AGENCY

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-130 Local Area Signaling Services*.

SEC. 4A50: CALLING PARTY NUMBER PRESENTATION

1. BACKGROUND

Beginning with the introduction of the display feature in 5E4(2), it became possible to display the number of the calling party to the called party. The all-call privacy and per-call privacy features were developed to allow the user to administer the presentation status (public or private) of the calling party. The CPNP (Calling Party Number Presentation) special feature applies specifically to per-call and all-call privacy features and the manner in which they interact to determine the presentation status of a call.

Currently the all-call privacy feature is administered by the DN PRIVACY field on the OFCOPT form and the PRIVACY field on the LINE, MLHLN, and DSLUSR forms. Per-call privacy is administered by the TN PRIVACY field on the DISPFD form, the PCP ALW field on the LINE, MLHLN and DSLUSR forms, and the PCP ALW field on the LASSFA form. The DISPFD form provides per-call privacy on a subscription basis (that is, feature assignment) while the LINE, MLHLN, DSLUSR and LASSFA forms provide per-call privacy on a LASS General Availability basis.

The current presentation status precedence is:

1. If DN PRIVACY on the OFCOPT form is set to "Y", all calls originating within the office will be marked as private. If DN PRIVACY is "N", then the presentation status will be determined by (2) or (3).
2. If the line has access to per-call privacy via subscription or LASS GA and is using it, then per-call privacy usage will toggle the presentation status as determined by the setting of the PRIVACY field on the LINE, MLHLN or DSLUSR form.
3. When DN PRIVACY on the OFCOPT form is set to "N" and the line is not using per-call privacy, then the PRIVACY field on the specific LINE, MLHLN or DSLUSR form will determine the presentation status.

2. FEATURE DESCRIPTION

Available with 5E6 and later Software Releases, the CPNP special feature changes the above mentioned presentation status precedence list and introduces a new means of administering per-call and all-call privacy. The new means of administration will be done through the screening index. This is in addition to per-line and per-office administration.

The new presentation status precedence is:

1. If the line has access to per-call privacy (by means of subscription of LASS GA) and is using it, then per-call privacy usage will determine the presentation status.
2. If the line has the per-line all-call privacy indicator set, it will be used to determine the presentation status.
3. If the line does not have per-line all-call privacy set and the per-screening index all-call privacy indicator is set, then it will be used to determine the presentation status.
4. If the per-line all-call privacy and the per-screening index all-call privacy indicators have not been set, then the per-office all-call privacy indicator (denoted by the DN PRIVACY field on the OFCOPT form) will be used to determine the presentation status.

Therefore, allowing or denying all-call privacy for a screening index is used only when all-call privacy has not been set on a per-line basis. Essentially, for all-call privacy, per-line (LINE, MLHLN, DSLUSR forms) overrides per-screening index (SCRIDXPA form) which overrides per-office (OFCOPT form) settings.

Per-call privacy is not as straight-forward as all-call privacy. Normally, the PCP field on the LASSFA form determines whether or not PCP is generally available in the office, and if it is, then the PCP ALW field on the LINE, MLHLN, or DSLUSR form determines if PCP is generally available on the line. With CPNP active in the office, screening index PCP parameters will, in some instances, override the LASSOP form for a particular screening index:

1. If LASSFA has PCP set to "SUBSCR", then PCP is not generally available (assignment of a DISP feature is the only way to get PCP). However, if the new screening index form, SCRIDXPA, is entered with PCP ALW set to "Y", then PCP is generally available within that screening index. Lines within the screening index that have their per-line PCP ALW set to "Y" will have PCP generally available on the line.
2. If LASSFA has PCP set to "GENAVAIL", then PCP is generally available within the office. However, if the new screening index form, SCRIDXPA, is entered with PCP ALW set to "N" and PCP is not line subscribed, then PCP is not generally available within that screening index. Lines assigned the screening index cannot receive PCP by means of general availability.
3. If LASSFA has PCP set to "UNAVAIL" or "TEMPUNAVAIL", then PCP cannot be accessed as generally available by anyone within the office.

In all cases, PCP can be made available via subscription, and subscription PCP has a precedence over general available PCP.

If the new screening index form, SCRIDXPA, is not entered and PCP ALW is "Y", the line will be allowed to use PCP.

NOTE: See Figure 3 for a list of CPNP call privacy precedence.

In addition, subscription and LASS GA per-call privacy is allowed for use on lines with four classes of service not previously supported: "TWOPTY", "HOTMOTL", "COIN", or "2PTY". See the DISPFD form (595 Record) for the full list.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DISPFD	5965	6	8A	12.43
DSLUSR	5908	5	1I	23.2
FIXRT	5301	3	3G	10.10
LINE	5109	3	1I	1.6
MLHLN	5111	3	1K	1.6
SCRIDXPA	5543	3	5AQ	8.24
SFSYS	5713-1	3	5AR	8.22

DISPFD form (5965 Record) - This form is used to allow the calling or called number and the time and date to be displayed at an ISDN station set. New data rules were added for assignment of CLASS OF SERVICE and for the TN PRIVACY field.

DSLUSR form (5908 Record) - This form is used to define a digital line. The PRIVACY field on the DSLUSR form designates whether or not all-call privacy is in effect. The PRIVACY field is no longer a required field for this form. If PRIVACY is set to "Y", the calling number is private. If PRIVACY is set to "N", the calling number is public. If PRIVACY is blank, the privacy status of the calling number will be determined by the PRIVACY field on the SCRIDXPA form (5543 Record) or the DN PRIVACY field on the OFCOPT form (5509 Record).

In addition, the PRIVACY field now defaults to blank if the CPNP feature has been purchased (FID 50 on the SFSYS form set to "S"). If the CPNP feature has not been purchased (FID 50 on the SFSYS form not set to "S"), the PRIVACY field defaults to "N".

FIXRT form (5301-1 Record) - This form is used to define Routing and Charging treatment of Fixed Route Types. A form keyed by FIXED ROUTE TYPE equal to "VFYERR" (for 5E6) or "PCPDENY" (for 5E7 and

later) must be entered to provide a route to announcements when attempting to use per-call privacy and the use of per-call privacy has been denied.

LINE form (5109 Record) - This form is used to define a line. The PRIVACY field on the LINE form designates whether or not all-call privacy is in effect. The PRIVACY field is no longer a required field for this form. If PRIVACY is set to "Y", the calling number is private. If PRIVACY is set to "N", the calling number is public. If PRIVACY is blank, the privacy status of the calling number will be determined by the PRIVACY field on the SCRDXPA form (5543 Record) or the DN PRIVACY field on the OFCOPT form (5509 Record).

In addition, the PRIVACY field now defaults to blank if the CPNP feature has been purchased (FID 50 on the SFSYS form set to "S"). If the CPNP feature has not been purchased (FID 50 on the SFSYS form not set to "S"), the PRIVACY field defaults to "N".

MLHLN form (5111 Record) - This form is used to define a multi-line hunt line. The PRIVACY field on the MLHLN form designates whether or not all-call privacy is in effect. The PRIVACY field is no longer a required field for this form. If PRIVACY is set to "Y", the calling number is private. If PRIVACY is set to "N", the calling number is public. If PRIVACY is blank, the privacy status of the calling number will be determined by the PRIVACY field on the SCRDXPA form (5543 Record) or the DN PRIVACY field on the OFCOPT form (5509 Record).

In addition, the PRIVACY field now defaults to blank if the CPNP feature has been purchased (FID 50 on the SFSYS form set to "S"). If the CPNP feature has not been purchased (FID 50 on the SFSYS form not set to "S"), the PRIVACY field defaults to "N".

SCRDXPA form (5543 Record) - This form is used to administer line attributes on a screening index basis. The per-call privacy and all-call privacy fields on this form are only applicable to the CPNP special feature. The PCP ALW field on this form may be set to "Y" only when the CPNP special feature has been purchased (FID 50 on the SFSYS form has been set to "S").

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 50 on the SFSYS form must be set to "S" to make CPNP function for the office.

CPNP ACP (All-Call Privacy) Precedence

Line Status	Screen Index	Switch Indicator	ACPResult
Public	Don't Care	Don't Care	Public
Private	Don't Care	Don't Care	Private
Not Set	Public	Don't Care	Public
Not Set	Private	Don't Care	Private
Not Set	Not Set	Public	Public
Not Set	Not Set	Private	Private

CPNP PCP (Per-Call Privacy) Precedence

LASSFA PCP	Line Subscribed?	SCRDXPA PCP ALW	LINE MLHLN or DSLUSR PCP ALW	Result PCP Allowed?
LASSDEF	Don't Care	Don't Care	Don't Care	No
UNAVAIL	Don't Care	Don't Care	Don't Care	No
TEMPUNAVAIL	Don't Care	Don't Care	Don't Care	No
SUBSCR	Subscribed	Don't Care	Don't Care	Yes
SUBSCR	Not Subscribed	N	Don't Care	No
SUBSCR	Not Subscribed	Y	N	No
SUBSCR	Not Subscribed	Y	Y	Yes
SUBSCR	Not Subscribed	Form Does Not Exist	Don't Care	No
GENAVAIL	Subscribed	Don't Care	Don't Care	Yes
GENAVAIL	Not Subscribed	N	Don't Care	No
GENAVAIL	Not Subscribed	Y	N	No

GENAVAIL	Not Subscribed	Y	Y	Yes
GENAVAIL	Not Subscribed	Form Does Not Exist	Y	Yes
GENAVAIL	Not Subscribed	Form Does Not Exist	N	No

Figure 1 CALLING PARTY NUMBER PRESENTATION CALL PRIVACY PRECEDENCE**SEC. 4A51: ADVANCED SERVICES PLATFORM (5E6 - 5E8)****1. FEATURE DESCRIPTION**

ASP (Advanced Services Platform), available with 5E6 and later Software Releases (for ASP available with 5E9(1) and later Software Releases, see Division 2, Section 4A126), provides a platform of service-independent capabilities at a 5ESS Switch which allow it to interact with an external network element (an SCP (Service Control Point)) via CCS7 TCAP (Common Channel Signaling, CCITT Version 7 Transaction Capabilities Application Part) messages to help determine appropriate call handling treatment.

The SCP contains a customer defined database with the information necessary to determine the appropriate call handling treatment. The SCP may be queried by an SSP (Service Switching Point) via CCS7 TCAP messages utilizing out of band signaling. When queried, the SCP performs screening and provide routing control and billing information.

For 5E6 - 5E8, ASP calls may also be generated in a non-SSP switch referred to as a NAP (Network Access Point). A NAP cannot directly query the SCP; rather, it passes the call on to an SSP which in turn queries the SCP. Additionally, a non-conforming 5ESS PBX connected to an NAP or an SSP can originate a call that will be interpreted as an ASP call by translations within the NAP or SSP (see the description of Shared Interoffice Trunk and Trunk Seizure triggers in Section Section 3).

For a list of features possible on this platform, see AT&T 235-190-125, *5ESS Switch Advanced Services Platform, Release 0 and Release 0.1A*.

ASP is a Secured Feature. To use the feature in 5E6 - 5E8, SFIDs 58 (5E6 Software Release) and 51 (5E6 Software Update and 5E8 Software Release) must be marked as purchased on the SFSYS form.

Early ASP implementation in ODA (Office Data Administration) forms and Recent Change Views used the term PVN (Private Virtual Network) and references to PVN are found throughout the ASP-related sections and paragraphs in the TG-5. PVN is but a single service that can be provided via ASP; it should be understood that the use of the term "PVN" within the TG-5 does not place any limitations on the abilities of ASP outside of PVN functionality.

For 5E8 and later, many ODA input forms had fields or field enumerations renamed to reflect "ASP" rather than "PVN". For a full description of this, see Section 8 The field or enumeration names used in this document are the 5E8 names in the sections previous to Section 8

1.1 Definitions

The following definitions are used within this feature description section:

Term	Definition
SCP	Service Control Point. The SCP provides the network database. It performs network translation functions for routing, billing and maintenance. The phrase "query the SCP" refers to querying the network database located on the SCP.
SSP	Service Switching Point. An SSP is a 5ESS Switch that performs local screening, digit collection, routing and billing functions. Only an SSP is capable of directly querying the SCP. For purposes of this feature description section, an SSP will be assumed to support ASP.
NAP	Network Access Point. A NAP is a Switch that concentrates ASP traffic and routes that traffic to an SSP. For purposes of this feature description section, an NAP will be assumed to support ASP.

Note: NAPs are not supported by 5ESS Switches.

2. ASP DIALING PLAN

An ASP dialing plan is defined within the ODP. The DNs (Directory Numbers) dialed should correspond to the following ASP dialing plan:

Term	Definition
Domestic calls	NXX-XXXX 1+NPA-NXX-XXXX (1+800-NXX-XXXX may be treated as NS (Number Services) calls or ASP calls, dependent upon digit analysis translations)
International	011+CC+NN where CC=Country Code and NN=National Number
Attendant	0-
N11	N11 may be treated as standard N11 or ASP calls, dependent upon how digit analysis translations are set up.

• 5E6 - 5E7 Only Software Releases

An ASP dialing plan is built using a combination of existing CALL TYPES and/or the new CALL TYPE of "QUERY" available on the LDIT form (5300-3/5 Record), MLDIT form (5300-3 Record), PDIT form (5300-2 Record) and IDDD form (5307 Record). The CALL TYPE of "QUERY" indicates a QUERY to the SCP is required. When a CALL TYPE of "QUERY" is found, the CODE INDEX on the same form references the DISERV form (5321 Record) to see what type of query, if any, should be made.

Additionally, ASP originations for trunks may be identified via the INDIT form (5309 Record) by specifying a TYPE OF CI CALL of "AVT". When the 0ZZ-XXX is collected, the XXX is compared to the PSEUDO CARR on the OFCOPT form (5509 Record) and if equal, the call is considered an ASP call. The CODE INDEX on the INDIT form is then used to reference the DISERV form (5321 Record) to see what type of query, if any, should be made.

Figure 1 shows the inclusion of ASP in the ODP at an NAP. Figure 3 shows the inclusion of ASP in the ODP at an SSP.

The ASP dialing plan is represented by one or more ASP DASs (Digit Analysis Selectors). When multiple ASP DASs exist, one is be considered the "default" ASP DAS while the remainder are considered "virtual" ASP DASs. The default ASP DAS is identified via the ASP DAS field on the OFCOPT form (5509 Record). Both the default and the virtual ASP DASs are defined on the DAS form (5300-1 Record) just like other DASs.

A single ASP DAS (the default ASP DAS) will probably suffice for a majority of applications. The main use of virtual ASP DASs occurs when a customer wishes certain lines and/or trunks to be dedicated to an ASP DAS other than the default ASP DAS. Such a customer would build his lines and/or trunks so that they use the virtual ASP DAS. It should be noted that in this case, ODP feature/prefix code triggers and IDP triggers from such lines still use the default ASP DAS (see the following paragraph).

The default ASP DAS will be used for translating DNs on ASP calls originated via an ASP ODP feature/prefix trigger or IDP trigger (see Section 3 for explanation). In these cases, the ASP DAS on the OFCOPT form overrides the DAS normally associated with the line or trunk.

WARNING: Since it is possible to build multiple ASP DASs within an office, some care must be taken not to assign BRCS features to off-hook immediate triggers, off-hook delay triggers, trunk seizure triggers

and channel setup PRI triggers dedicated to ASP services (see Section 3 for further information on triggers).

It is possible to create an ASP off-hook immediate trigger, off-hook delay trigger, trunk seizure trigger or channel setup PRI trigger where the DAS on the LCC form (5306 Record) or TKGRP form (5202 Record) equals the DAS of an ASP DAS other than the one specified by ASP DAS on the OFCOPT form (5509 Record). Since this line or trunk is not dedicated or direct-connected to the default ASP DAS, ODA will not block the assignment of BRCS features to the line or trunk, thereby allowing the creation of an ASP trigger that is dedicated or direct-connected to ASP services and has BRCS features. However, BRCS interworking for ASP is not supported for lines and trunks dedicated or direct-connected to ASP services. If calls were originated from lines or trunks setup in such a manner, problems such as incorrect billing, call instability and unexpected routing may occur.

- **5E8 Software Release**

For 5E8 and later, there is no longer a CALL TYPE of "QUERY", nor a DISERV form.

Instead, an ASP dialing plan is built using a combination of existing CALL TYPEs and the new field TRIG NBR defined on the NSTRIG form and available on the LDIT, MLDIT, PDIT, INDIT, RDIT, and IDDD forms. The existence of a trigger number (TRIG NBR field) indicates a query to the SCP may be required. When a TRIG NBR is entered, it will be used to reference NSTRIG to determine what parameters the query will use.

Additionally, ASP originations for trunks may be identified via the INDIT form (5309 Record) by specifying a TYPE OF CI CALL of "AVT". When the 0ZZ-XXX is collected, the XXX is compared to the PSEUDO CARR on the OFCOPT form (5509 Record) and if equal, the call is considered an ASP call. The TRIG NBR on the INDIT form is then used to reference NSTRIG to determine what parameters the query will use.

The CODE INDEX on the LDIT, MLDIT, PDIT, IDDD form is now a "real" code index rather than just a pointer to the DISERV form.

Figure 2 shows the inclusion of ASP in the ODP at an NAP. Figure 4 shows the inclusion of ASP in the ODP at an SSP.

2.1 Remaining Digit Analysis Tables

For 5E8 and later, RDIT was added to assist in defining digit analysis translations for ASP.

NOTE: Use of RDIT is not limited to ASP. RDIT can be used by any digit analysis translations.

See the RDIT form, Division 3, Section 3H, for details of remaining digit analysis.

3. ASP TRIGGERS

The following paragraphs describe the triggers by which ASP calls can be originated. Mention of specific ODA forms is made in the following paragraphs to help relate ODA forms and fields to the actions taken in each scenario. Further details on the input forms and fields can be found in Section 9. For the sake of brevity, the forms' corresponding record numbers are not listed following every mention of the form name, but can be found in Section 9.

3.1 Off-hook Immediate Trigger (Direct Connect Lines)

An ASP off-hook immediate trigger occurs when a line direct-connected to ASP services goes off-hook. The query is immediately launched to the SCP using the terminal's billing number as ANI with no dialed digits. For

this type of trigger, the service key is always ANI. An ASP off-hook immediate trigger is specified on the LINE form or MLHLN form by setting NO DIAL to "HOT" and ASP ALW to "Y".

- **WARNING:** See the warning in the Section 2 regarding the assignment of BRCS features on an ASP off-hook immediate trigger.

The DIGIT ANALYSIS SELECTOR on the LCC form should point to the default ASP DAS (assigned as ASP DAS on the OFCOPT form), even though no digits are dialed or translated.

If the trigger occurs at an NAP (ASP OFC is set to "BILLNAP" or "NOBILLNAP" on the OFCOPT form), the call is routed to an SSP using the ASP RTI on the ICF form corresponding to the PSEUDO CARR assigned on the OFCOPT form.

If the trigger occurs at an SSP (ASP OFC is set to "SSP" on the OFCOPT form), a query is made to the SCP to obtain further routing information.

3.2 Off-hook Delay Trigger (Dedicated Lines)

An ASP off-hook delay trigger origination occurs when a line dedicated to ASP services goes off-hook and dials any DN. An ASP off-hook delay trigger is specified on the LINE form, MLHLN form or DSLUSR form by setting ASP ALW to "Y" and then, on the corresponding LCC form, setting DIGIT ANALYSIS SELECTOR equal to an ASP DAS (such as ASP DAS on the OFCOPT form).

- **WARNING:** See the warning in Section 2 regarding the assignment of BRCS features on off-hook delay triggers.

The DIGIT ANALYSIS SELECTOR on the LCC form should point to an ASP DAS.

- **5E6 - 5E7 Software Releases**

If the call is translated with a CALL TYPE of "QUERY" on a LDIT, MLDIT, PDIT or IDDD form, the CODE INDEX on the same form will appear on a DISERV form where SERV TYPE determines what action to take.

If SERV TYPE is "NOQRY" (i.e., at an NAP), then the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and outpulsed with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If SERV TYPE is a value other than "NOQRY" (i.e., at an SSP), a query is made to the SCP to obtain further routing information.

- **5E8 Software Release**

If the call is translated with a known TRIG NBR on the LDIT, MLDIT, PDIT or IDDD form, the TRIG NBR on the same form will appear on an NSTRIG form, where APPLICATION must be "ASP".

If at an NAP, the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and outpulsed with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If the call is at an SSP, a query is made to the SCP to obtain further routing information.

3.3 Trunk Seizure Trigger (Dedicated Trunks)

An ASP trunk seizure or PRI trigger origination occurs when a trunk dedicated to ASP services is seized and digits are inputted. An ASP trunk seizure trigger is specified on the TKGRP form by setting UNRES EA equal to "Y" and TRKCLS equal to "PF", "PFLASH" or "PFITT". This combination of UNRES EA and TRKCLS causes all originations to be recognized as ASP triggers; digits are collected and a query launched.

- ▲ **WARNING:** See the warning in Section 2 regarding the assignment of BRCS features on trunk seizure triggers. This warning also applies to PRI triggers.

3.4 Channel Setup PRI Trigger (Dedicated Trunks)

An ASP channel setup PRI trigger origination occurs when a trunk dedicated to ASP services is seized and digits are inputted. An ASP channel setup PRI trigger is specified on the TKGRP form by setting ASP ALW equal to "Y", TRKCLS equal to "EDSL" and DAS equal to an ASP DAS (such as ASP DAS on the OFCOPT form).

- ▲ **WARNING:** See the warning in Section 2 regarding the assignment of BRCS features on channel setup PRI triggers.

The DAS on the TKGRP form should point to an ASP DAS.

- **5E6 - 5E7 Software Releases**

If the call is translated with a CALL TYPE of "QUERY" on the LDIT, MLDIT, PDIT or IDDD form, the CODE INDEX on the same form will appear on a DISERV form where SERV TYPE determines what action to take.

If SERV TYPE is "NOQRY" (i.e., at an NAP), the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and outputted with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If SERV TYPE is a value other than "NOQRY" (i.e., at an SSP), a query is made to the SCP to obtain further routing information.

- **5E8 Software Release**

If the call is translated with a known TRIG NBR on the LDIT, MLDIT, PDIT or IDDD form, the TRIG NBR on the same form will appear on an NSTRIG form.

If at an NAP, the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and outputted with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If the call is at an SSP, a query is made to the SCP to obtain further routing information.

3.5 Shared Interoffice Trunk Triggers (Non-Dedicated Trunks)

An ASP shared interoffice trunk trigger origination occurs when a non-conforming 5ESS PBX connected to an SSP originates a call the SSP recognizes as an ASP call.

This is accomplished in translations by using the appropriate INDIT forms with TYPE OF CI CALL set to "AVT". Upon receipt of an 0ZZ-XXX (for EAMF (Equal Access Multi-Frequency) trunks) or a TNS parameter (for CCS7 trunks) where XXX or the TNS parameter is equal to PSEUDO CARRIER on the OFCOPT form, the CODE INDEX on the INDIT form finds a DISERV form. The existence of a DISERV form triggers an ASP

call. The lack of a DISERV form causes the ANI (Automatic Number Identification) II digits to be compared to ASP ANI on the OFCOPT form. For 5E8 and later, the NSTRIG form, with APPLICATION equal to "ASP" triggers the ASP call.

If the ANI II digits match the ASP ANI on the OFCOPT form, an ASP call is triggered.

If the ANI II digits do not match, the impulsed digits is checked to see if it is an 800 call.

If it is an 800 call, the call is treated as an SSP 800 call. Remaining calls not screened as 800 calls receive treatment based on the UNRES EA value on the TKGRP form. When UNRES EA is "Y", the calls are treated as ASP triggers. When UNRES EA is "N", the calls fail.

For 5E8 and later, for provisioning non-subscribed DNT 0ZZ EA originations at an EAEO/NAP, the end office must send the ASP Pseudo Carrier to the AT/SSP. The Route Index on LDIT is an EO-SSP trunk. For the LDIT form, TYPE OF CI CALL must be "SAC", and CODE INDEX and ROUTE INDEX must be entered.

For provisioning at the SSP:

- On the INDIT form, the INDIT value is derived from the incoming trunk DAS, the INCOMING DIGITS are the 0ZZ from the EAEO, and the XXX from the EAEO must equal the ASP Pseudo Carrier. TRIG NBR is from the APPLICATION of "ASP" on the NSTRIG form. When analyzing the 0ZZ, an EAOFC trigger is encountered. This instructs the SSP to run the dialed digits through the ODP.
- For dialed digits, the incoming trunk DAS references the LDIT from the DAS form, INDIT instructs the Switch to run the dialed digits through LDIT, which has an ASP trigger with TRIG NBR equals 2, and NATURE of NBR equals "NATL". For INDIT, LDIT must equal "Y", and NBR OF DIGITS TO BE DELETED must be 0. For LDIT, CALL TYPE must be "NORMAL", TYPE OF CI CALL equals "INTRA", and ROUTE INDEX must be entered.

3.6 ODP Feature/Prefix Code Trigger

An ASP ODP feature/prefix code trigger origination occurs when a line that is allowed to originate such ASP calls goes off-hook and dials an ASP access code followed by a DN or when a trunk that is allowed to originate such ASP calls is seized and digits corresponding to the ASP access code and a DN are impulsed.

A line or trunk specifies its ability to originate ASP calls via an ODP feature/prefix code trigger by setting ASP ALW to "Y" on the appropriate LINE, MLHLN, DSLUSR or TKGRP form. The ASP access code is defined by setting ACTION to "ASPUSE" on the PDIT form.

After the access code and DN have been dialed, and it has been determined that the line is allowed to originate ASP calls, the access code is deleted and the DN translated using the ASP DAS as specified by ASP DAS on the OFCOPT form (ASP DAS overrides the DIGIT ANALYSIS SELECTOR on the appropriate LCC form).

• 5E6 - 5E7 Software Releases

If the call is translated with a CALL TYPE of "QUERY" defined on a LDIT, MLDIT, PDIT or IDDD form, the CODE INDEX on the same form appears on a DISERV form where SERV TYPE determines what action to take.

If SERV TYPE is "NOQRY" (i.e., at an NAP), the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and is outputted with the carrier

defined in the PSEUDO CARR field on the OFCOPT form.

If SERV TYPE is a value other than "NOQRY" (i.e., at an SSP), a query is made to the SCP to obtain further routing information.

- **5E8 Software Release**

If the call is translated with an entered TRIG NBR on the LDIT, MLDIT, PDIT or IDDD form, the TRIG NBR on the same form will appear on an NSTRIG form.

If at an NAP, the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and outpulsed with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If the call is at an SSP, a query is made to the SCP to obtain further routing information.

3.7 IDP Trigger

An ASP IDP trigger origination occurs when a line that belongs to an IDP group goes off-hook and dials the IDP's ASP access code followed by a DN or when a trunk that belongs to an IDP group is seized and digits corresponding to the IDP's ASP access code followed by a DN are impulsed.

The IDP's ASP access code is defined by setting ACTION to "IDPASP" on the IDPDCA form. When such a code is defined within an IDP, all lines and trunks within that IDP have access to the access code.

After the access code and the DN are dialed, the access code is deleted and the DN is translated using the ASP DAS as specified by ASP DAS on the OFCOPT form (ASP DAS overrides the DIGIT ANALYSIS SELECTOR on the appropriate LCC form).

- **5E6 - 5E7 Software Releases**

If the call is translated with a CALL TYPE of "QUERY" defined on a LDIT, MLDIT, PDIT or IDDD form, the CODE INDEX on the same form appears on a DISERV form where SERV TYPE determines what action to take.

If SERV TYPE is "NOQRY" (i.e., at an NAP), the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by the RAR form, and outpulsed with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If SERV TYPE is a value other than "NOQRY" (i.e., at an SSP), a query is made to the SCP to obtain further routing information.

- **5E8 Software Release**

If the call is translated with an entered TRIG NBR on the LDIT, MLDIT, PDIT or IDDD form, the TRIG NBR on the same form will appear on an NSTRIG form.

If at an NAP, the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and outpulsed with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If the call is at an SSP, a query is made to the SCP to obtain further routing information.

NOTE: Beginning with 5E8, IDP features may be assigned to PRI trunks as part of the CENTREX PRI Enhancements feature (For more information on this feature, see Division 2, Section 4A105). However, IDP/CDP ASP triggers are not supported by this feature.

3.8 Feature Button Trigger

An ASP feature button trigger origination occurs when a BRI (also known as a DSL) presses an ASP access feature button and dials a DN.

An ASP access feature button can be defined by setting ACTION to either "ASPUSE" or "IDPASP" on a CFGGRP form.

After the feature button has been pressed and the DN has been entered, then the DN is translated using the ASP DAS as specified by ASP DAS on the OFCOPT form (ASP DAS overrides the DIGIT ANALYSIS SELECTOR on the appropriate LCC form).

- **5E6 - 5E7 Software Releases**

If the call is translated with a CALL TYPE of "QUERY" defined on a LDIT, MLDIT, PDIT or IDDD form, then the CODE INDEX on the same form appears on a DISERV form where SERV TYPE determines what action to take.

If SERV TYPE is "NOQRY" (i.e., at an NAP), the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by the RAR form, and is outpulsed with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If SERV TYPE is a value other than "NOQRY" (i.e., at an SSP), a query is made to the SCP to obtain further routing information.

- **5E8 Software Release**

If the call is translated with an entered TRIG NBR on the LDIT, MLDIT, PDIT or IDDD form, the TRIG NBR on the same form will appear on an NSTRIG form.

If at an NAP, the call is routed to an SSP using the RTIDX assigned on the LDIT, MLDIT, PDIT or IDDD form, unless overridden by an RAR form, and outpulsed with the carrier defined in the PSEUDO CARR field on the OFCOPT form.

If the call is at an SSP, a query is made to the SCP to obtain further routing information.

3.9 Automatic Route Selection Trigger

An ASP ARS (Automatic Route Selection) trigger origination occurs when a line belonging to an ARS group dials a DN or a trunk belonging to an ARS group is seized and impulses a DN and call processing searches through the ARS list and selects a route designated as an ASP route.

An ASP route is specified in the ARS route list by entering "ASP" as the MC ROUTE TYPE on an appropriate MCRTIDX form.

When the ASP call originates via an ARS trigger the actions taken depend on the type of office in which the trigger occurs.

If ASP OFC on the OFCOPT form is set to "SSP" (i.e., this is an SSP office), the SCP is queried to obtain additional routing information.

If ASP OFC is set to "BILLNAP" or "NOBILLNAP" (i.e., this is an NAP office), the TRUNK GROUP NUMBER on the MCRTIDX form specifies the trunk to be used to route the call to an SSP. The carrier defined in the PSEUDO CARRIER field on the OFCOPT form is outpulsed with the call to the SSP.

ASP ARS triggers have different restrictions in the SSP and the NAP. In an SSP, an ASP route can be specified as the last route selection in an ARS list. When an ASP ARS trigger occurs in an SSP, ARS releases control of the call to ASP and a query is made to the SCP. Once control is turned over to ASP, the ARS list cannot be reaccessed again where searching left off in the event that the query cannot be made; hence the reason ASP must be the last route in the list. In an NAP, an ASP route can appear anywhere within the ARS list, and multiple ASP routes may appear within a single list. This is possible because the ASP ARS triggers in the NAP supply a route to an SSP rather than making a query to an SCP.

When the SCP returns a routing response that again accesses MCRTIDX routes advance routing occurs where the MCRTIDX list of routes is hunted until either an available trunk facility is found, the end of the MCRTIDX route list is encountered, an ASP route is encountered, an overflow to OUTWATS is encountered or and overflow to Direct Distance Dialing is encountered. When the hunting terminates for any reason other than an available trunk being found, these facilities are considered unavailable and alternate routing is attempted. See Section 4 for descriptions of alternate and advance routing.

3.10 Directory Number Trigger (Remote Access)

An ASP DN trigger origination occurs when a customer calls a DN designated as an ASP "remote access" DN by setting TERMINATING TREATMENT to "RAPVN" on the DN's corresponding LCC form. Upon dialing the DN, a query is immediately launched to the SCP.

When attempting a DN trigger origination, the originating line must have CLASS OF SERVICE on its corresponding LCC form set to "10PTY", "2PTY", "4PFS", "4PSS", "4WINDIV", "5PTY", "8PSS", "ATND", "CHGCALL", "HOTMOTL", "HOTPBX", "INDIV", "MODEM", "PBX", and "TWOPTY".

A TRKCLS of "EDSL", "EDSLHM", "IC", "LTOLLCON", "PF", "PFITT", "PFLASH", "PRINTOLL", or "TTOLLCON" is allowed to originate calls to an ASP DN trigger.

Note that the DN trigger exists only in the software and has no physical equipment associated with it.

ASP remote access DNs are supported only at an SSP and cannot be defined at an NAP.

An ASP DN trigger exists only in 5e6 and 5e7. The concept is replaced by DNTs (Dialed Number Triggers) in 5E8. See the next section.

Digit analysis tables for the translated DN are built with a TRIG NBR and appropriate trigger information is entered on the NSTRIG form. This is the 5e8 and later version.

For details on how DN triggers are carried forward, reference Section Section 8

3.11 Dialed Number Triggers

Non-Subscribed Dialed Number Triggers allow an SSP to launch a query to the SCP database based on the complete dialed number (e.g., NXX-XXXX, NPA-NXX-XXXX, or N11), or leading portions of a dialed number (e.g., NPA, NXX, or NPA-NXX). In addition to indicating the need to launch a query, Dialed Number Triggers may be associated with line equipment to provide services like Terminating Screening.

To provision DNTs, the NSTRIG form is populated with APPLICATION equals "ASP". Digit analysis (IDDD, PDIT, LDIT, MLDIT, RDIT) then references the NSTRIG form via the TRIG NUM field.

When attempting a DNT, the originating line must have CLASS OF SERVICE on its corresponding LCC form set to "10PTY", "2PTY", "4PFS", "4PSS", "4WINDIV", "5PTY", "8PSS", "ATND", "CHGCALL", "COIN", "HOTMOTL", "HOTPBX", "INDIV", "MODEM", "PBX", and "TWOPTY".

A TRKCLS of "EDSL", "EDSLHM", "IC", "LTOLLCON", "PF", "PFITT", "PFLASH", "PRINTOLL", or "TTOLLCON" is allowed to originate calls to an ASP DNT.

4. SCP QUERY AND RESPONSE

The SCP acts as the controller for the ASP service. It provides the service database, sends instructions for routing, billing and additional digit collection, and performs screening and maintenance functions.

This section is intended to give a brief overview of what information is passed between the SCP and the SSP and how that information relates to translations within the SSP. This section is not intended to be a complete description of SCP protocols and messages. Complete details can be found in AT&T Document 235-190-125, *5ESS Advanced Services Platform, Release 0 and Release 0.1A*.

The SCP is queried from an SSP. The SSP is linked to the SCP via the CNI ring using TCAP. See Division 9 for detailed information on CNI.

On the initial query to the SCP, the SSP provides the ANI of the originator, the dialed digits (if any), the ANI II digits (specified by ASP ANI on the OFCOPT form) and the LATA (Local Access And Transport Area) number (specified by LATA NUMBER on the OFCOPT form).

The SCP responds with one of the following:

1. Instructions to "Play Announcement(s) and Collect Digits", accompanied by up to two IDs of the announcements to play and the number of digits to collect.

The announcement ID must be defined as the ANNC CODE on a SSPANN form (5535 Record) with a CUST HDRID and (optionally) a CUST TRLID entered.

Fixed route "NSANNC" must be defined on FIXRT (5301-1 Record) with a route index which points to a trunk group that accesses the DSU2-RAF announcements for ASP.

2. Instructions to "Play Announcement(s)", accompanied by one ID of the announcements to play. The call terminates following the announcement.

The announcement ID must be defined as the ANNC CODE on a SSPANN form (5535 Record) with a CUST HDRID and (optionally) a CUST TRLID entered.

Fixed route "NSANNC" must be defined on FIXRT (5301-1 Record) with a route index which points to a trunk group that accesses the DSU2-RAF announcements for ASP.

3. Instructions to "Route the Call per SCP Instructions", accompanied by private facilities routing information (up to 3 route indices), public routing information (up to 3 carriers or the LEC (Local Exchange Carrier), accompanied by a DN) and other optional information (such as billing information).

A route index must be defined as a ROUTE INDEX on a RTIDX form (5303 Record) or an MC ROUTE INDEX on a MCRTIDX form (5304 Record) with an MC ROUTE TYPE of "MC" or "SFG".

When a DN is to be routed to a carrier, the carrier must be defined as CARRIER ID on an ICF form (5305 Record). When a DN is to be routed via the LEC or an Interexchange Carrier, the DN is retranslated using the SCPL DAS or SCPT DAS defined on the OFCOPT form (5509 Record).

When a DN is retranslated, intraLATA and interLATA calls are handled differently. When the carrier returned by the SCP is a pseudo carrier or LEC, the DN returned by the SCP is retranslated and final routing uses the information provided by the retranslation. When the carrier returned by the SCP is not a pseudo carrier or LEC, the DN returned by the SCP is retranslated to determine if the switch agrees the call is an interLATA call.

If the switch agrees, the call is routed using the carrier returned by the SCP rather than the carrier found during retranslation. Otherwise, the call is given intraLATA treatment.

Additionally, DNs may be one of two types: an outpulse DN or a routing DN. The outpulse DN is accepted "as is" while the routing DN is validated via digit analysis translations. An outpulse DN can only be referenced by non-OUTWATS trunk facilities. A routing DN can be referenced by non-OUTWATS private SCP routes but must be provided for OUTWATS private SCP routes as well as public carrier SCP routes.

The SCP can respond with no carrier information. In that case, the call will receive switch-based carrier information.

4. Dialed Number Trigger (DNT). If post query digit analysis indicates a trigger number, the routing DN is an SCP Dialed Number Trigger (DNT) resulting in additional queries. This is called serial triggering.

Serial Triggering allows a single SSP to query multiple times on the same ASP call. This capability can provide multiple billing for the serial legs of the call. See the MAX CONV field on the OFCOPT form.

DNTs may be encountered in processing a call initiated by another trigger whenever PSEUDO/LEC routing is selected by the SSP. When a DNT is encountered in routing, the SSP must test to determine if the current DNT is equivalent to the previous DNT. These tests determine whether the SSP should launch another query to an SCP. Serial Triggering is the response to a trigger with another trigger. Serial Triggering may only occur if the Route DN is itself a DNT.

Analysis of the Route DN is required to determine if another DNT has been received by the SSP. Serial Triggering will not be allowed when the maximum allowed number of queries has been reached.

Conversations with between an SSP and SCP occurring during a Serial Triggering episode may involve a different SCP per transaction. Global Title derivation is based on Called Party Numbers which are determined from the SCP Route DN during Serial Triggering. Alternate Global Title values may also be used.

Serial Triggering cannot be invoked directly, and is contained within Network Services boundaries.

Depending on the SCP response, the SSP then plays announcements, collects and returns digits to the SCP, routes the call as specified, or performs additional queries.

The ASP RESP field on the OFCOPT form (5509 Record) defines the ASP SCP response timer. If the SCP fails to respond in the specified time, the call is routed to reorder.

Until the time that the call is actually routed, the SCP may be informed of all non-fatal errors encountered in processing the response from the SCP.

ALTERNATE ROUTING: Since multiple routes may be returned, "alternate routing" may be required. When multiple trunk groups are returned, they are termed as primary, alternate and second alternate trunk group. When multiple carriers are returned, they are termed as primary, alternate and second alternate carrier routes. The primary Trunk Group/carrier route always is tried first.

If the facilities of the primary are unavailable, the alternate is tried.

If the facilities of the alternate are unavailable, the second alternate is tried. This process of attempting primary, followed by alternate, followed by second alternate, is referred to as "alternate routing".

Private routes are always checked first, with public routes being checked only after all private routes have failed.

The SCP must set overflow indication for alternate routing.

ADVANCE ROUTING: "Advance routing" is the process of attempting the next route in a route list until either the end is reached or an available facility is encountered. A route list can be comprised of a chain of routes on either an RTIDX form (5304 Record) or an MCRTIDX form (5304 Record).

Meeting certain criteria during advance routing (see Section 3.9 for a detailed list) can result in the facilities being considered unavailable, thereby resulting in alternate routing as described above.

5. BRCS AND ISDN FEATURE INTERACTIONS

ASP has many interactions with BRCS features and ISDN features. For a full explanation of all 5ESS BRCS and ISDN feature interactions, consult AT&T Document 235-190-125, *5ESS Advanced Services Platform, Release 0 and Release 0.1A*.

6. OTHER SERVICE INTERACTIONS

Although ASP interacts with many types of networks and services, this section serves to reference a specific subset which require or allow special translations within ASP.

6.1 SSP 800

ASP can be used to translate SSP 800 calls. SSP 800 calls defined via ASP have the same functionality as SSP 800 calls defined outside of ASP. SSP 800 calls outside of ASP are identified via a CALL TYPE of "NS800" on an LDIT or MLDIT form (5300-3/5 Record). The difference lies in whether calls are to be considered as SSP 800 or ASP calls for billing purposes.

Further information on SSP 800 outside of ASP can be found in the feature description section for SSP 800,

Division 2, Section 1X. SSP 800 via ASP is defined by specifying a SERV TYPE of "NS800" on the DISERV form (5321 Record).

For 5E8 and later, since QUERY" and> the DISERV form is being removed, it is necessary to use the new TRIG NBR field on the digit analysis forms (PDIT, LDIT, INDIT, IDDD, RDIT, and MLDIT) along with the new NSTRIG to provision this service. When retrofitting, if the office is configured to handle SSP800 calls, the NSTRIG form for TRIG NBR 6 will be built, as shown in Section Section 8

6.2 E911

E911 was provisioned in 5E6 - 5E7 by matching a Code Index from the digit interpreter forms (PDIT, LDIT, INDIT, IDDD, and MLDIT) with a Call Type of "QUERY" to a DISERV form. For 5E8 and later, since DISERV and the Call Type "QUERY" are being removed, it is necessary to use the new NSTRIG form, along with the new TRIG NBR field on the PDIT, LDIT, INDIT, IDDD, RDIT, and MLDIT forms to provision E911. For offices that have purchased Enhanced 911, the NSTRIG form for TRIG NBR equals 7 will be built.

7. PRIMARY RATE INTERFACE INTERACTIONS

A B-Channel PRI can originate ASP calls as a channel setup PRI trigger, by calling an ASP DN trigger, or by dialing a DNT. See the previous section on ASP Triggers (Section 3) for information on defining channel setup PRI triggers and DN triggers.

When a PRI originates an ASP call via a DN trigger and the PRI is attached to the SSP containing the DN trigger, some limitations are incurred.

- **NOTE:** For the 5E6 software update and later, this special provisioning is not necessary.

1. The PRI protocol does not allow "connect" messages to be followed by anything other than "disconnect" messages. Hence a "connect" message is not sent to the originating office during an ASP play & collect session if requested for an ASP DN trigger. Since the originating office begins billing upon receipt of the "connect" message, the originating office does not begin billing the DN triggered ASP call until it is routed to its final destination. In contrast, the SSP office (terminating end of the PRI) initiates billing as soon as the play & collect session begins. Hence, if Message Detail Recording is used, local billing records at the originating office are not consistent with billing records at the SSP office.

Additionally, ASP terminating announcements are not billed consistently. The originating office does not bill for the call because the "connect" message is withheld at the SSP office, whereas the SSP office bills the call for the duration of the terminating announcement.

2. In order for play & collect sessions to work properly over a PRI, the originating end of the PRI must be configured for early voice cut through. This is accomplished by setting VOICE CUT THRU to "EARLY" on the TKGRP form (5202 Record) on the originating end of the PRI. This results in the talk path being cut through in both directions so that the caller can hear the announcement and the SSP can collect the digits. Otherwise, since the "connect" message is withheld until after play & collect, the talk path is unidirectional from the SSP to the originating office. This would result in the caller on the originating switch being able to hear the announcement, but the SSP would be unable to collect ("hear") the digits dialed.

If an ASP call receives instructions from the SCP to route the call to a PRI, a TCM (Traveling Class Mark) is included in the "setup" message if any of the following conditions are met:

- A. the SCP response includes a TCM;
- B. the ASP call originated from a trunk that impulsed a TCM;
- C. the ASP call originated on a line or trunk subscribing to an ARS list (the ASP call may or may not have originated via the list) and has an assigned Facility Restriction Level that can be converted to a TCM.

When more than one of the above conditions is met, the precedence is determined by the listed order above.

8. RETROFIT

The purpose of this section is to address the major changes automatically made to the data during retrofits.

8.1 Retrofit to 5E8

Removal of CALLTYPE "QUERY" and Replacing DISERV with NSTRIG

During retrofit, all PDIT, INDIT, LDIT, and IDDD input forms have the CALL TYPE value of "QUERY" replaced with a CALL TYPE of "NORMAL". In addition, CODE INDEX finds a DISERV input form so SERV TYPE can be determined. SERV TYPE assigns a trigger number to the Interpreter Table forms and to determine the nature of number for IDDD, LDIT, MLDIT, PDIT and RDIT.

1. Default NSTRIG forms are first created. The table below describes how each default input form is populated. The default forms are created as follows:
 - TRIG NBR equals 001 and 002 are created when ASP OFC on OFCOPT equals "SSP",
 - TRIG NBR equals 003 is created when ASP OFC on OFCOPT equals "BILLNAP" or "NOBILLNAP",
 - TRIG NBR equals 004 and 005 are created when ASP OFC on OFCOPT is not "NONE",
 - TRIG NBR equals 006 is created when SERV SWITCH PT? on OFCOPT equals "Y", and
 - TRIG NBR equals 007 is created when E911 OPTION on OFCOPT is not "INACTIVE".

Default NSTRIG Form Relations			
TRIG NBR	APPLICATION	SERV KEY	ALT GBL TITLE
001	ASP	ANI	blank
002		CDPN	
003			
004	EAOFc		
005	EAASP		
006	800	CDPN	
007	E911	blank	

1. Next, a DISERV form is found with CDI equal to the CODE INDEX on IDDD, LDIT, or PDIT. The value(s) of TRIG NBR and NATURE OF NBR (and NON in the case of LDIT CONFLICT RESOLUTION) are set to the values in the following table (RDIT forms are created identical to LDIT):

SERV TYPE to TRIG NBR/NATURE OF NBR Correspondence			
Form	SERV TYPE	TRIG NBR	NATURE OF NBR
IDDD	PVN	5	N/A
LDIT			null
PDIT		1	

IDDD	PVNON	1	N/A
LDIT			PRIV
PDIT			null
IDDD	PVNDOM	1	N/A
LDIT			NATL
PDIT			null
IDDD	PVNINT	1	N/A
LDIT			IDDD
PDIT			null
IDDD	NOQRY	3	N/A
LDIT			null
PDIT			
IDDD	NS800	6	N/A
LDIT			null
PDIT			
IDDD	E911	7	N/A
LDIT			null
PDIT			

NOTE: For all INDIT forms, TRIG NBR is set to "null", unless the following applies: if TYPE OF CI CALL on INDIT equals "AVT", CODE INDEX on INDIT equals CDI on DISERV, and SERV TYPE on DISERV equals "ASP". Then an NSTRIG form is found with APPLICATION equals "EAASP", ALT GBL TITLE not entered and SERV KEY not entered. The INDIT TRIG NBR is set equal to the TRIG NBR on that NSTRIG form.

1. Next, CALL TYPE of "QUERY" is changed to "NORMAL", except when CODE INDEX equals CDI on a DISERV form where SERV TYPE equals "E911". For the exception, CALL TYPE is set equal to "EMER".
2. All DISERV forms are deleted.

Identifying DN Triggers and Converting DN Triggers to DNTs

DN Triggers are defined in Section 3.10. The terminating treatment of "RAPVN" indicated a query was necessary. In 5E8 and later, that trigger will be determined when translating the DN in digit analysis. Thus a trigger will be built into the digit analysis tables for every such DN.

1. All DN Triggers are located. These are LINE forms whose LCC/RAX value is the key to an LCC form where TERMINATING TREATMENT is "RAPVN".
2. The LDIT forms assigned to the DN Trigger are searched for a full 7-digit translation on the DN. If found, the default TRIG NBR of 2 is assigned to those incoming digits.
3. If a full translation is not found, the proper partial digit translation (i.e. less than 7 INCOMING DIGITS and NBR OF DIGITS equals 7) is searched for. When found, an RDIT for that LDIT is built, and assigned the default TRIG NBR. All routing information for the RDIT is copied from the appropriate LDIT.
4. All INDIT forms that conform to the following criteria are found: LDIT equals "N", NBR OF DIGITS EXPECTED minus NBR OF DIGITS TO BE DELETED equals 4, OFFICE CODE is entered and matches OFFICE CODE of the DNT, and ROUTE INDEX is not entered.

If OFFICE CODE on INDIT matches the first three digits of the DN Trigger, the following are reset: LDIT and RECONSTRUCT to "Y"; TYPE OF CI CALL, CODE INDEX, ROUTE INDEX, IMPLIED NPA, DESEP, and NBR OF DIGITS EXPECTED to not entered; and POLYGRID to "N".

5. All LINE forms using the "RAPVN" LCC are deleted.
6. All LCC forms with TERMINATING TREATMENT equals "RAPVN" are deleted.

8.2 Rename of "PVN" to "ASP"

For 5E8 and later, field names and enumerations containing "PVN" were renamed with "ASP". The following tables detail the changes.

Form	Old Field Name	New Field Name
DSLUSR, LINE, MLHLN, SHTN, TKGRP	PVN ALW	ASP ALW
TKGRP	PVN TERM	ASP ORIG
ICF	PVN CDI	ASP CDI
	PVN RTI	ASP RTI
OFCOPT	PVN DAS	ASP DAS
	PVN OFC	ASP OFC
	PVN ANI	ASP ANI
	PVN RESP	ASP RESP

Form	Field Name	Old Enumeration	New Enumeration
ANNAPL, ANNHD, ANNTR, PHRASE	APPLICATION	PVN	ASP
CFGGRP	ACTION	PVNUSE	ASPUSE
		IDPPVN	IDPASP
DSAPP	APPLIC	PVN	ASP
IDPDCA	ACTION	IDPPVN	IDPASP
MCRTIDX	MC ROUTE TYPE	PVN	ASP
PDIT	ACTION	PVNUSE	ASPUSE
SCFAM	STRUCT CODE FAMILY	PVN	ASP
TGSRFD	TERMINATING RESTRICTION/	PVNF	ASPF
	DEFAULT	PVNS	ASPS
TKGRP	SVC GRP	PVN	ASP

9. ASP 5E6 - 5E7 TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNAPL	5529	3	5AC	8.64
ANN DG	5532	3	5AF	8.60
ANNHD	5531	3	5AE	8.61
ANNTR	5533	3	5AG	8.62
CFGGRP	5964	6	7A	12.5
DISERV	5321	3	3AH	9.30
DSAPP	5537	3	5AK	8.17
DSLUSR	5908	5	1I	23.2, 23.8
FIXRT	5301-1	3	3G	10.1
ICF	5305	3	3R	10.3
IDDD	5307	3	3T	9.6
IDPDCA	5601-1/2	4	2B	9.13
INDIT	5309	3	3V	9.5
LCC	5306	3	3S	4.1
LDIT	5300-3/5	3	3C	9.3
LINE	5109-1/2/3	3	1I	1.6, 1.8
MCRTIDX	5304	3	3Q	10.4
MLDIT	5300-3	3	3C	9.15
MLHLN	5111-1/2/3	3	1K	3.2
OFCOPT	5509	3	5I	8.1
PDIT	5300-2	3	3B	9.2
PHRASE	5534	3	5AH	8.63
SCFAM	5536	3	5AJ	10.18

SHTN	5902	5	1C	23.20
SSPANN	5535	3	5AI	10.17
TGSRFD	5607-1/2	4	8A	12.21
TKGRP	5202	3	2A	5.1

9.1 Line Translations

LINE form (5109-1/2/3 Record) - The field PVN ALW was added to indicate whether or not the line can originate ASP calls via an ODP feature/prefix trigger.

MLHLN form (5111-1/2/3 Record) - The field PVN ALW was added to indicate whether or not the line can originate ASP calls via an ODP feature/prefix trigger.

9.2 Trunks Translations

TKGRP form (5202-1/2/3/4 Record) - Three fields, PVN ALW, UNRES EA and PVN TERM were added. PVN ALW indicates whether or not trunks within the trunk group can originate ASP calls via an ODP feature/prefix trigger. For PF trunks, UNRES EA indicates whether this trunk group is using only EA (Equal Access) signaling and is not conforming to the normal EA signaling (unrestricted dialing). For shared interoffice trunks, if no other criteria has determined what type of call has been made, having UNRES EA set to "Y" indicates such calls should be treated as ASP calls. PVN TERM indicates whether all originations within this trunk group should be considered ASP originations for the purposes of terminating terminal group station restrictions. Additionally, a new SVC GRP enumeration of "PVN" was added for ASP announcements.

9.3 Routing and Charging Translations

DISERV form (5321 Record) - For every LDIT, MLDIT, PDIT or IDDD form where CALL TYPE is "QUERY", a DISERV form must be entered to relate the CODE INDEX to a service type. When an INDIT form has a TYPE OF CI CALL of "AVT" and translates a call where the 0ZZ-XXX code (for EAMF trunks) has XXX matching PSEUDO CARR on the OFCOPT form, the CODE INDEX on the INDIT form is used to read a DISERV form. When an INDIT form has a TYPE OF CI CALL of "AVT" and translates a call where the TNS parameter (for CCS7 trunks) matches PSEUDO CARR on the OFCOPT form, the CODE INDEX on the INDIT form is used to read a DISERV form. The service type indicates what type of query, if any, should be made. For ASP, either the call is treated as an NS 800 call (also known as a SSP 800 call), is routed to an SSP or generates an ASP query to an SCP.

ICF form (5305 Record) - Two new fields, PVN CDI and PVN RTI, have been added to identify the code destination index and route index to be used for ASP calls that are interLATA public carrier route calls (at an SSP), interLATA ASP OUTWATS calls (at an SSP), off-hook immediate triggers (direct connect) calls from an NAP to an SSP and unrestricted equal access calls from an NAP to an SSP.

IDDD form (5307 Record) - A new CALL TYPE of "QUERY" has been added to indicate a possible query to an external database (i.e., an SCP query). This new call type may be used to define an ASP DAS.

INDIT form (5309 Record) - While the INDIT form does not possess a CALL TYPE field, the potential for making a query can be indicated by the use of a TYPE OF CI CALL of "AVT". Upon receipt of an 0ZZ-XXX (for EAMF trunks) or a TNS parameter (for CCS7 trunks) where XXX or the TNS parameter is equal to PSEUDO CARRIER on the OFCOPT form, the call is considered as an ASP trigger.

LCC form (5306 Record) - A new TERMINATING TREATMENT of "RAPVN" has been added for use in the defining of ASP DN triggers.

LDIT (5300-3/5 Record) and MLDIT form (5300-3 Record) - A new CALL TYPE of "QUERY" has been

added to indicate a possible query to an external database (i.e., an SCP query). This new call type may be used to define an ASP DAS.

LDIT form (5300-3/5 Record) - (CONFLICT RESOLUTION) A new CALL TYPE of "QUERY" has been added to indicate a possible query to an external database (i.e., an SCP query). This new call type may be used to define an ASP DAS.

MCRTIDX form (5304 Record) - A new MC ROUTE TYPE of "PVN" has been added to identify ASP calls originating from within an ARS list.

PDIT form (5300-2 Record) - A new CALL TYPE of "QUERY" has been added to indicate a possible query to an external database (i.e., an SCP query). This new call type may be used to define an ASP DAS. A new ACTION of "PVNUSE" has been added to define an ASP dialed access code in the ODP.

9.4 Announcement Translations

ANNAPL form (5529 Record) - A new APPLICATION of "PVN" has been added for use in building ASP announcements.

ANNHD form (5531 Record) - A new APPLICATION of "PVN" has been added for use in building ASP announcement header phrase lists.

ANNTTR form (5533 Record) - A new APPLICATION of "PVN" has been added for use in building ASP announcement trailer phrase lists.

FIXRT form (5301-1 Record) - A new FIXED ROUTE TYPE of "NSANNC" has been added to specify the route index to the Digital Service Unit Model 2 - Recorded Announcement Function containing the ASP announcements.

PHRASE form (5534 Record) - A new APPLICATION of "PVN" has been added for use in building phrases to be used in ASP announcements.

RTIDX form (5303 Record) - This defines the route index found on the FIXRT which points to the DSU2-RAF.

SSPANN form (5535 Record) - An SSPANN form must be entered for every announcement code that could be returned by the SCP. Two new fields, CUST HDRID and CUST TRLID, were added to specify customized header and trailer IDs to be played when failure announcement code is received from an SCP. The existing ANNC RTI field was made optional when a CUST HDRID is entered. One new field, SM, was added for commonality with the Recent Change view and cannot have data entered into it on the ODA form.

TKGRP form (5202 Record) - Defines the trunk group that points to the DSU2-RAF for ASP announcements. Set TRK DIR to "RAF", TRKCLS to "RAFDTA" and SVC GRP to "ASP".

TRUNK form (5204 Record) - Defines trunk members that access DSU2-RAF channels that have been programmed for ASP announcements. See Division 3, Section 2C and 2Q for details on making these assignments.

9.5 Miscellaneous Translations

DSAPP form (5537 Record) - A new APPLIC of "PVN" has been added to allow the direct signaling information to be supplied for ASP applications.

OFCOPT form (5509 Record) - Seven fields, SCPT DAS, SCPL DAS, PVN DAS, PVN OFC, PSEUDO

CARR, PVN ANI and PVN RESP, were added. SCPT DAS and SCPL DAS define the trunk DAS and line DAS (respectively) to be used for retranslating DNs received from an SCP query. PVN DAS defines the default ASP DAS. PVN OFC defines the type of ASP support provided by the office and distinguishes between NAP, SSP and other types of offices. PVN ANI defines a unique value for the ANI information digits (called ANI II). This value distinguishes ASP calls from other interLATA traffic over shared EAMF and CCS7 ISDN User Part trunk facilities. PVN RESP defines the SCP response timer.

SCFAM form (5536 Record) - A new STRUCT CODE FAMILY of "PVN" has been added to identify the ASP structure code family. This structure code family is used when the call code returned from the SCP is to be billed as an SSP ASP call.

9.6 BRCS Features Translations

IDPDCA form (5601-1/2 Record) - A new ACTION of "IDPPVN" has been added to define an ASP dialed access code in an IDP.

TGSRFD form (5607-1/2 Record) - Two new TERMINATING RESTRICTIONS and TERMINATING DEFAULTS of "PVNF" and "PVNS" have been added so that ASP calls can be allowed to override terminating Terminal Group & Station Restriction.

9.7 ISDN/Packet Switching Translations

DSLUSR form (5908-1/2/3/4/5/6/7/8 Record) - The field PVN ALW was added to indicate whether or not a line can originate ASP calls via an ODP feature/prefix code trigger.

SHTN form (5902 Record) - The field PVN ALW was added to indicate whether or not a secondary only TN can originate ASP calls via an ODP feature/prefix code trigger.

9.8 ISDN BRCS Translations

CFGGRP form (5964 Record) - Two new ACTIONS of "PVNUSE" and "IDPPVN" have been added to define ASP access codes for feature buttons. "PVNUSE" defines an ASP access code via the ODP, whereas "IDPPVN" defines an ASP access code via an IDP.

10. ASP 5E8 TRANSLATION REQUIREMENTS

All requirements for 5E6 and 5E7 also apply to 5E8 with the following additions and/or modifications:

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DISERV	5321	3	3AH	9.30
IDDD	5307	3	3T	9.6
INDIT	5309	3	3V	9.5
LDIT	5300-3/5	3	3C	9.3
MLDIT	5300-3	3	3C	9.15
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1
PDIT	5300-2	3	3B	9.2
RDIT	5300-7/8	3	3H	9.9

10.1 Routing and Charging Translations

DISERV form (5321 Record) - For 5E8 and later, the DISERV form no longer exists, because the ASP dialing plan in Section 2 is done differently. Refer to that section.

IDDD form (5307 Record) - The CALL TYPE of "QUERY" is replaced by entering a trigger number. The new field TRIG NBR, if entered, indicates an SCP query.

INDIT form (5309 Record) - The new field RECONSTRUCT indicates whether the dialed digits should be reconstructed for Network Services triggers. The new field TRIG NBR, if entered, indicates an SCP query.

LDIT (5300-3/5 Record) and MLDIT form (5300-3 Record) - The CALL TYPE of "QUERY" is replaced by entering a trigger number. The new field TRIG NBR, if entered, indicates an SCP query. New field NATURE OF NBR is used in query formulation of Network Services calls. New field RDIT is used for remaining digit interpretation.

LDIT form (5300-3/5 Record) - (CONFLICT RESOLUTION) The CALL TYPE of "QUERY" is replaced by entering a trigger number. The new field TRIG NBR, if entered, indicates an SCP query. New field NON is used in query formulation of Network Services calls. New field RDIT is used for remaining digit interpretation.

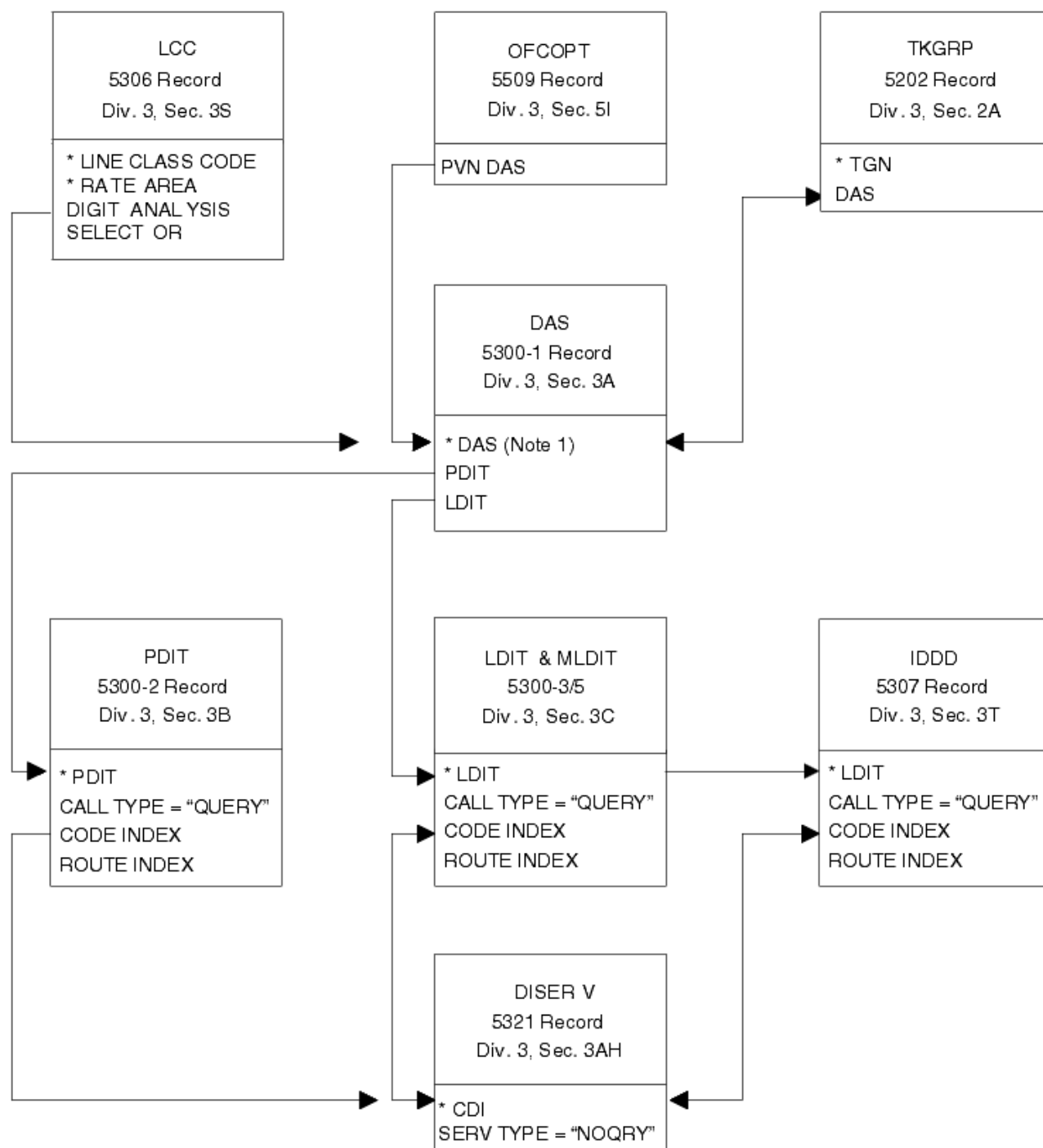
NSTRIG form (5324 Record) - This is a new form, providing query information based on the trigger number from trigger analysis. The field TRIG NBR is defined on NSTRIG, and assigned in digit analysis. The field APPLICATION is the type of network service to be provided the trigger number. The field ALT GLOBAL TITLE is a ten-digit number used as the default address of SCP if routing information is not available. The field SERV KEY determines which SERV KEY parameter is populated in the query, ANI or CDPN.

PDIT form (5300-2 Record) - The CALL TYPE of "QUERY" is replaced by entering a trigger number. The new field TRIG NBR, if entered, indicates an SCP query. New field NATURE OF NBR is used in query formulation of Network Services calls.

RDIT form (5300-7/8 Record) - This is a new form, containing information for the translation of remaining digit strings for digit analysis. The field TRIG NBR, if entered, indicates an SCP query. The field NATURE OF NBR is used in query formulation of Network Services calls. The field RDIT is used for remaining digit interpretation. For conflict resolution, the field NATURE OF NBR is named NON.

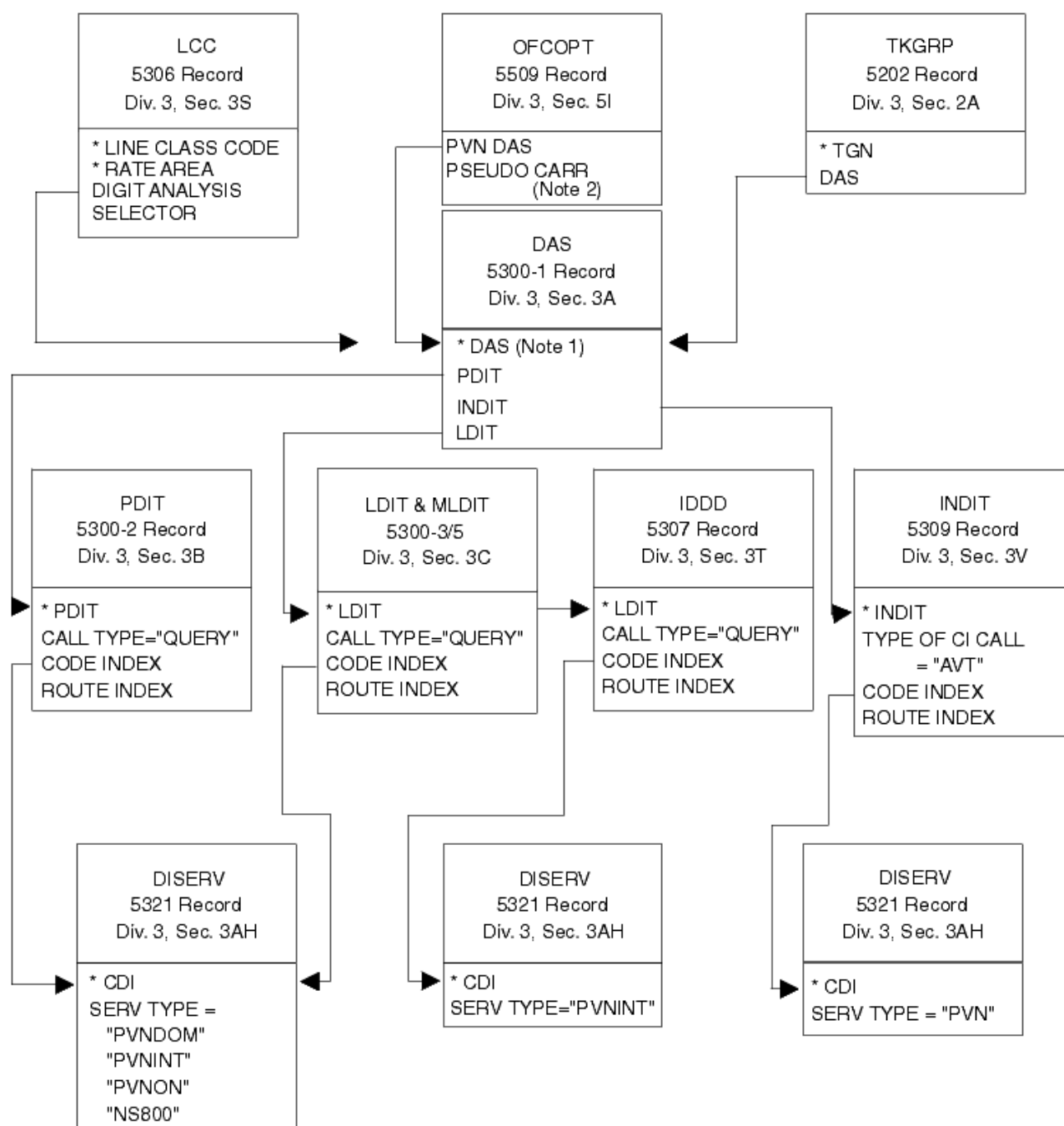
10.2 Miscellaneous Translations

OFCOPT form (5509 Record) - A new field, MAX CONV, is added, specifying the maximum number of SCP conversations allowed.



Note: When the DAS is equal to PVN DAS, then this is the "default ASP dialing Plan. When the DAS is not equal to PVN DAS, then this is a "virtual" dialing plan.

Figure 1 ASP DIALING PLAN AT NAP FORM FLOW 5E6 - 5E7 SOFTWARE RELEASES



Note 1: When the DAS is equal to PVN DAS, then this is the "default" ASP dialing plan.
When the DAS is not equal to PVN DAS, then this is a "virtual" dialing plan.

Note 2: Collected 0ZZ-XXX or TNS parameter (for the INDIT case).

Figure 2 ASP DIALING PLAN AT NAP FORM FLOW 5E8 SOFTWARE RELEASE

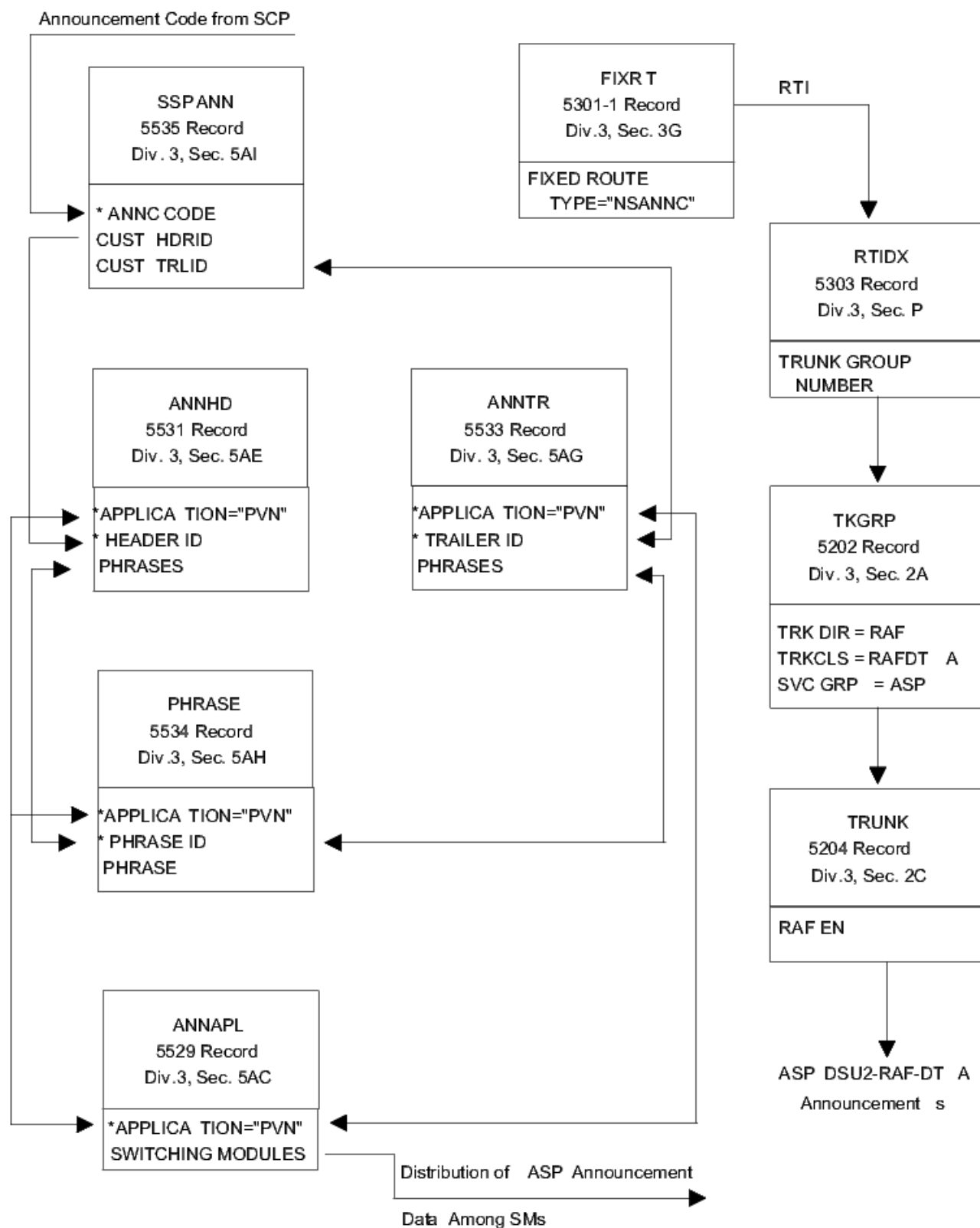
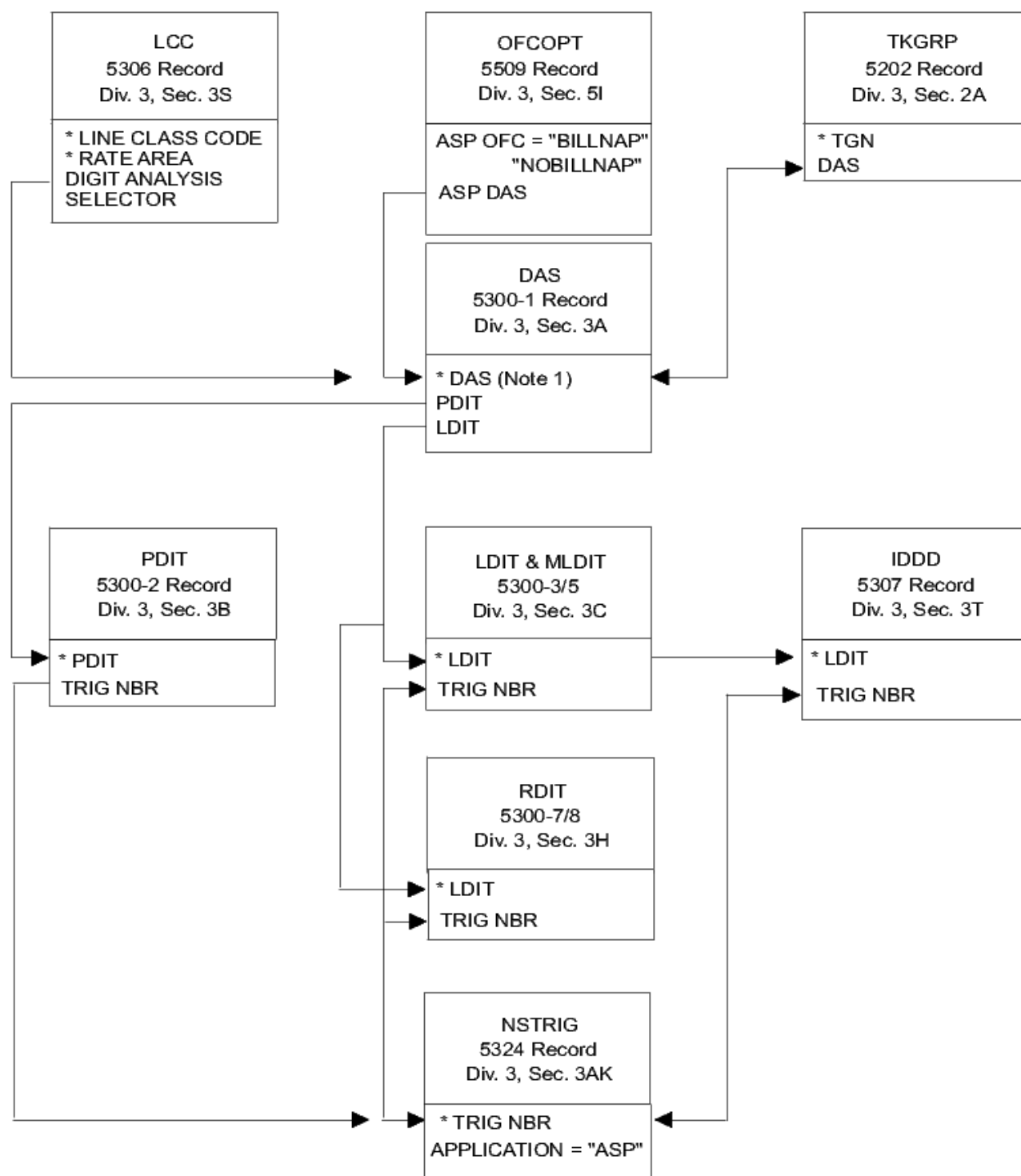


Figure 3 ASP DIALING PLAN AT SSP FORM FLOW 5E6 - 5E7 SOFTWARE RELEASES



Note: When the DAS is equal to ASP DAS, then this is the "default" ASP dialing plan. When the DAS is not equal to ASP DAS, then this is a "virtual" ASP dialing plan.

Figure 4 ASP DIALING PLAN AT SSP FORM FLOW 5E8 SOFTWARE RELEASE

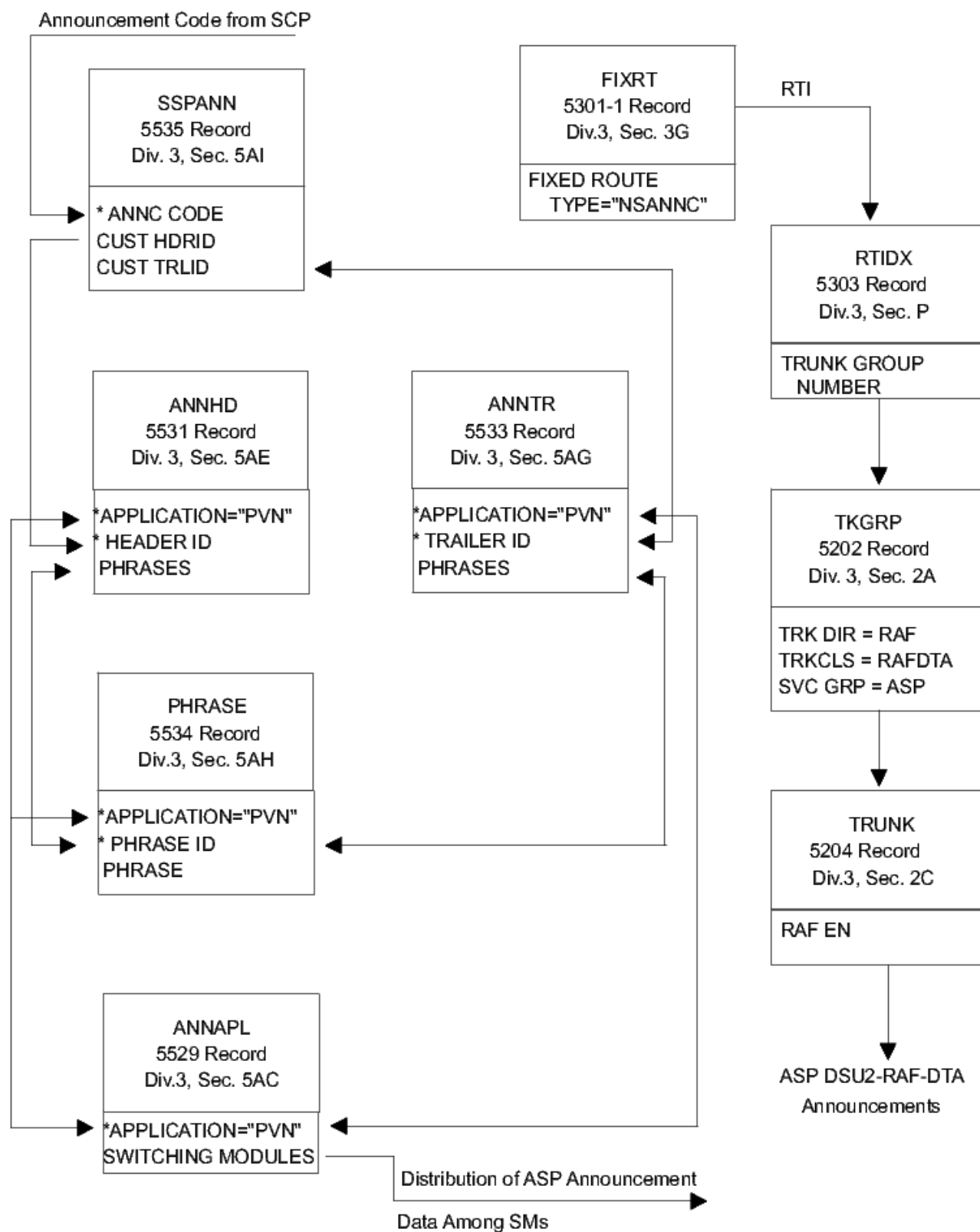
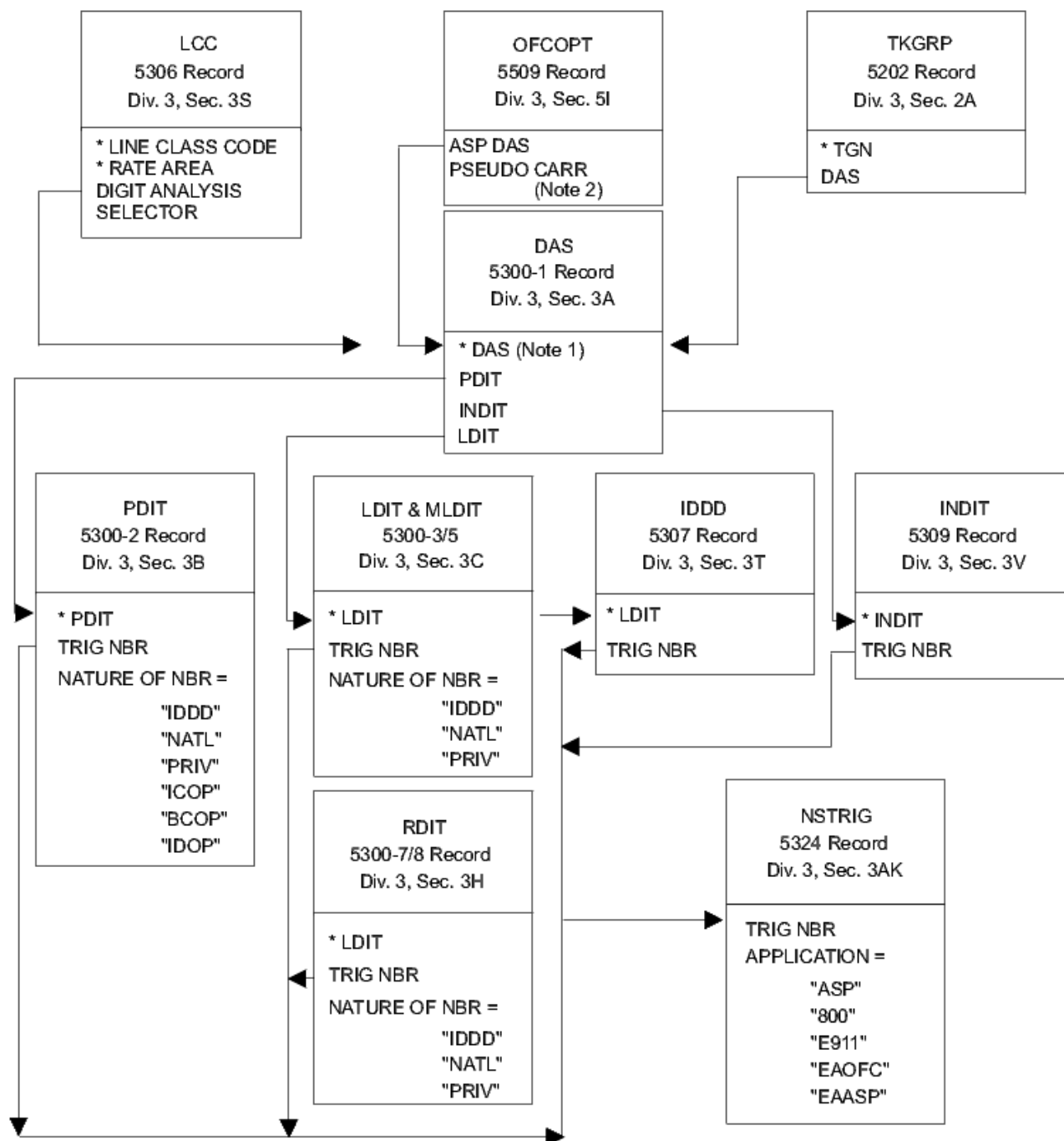


Figure 5 ASP ANNOUNCEMENT FORM FLOW 5E6 - 5E7 SOFTWARE RELEASES



Note1: When the DAS is equal to ASP DAS, then this is the "default" ASP dialing plan. When the DAS is not equal to ASP DAS, then this is a "virtual" ASP dialing plan.

Note2: Collected 0ZZ-XXX or TNSS parameter (for the INDIT case).

Figure 6 ASP ANNOUNCEMENT FORM FLOW 5E8 AND LATER SOFTWARE RELEASES**SEC. 4A58: ADVANCED SERVICES PLATFORM FEATURE LOCK**

For ASP for 5E6-5E8 Software Releases, see Division 2, Section 4A51.

For ASP for 5E9(1) and later software Releases, see Division 2, Section 4A126.

SEC. 4A60: METRO HUB**1. FEATURE DESCRIPTION**

Available with 5E6 and later, the Metro Hub is an enhancement to the LIGI feature and also extends Terminal Group functionality to PRI (Primary Rate Interface) trunks. The Metro Hub capability will allow the calling number to be sent to and from PRI users as long as the call originates and terminates within the same terminal group.

2. BACKGROUND

The ICLID (Individual Calling Line Identification Number Display) feature, a 5E4 feature, is activated when the called party subscribes to ICLID CND (Calling Number Display) and the calling DN is available, the calling DN is displayed to the terminating station set. However, certain tariffs state that the Calling DN be displayed for calls within the Terminal Group only. The LIGI (Limited IntraGroup) ICLID feature was designed to enable the office to restrict calling DN display to calls that originate and terminate within the same Terminal Group.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TGSRFD	5607	4	8A	12.21
TGSRTPA	5607	4	8D	5.29
SFSYS	5713-1	3	5AR	8.22

TGSRFD form (5607 Record) - These records are used to define the Terminal Group and Station Restriction Feature Definition. A new Data Rule was added.

TGSRTPA form (5607 Record) - This form is used to define each Terminal Group and Station Restriction Trunk Parameter. A new Data Rule was added.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID must be set to "S" on the SFSYS form to make METRO HUB functional for the office.

SEC. 4A61: E911**1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A62: CALL FORWARD DON'T ANSWER INVOCATION AFTER CALL WAITING

1. FEATURE DESCRIPTION

The CFDA AFTER CW (Call Forward Don't Answer after Call Waiting) Feature is invoked on a busy line that is being call waited. The feature then allows the call waiting party to be either answered or forwarded to a remote DN (if the call waiting party has not answered the call waiting within a prespecified length of time).

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFWMPA	5614-4	4	15C	3.22
SFSYS	5713-1	3	5AR	8.22
CFWFD	5614-1/2	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22

CFWMPA form (5614-4 Record) - This form is used to define specific parameters assigned to a Multi-Line Hunt Line associated with specific Call forwarding feature. A new field CFDA AFTER CW was added.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 62 must be set to "S" to make CFDA AFTER CW functional for the office.

CFWFD form (5614-1/2 Record) - This form is used to define the Call Forwarding feature. A new field CFDA AFTER CW was added.

CFWLPA form (5614-3 Record) - Used to define the specific parameters assigned to a line associated with specific Call Forwarding features. A new field CFDA AFTER CW was added.

SEC. 4A63: CALLING LINE SIDE SUPERVISION

1. FEATURE DESCRIPTION

Available with 5E7 and later Software Releases, CLSS (Calling Line Side Supervision) provides battery reversal that will assist the CPE in determining the state of the called party. The secured feature ID for this secured special feature is 63.

The CLSS (Calling Line Side Supervision) feature will allow the 5ESS Switch to provide battery reversal to an intelligent CPE, thereby indicating that the called party answered. The battery will remain in a reversed state until the called party goes onhook. Once a called party onhook is detected, the switch will again reverse the battery (i.e., return to normal), thereby indicating to the CPE that the called party has disconnected. This battery reversal assumes that the calling party is still offhook. Providing battery reversal will assist the CPE in determining the state of the called party.

Both the battery reversal for called party answer and called party disconnect will be given as soon as the originating switch becomes aware of the answer or disconnect. The sending of the battery reversal for called party answer is not dependent on expiration of the valid answer timer. The sending of the battery reversal for called party disconnect is not dependent on expiration of the delay disconnect timer.

2. FEATURE ASSIGNMENT

A line that wishes to subscribe to the CLSS feature must have the CLSS field set to "Y" on the LINE or MLHLN form. CLSS is not applicable to digital lines, shared analog lines, lines with BRCS features, lines with LASS GA (Generally Available) features or lines with LTSB (Line Time Slot Bridging). CLSS is intended simply

for POTS lines.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.6
MLHLN	5111	3	1K	1.6
SFSYS	5713-1	3	5AR	8.22

4. LINE TRANSLATIONS

LINE form (5109 Record) - This form is used to define a line. The new field CLSS was added. The CLSS field must be set to "Y" to activate the CLSS feature on a given line. The calling party will then detect a battery reversal upon called party answer, and another battery reversal (returning to normal state) upon called party disconnect.

MLHLN form (5111 Record) - This form is used to define a multi-line hunt line. The new field CLSS was added. The CLSS field must be set to "Y" to activate the CLSS feature on a given line. The calling party will then detect a battery reversal upon called party answer, and another battery reversal (returning to normal state) upon called party disconnect.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 63 on the SFSYS form must be set to "S" to enable the CLSS feature.

SEC. 4A64: MUSIC ON HOLD

1. FEATURE DESCRIPTION

Music on Hold enables the local switching company to optionally provide customers with the ability to place a call on hold and provide music to the held party during the hold period. Prior to this feature, customers had the ability to provide either silence, audible ring, or announcement to the held party.

Available with 5E7 and later Software Releases, Music on Hold is a secured feature using Secured Feature ID 64. Music may be provided to parties placed on hold by a controlling party of a BRCS Modular Feature such as Multi-Way Calling, Call Waiting, Call Hold, ISDN Hold, Call Pickup, Home Intercom, and Attendant Camp-On. Music on Hold is available to calls controlled from any analog CPE (Customer Premise Equipment) and ISDN MBKS (Multibutton Key Sets) that signal the switch when a call is placed on hold, including an analog attendant console and an ISDN Attendant Console (defined with an "INDIV", "ATND", "ISDN", or "ISATND" CLASS OF SERVICE on the LCC form (5306 Record)). This feature is available to a terminal group member (defined by assigning Terminal Group Station Restriction features via the LINEFA, MLHLNFA, CLUSTR, or BFG form that have a common Terminal Group ID defined via the TGSRFD, TGSRLPA/TGSRMPA, or BFG form). The audio source is also specified on a terminal group basis via the TGATTD form.

1.1 Music Source Configuration for Terminal Groups

When the terminal group member and music port reside on the same SM (Switch Module), the connection to music for a held party by the terminal group member is recognized as a "local" path. However, when the terminal group member and the music port reside on different SMs, the path must be set up as a "global" path. Once a "global" path is defined for a terminal group member with a held party, other terminal group

members or members of other terminal groups (which are accessing the same music port) served by that SM, that have held parties and are allowed to provide music, may share this established "global" path. In order to avoid exhausting system resources, limitations are imposed on the maximum number of paths (32) connected from a requesting SM to different music sources. A limit of 60 paths is also imposed on the number of music paths incoming to a music source on an SM. The number of music paths to a music source is controlled via Recent Change View 5.5.

Implementation of this feature should take into consideration the distribution of music source trunks in such a way as not to be detrimental to the efficiency of any one SM.

The music source should reside on an SM with the maximum number of subscribers who can request music from this source. As an example, the music trunk should reside on the SM with the maximum number of terminal group members that need to access the music source.

The following describes the various thresholds associated with the Music on Hold feature.

- **User and Music Source on the Same SM**

- There are no thresholds applicable to this scenario except for the obvious user limitation based on available peripheral timeslots.

- **User and Music Source on Different SMs**

- Maximum Number of Music Source Paths from a Requesting SM

This threshold represents the maximum number of paths from a requesting SM to different music sources on other SMs. This threshold is not translatable and has an internal limit of 32. This limit is imposed to prevent excessive use of SM resources which could result in degradation of call processing on the requesting SM.

- Maximum Number of Music Source Paths from Requesting SMs to the Same Music Source

This threshold indicates the maximum number of inter-SM paths that can simultaneously terminate to the same music source. This threshold is translatable using the MAXCALLS field on the TRUNK form (5204 Record) or Recent Change View 5.5 and has a maximum value of 60. This threshold is necessary to prevent exhaustion of network timeslots on the music source SM. Once an inter-SM path is established from a particular requesting SM to a particular music source, multiple users on the requesting SM may be concurrently connected to the music source via the already established inter-SM path.

- Maximum Number of Music Source on the Same SM

More than one music source may be assigned to the same SM. However, as stated above, a global music source can simultaneously terminate a maximum of 60 inter-SM paths. This potentially represents about 12% of the network timeslots used exclusively for each music source. If two music sources are located on the same SM, each with MAXCALLS of 60, this would mean about 24% ($60 \times 2 = 120$) network timeslots could potentially be used exclusively for inter-SM paths to both music sources.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26A	12.9
CWTFD	5603-1	4	4A	12.15
SFSYS	5713-1	3	5AR	8.22
TGATTD	5611	4	12A	4.4
TGSRFD	5607-2	4	8A	12.21
TGSRLLPA	5607-3	4	8B	1.29
TGSRMPA	5607-4	4	8C	3.29

BFG form (5625 Record) - This form is used to specify and construct BFGs (BRCS Feature Groupings) for use when assigning subscriber features to analog lines or ISDN terminals. BFG is designed to assist the switch owner in the conservation of Switching Module memory and the improvement of Recent Change response time, and it cannot be used with trunks.

The field MOH ALW is added to this form. Once a call has been placed on hold, this field will indicate whether or not music is to be provided to the held party during the hold period. This field is only applicable when the Secured Feature ID 64 is set to "S" ("Y" for 5E9(1) and later) on the SFSYS form (5713-1 Record).

CWTFD form (5603-1 Record) - This form defines a number of separate features by selecting various feature options for Call Waiting. The enumeration "MUSIC" is added to the field CGPTY TONE INDICATOR. Once a call has been placed on hold, this field specifies the type of audible output that is to be provided to the held party. This enumeration is only applicable when the Secured Feature ID 64 is set to "S" ("Y" for 5E9(1) and later) on the SFSYS form (5713-1 Record).

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 64 on the SFSYS form must be set to "S" ("Y" for 5E9(1) and later) to enable the Music on Hold feature.

TGATTD form (5611 Record) - This form assigns attribute information (such as attendant DN, Source Billing, and SDN DAS) on a Terminal Group basis. The fields TGN and MEMB for MUSIC ON HOLD were added to this form. These fields define the music source for the Music on Hold feature that is to provide music to the held party once a call has been placed on hold. Before data can be entered in this field, Secured Feature ID 64 must be set to "S" ("Y" for 5E9(1) and later) on the SFSYS form (5713-1 Record).

TGSRFD form (5607-2 Record) - This form defines the Terminal Group and Station Restriction Feature Definition. Terminal Group and Station Restriction provide a means of grouping two or more terminals to provide station screening. The screening is based on the terminal's membership in a given TG (Terminal Group) and the type of SR (Station Restriction) characteristics of the terminal.

The field MOH ALW was added as one of the DEFAULT PARAMETERS on this form. Once a call has been placed on hold, this field indicates whether or not music is to be provided to the held party during the hold period. This field is only applicable when the Secured Feature ID 64 is set to "S" ("Y" for 5E9(1) and later) on the SFSYS form (5713-1 Record).

TGSRLLPA form (5607-3 Record) - This form defines the Terminal Group and Station Restriction Line Parameters. This form is associated with the Terminal Group and Station Restriction Feature Definition form and is keyed by the TN (Telephone Number). Individual TNs assigned a particular TGSR Feature name can be given specific values for Terminal Group ID, Forwarded to DNs (Originating or Terminating) and Error Announcement Route Indexes (Originating or Terminating) that will replace or overwrite the default parameter values that are defined on the TGSR Feature Definition form.

The field MOH ALW was added to the TGSRLPA form for the Music on Hold feature. Once a call has been placed on hold, this field indicates whether or not music is to be provided to the held party during the hold period. This field is only applicable when the Secured Feature ID 64 is set to "S" ("Y" for 5E9(1) and later) on the SFSYS form (5713-1 Record).

TGSRMPA form (5607-4 Record) - This form defines the Terminal Group and Station Restriction MLHG/TERM (Multi-Line Hunt Group Number/Multi-Line Hunt Group Terminal Number) Parameter. The MLHG/TERM form is associated with the TGSFRD (Terminal Group and Station Restriction Feature Definition) form and is keyed by MLHG/TERM. Individual MLHG/TERMs assigned a particular TGSR Feature name can be given specific values for Terminal Group ID, Forward to DNs (Originating or Terminating) that will replace or overwrite the default parameter values that are defined on the TGSR Feature Definition form. There are certain feature options that require either a value on a TGSR Feature Definition default parameter field or the presence of the associated MLHG/TERM Parameter field. The MLHG/TERM form is used to distinguish those customer lines that have Station Restrictions which are different than those defined on the TGSFRD form.

The field MOH ALW was added to the TGSRMPA form for the Music on Hold feature. Once a call has been placed on hold, this field indicates whether or not music is to be provided to the held party during the hold period. This field is only applicable when the Secured Feature ID 64 is set to "S" ("Y" for 5E9(1) and later) on the SFSYS form (5713-1 Record).

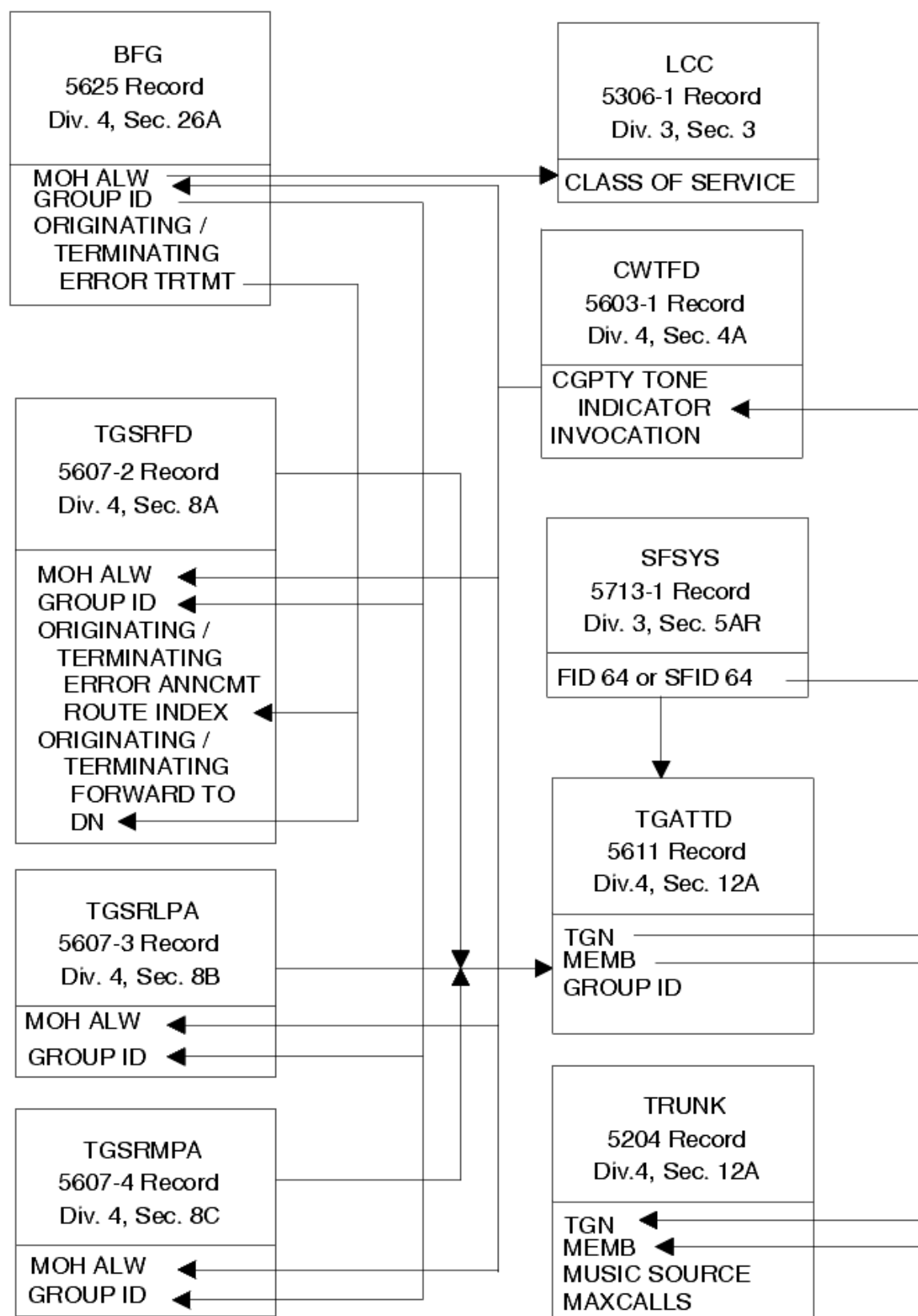


Figure 1 FORM FLOW FOR MUSIC ON HOLD**SEC. 4A65: OSPS AUTOMATED POSITION****1. AUTOMATED POSITION FEATURE DESCRIPTION**

The AABS-AP (Automated Alternate Billing Services - Automated Position) feature provides full automation of collect, third number, and calling card calls. It also partially automates the handling of person-to-person calls. The AP (Automated Position) is supported on the 5ESS Switch by the following three secured features:

1. Switch Changes for AP - supports the AP on the switch.
2. Improved AP Call Selection.
3. Sequence Calling on Operator Handled Calls - allows sequence dialing before answer for operator handled card calls.

The AABS-AP feature allows a calling party making a 0+ call to enter a call type identifier by using speech and/or DTMF (Dual Tone MultiFrequency) input or a billing number using DTMF input in response to a prompt. Recognized spoken call type phrases include "credit card", "calling card", "collect", "third number", "person", and "operator". Acceptable dialed calling party inputs include credit card and calling card account numbers, 4-digit PINs (Personal Identification Numbers), and 2 or 3-digit call-type codes in the format 1Z or 19Z, where Z is 1 - 8. For 1STAGE LEC, some 10-digit telephone numbers may also be specified to be interpreted as third number billing numbers at the initial prompt. The prompting announcements may be interrupted by customer speech or DTMF dialing. An adjunct processor is used to collect the digits or speech, recognize the utterances using ASR (Automated Speech Recognition), give announcements, and record calling party speech. This processor interfaces with OSPS using existing operator terminal protocol to validate billing information and process the call. Card and PIN processing is similar to that provided by the automated calling card service. This feature adds processing of caller-entered third numbers and call type codes. If the calling party does not respond with DTMF or speech input within a time-out interval, the caller is transferred to an operator. If unintelligible speech or unrecognized service codes are received, an instructional prompting announcement specifies how to request particular call types. If a collect or third number request is identified, the AP may (under telephone company control by billing type) prompt the calling party to speak his/her name and record the subsequent utterance. The call is outpulsed and, when the third party or collect-called party answers, the billed party is prompted for acceptance of the charges with the recorded name of the calling party included in the prompt. OSPS-AP uses ASR to determine whether the billed party said "yes", accepting the call, or "no", refusing the call, or "operator", requesting assistance on the call. DTMF equivalents are also available for these responses.

For more information on the Automated Position see the following documents:

250-600-100 5ESS Switch OSPS Automated Position Description and Operation

250-600-101 5ESS Switch OSPS Automated Position Administrative Guidelines and Recent Change

250-600-102 5ESS Switch OSPS Automated Position Installation, Maintenance, and Growth Procedures.

2. SWITCH CHANGES FOR AP

This feature provides support for calls handled by automated positions. This feature has no ODD with the exception of entering the Secured Feature ID on the SFSYS form (5713-1 Record, Secured Feature IDs are listed in Division 3, Section 5AR).

3. IMPROVED AP CALL SELECTION

Improved Automated Position call selection enhances the telephone company's ability to select the calls to be handled by automated positions. This feature allows the TCA (Telephone Company Administration) to specify whether any calls in the office should receive Automated Position treatment. In addition, the TCA specifies by trunk group whether any calls arriving on that trunk group should receive automated position treatment. If automated treatment is specified for the office, the TCA also specifies whether one stage or two stage protocol is to be used for 0+ calls. One stage protocol means that 0+ calls designated for automated position handling are routed to an automated position at initial seizure. Two stage protocol means that 0+ calls are given automated calling card service initially; then if the caller does not enter a card number, calls designated for automated position handling are routed to an automated position to handle card or other types of billing.

When calls are designated for automated position treatment, they are routed to the ACD (Automatic Call Distributor). The TCA can use any of the call parameters provided by the ACD feature and the expanded call type determination feature to route the call to an Automated Position or operator team. This feature adds the capability to associate both an automated position team and an operator team with any set of the ACD parameters for which Automated Position treatment is desired. For other ACD parameter combinations, only an operator team is specified. Calls from lines designated for operator handling in the Originating Line Screening or Special Treatment Tables are never treated as Automated Position calls and always use the operator team. OSPS also uses the operator team for situations encountered during automated calling card service that require routing to an operator. Otherwise, calls arriving on operator trunk groups that are designated for Automated Position treatment and that have the ACD parameters associated with an automated position team use the automated position team. Other calls use the operator team.

4. IMPROVED AUTOMATED POSITION CALL SELECTION FEATURE ASSIGNMENT

The OSPS AABS-AP feature automates the handling of 0+ dialed calls with collect, third number, and card billing. The feature provides two different protocols for delivering calls to the APs: one stage and two stage. A one stage protocol uses incoming OSPS trunk data to determine whether to provide AP or ACCS/CAS (Automated Calling Card Services/Customer Account Services) automation of 0+ calls. The one stage protocol provides APOS handling for all 0+ dialed calls.

In two stage protocol, if the caller fails to respond in ACCS/CAS treatment, incoming OSPS trunk data is used to send the calls to AP queues. In a two stage office, ACCS provides the automation for calling card billing, and the APs automate collect and third number billing in addition to calling card calls. In a two stage protocol, the caller is sent to an AP if the party fails to respond (timeout, flash, or dials 0) to the ACCS offering of calling card billing and the incoming trunk is marked for AP handling. In this situation, the AP provides the automation for collect and third number billing, in addition to calling card calls. The "1STAGE" or "2STAGE" are entered in the APOS PROTOCOL field on the OSPSOPT form (5424 Record).

The TCA selects the traffic that may receive automated position treatment by trunk groups. This data is used in conjunction with call type determination. In addition to the data such as prefix and originating trunk group, two queues are specified; one is used when call processing determines that an automated position is appropriate, and the other is used when an operator is appropriate. For call types that require only operator handling, only the operator call type queue needs to be defined. An incoming OSPS trunk group that is to receive AP automation is marked on the OPRTK form. The AP call queue is defined on the ACDCTP form (5412 B/D/E/F Record).

The secured feature ID 65 on the SFSYS form (5713-1 Record) must be set to "S".

5. AUTOMATED POSITION TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ACDCTP	5412	3	4M	26.9
ACDPOL	5412	3	4M	26.10
OPRTK		3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

ACDCTP/ACDPOL forms (5412 Record) - These forms are used to assign call type information for the OSPS ACD (Automated Call Distribution) feature. Enter the APOS CALL TYPE to be served by the Automated Position. Every ACDCTP form requires a corresponding OSPSCT form where the OSPS CALL TYPE on the OSPSCT form matches the APOS CALL TYPE on the ACDCTP/ACDPOL forms. The OPER TYPE must be "TA" and SVC ID must not be entered on the OSPSCT form.

When the APOS CALL TYPE is entered on the ACDCTP form, CALL ORIGIN cannot be "LSTA" or "AIS" because AP automation cannot be used for Listing Services or the Automatic Intercept System.

OPRTK form (5417 Record) - This form is used to define the common information and type of traffic over each trunk group that can access an OSPS (Operator Services Position System) operator. If Automated Position Treatment is provided on a trunk group, APOS PROTOCOL must be set to "Y". AP automation cannot be used for Listing Services or the Automatic Intercept System, therefore, if TRKCLS is "INAISTRK", APOS TREATMENT must be "N".

OSPSOPT form (5424 Record) - The OSPSOPT form defines the OSPS office parameters. The APOS PROTOCOL field is used by the Automated Position feature. APOS PROTOCOL is a Secured Feature, and must be purchased before it can be assigned. FEATURE ID 65 on the SFSYS form must be set to "S" before APOS PROTOCOL on the OSPSOPT form can be set to "1STAGE" or "2STAGE". When OSPS TA is "N", APOS PROTOCOL must be "OFF". When OSPS TA is "Y", APOS PROTOCOL must be "OFF", "1STAGE", or "2STAGE".

SFSYS form (5713-1 Record) - Secured Feature ID 65 on the SFSYS form must be set to "S" to make this feature functional for the office.

SEC. 4A66: OSPS AUTOMATIC SEQUENCE DIALING

1. FEATURE DESCRIPTION

The Automated Sequence Dialing Following Operator Release allows callers served by an operator or automated position to place sequence calls while awaiting answer. This capability is available on station card-billed calls released from the position prior to outpulsing of the call. The service is the same as is available to callers on initial automated calling card calls. The caller can initiate a sequence call while awaiting answer by entering a "#" using DTMF (Dual-Tone MultiFrequency) input. The acceptable entries following the "#" depend on the features active at the time (e.g., Automated Calling Card Service, OSPS Interface to Voice Messaging Service). This feature reduces the number of times a caller has to hang up and reinitiate a call. This feature is secured and must be purchased prior to use.

2. AUTOMATIC SEQUENCE DIALING TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

OSPSOPT form (5424 Record) - The OPSOPT form defines the OSPS office parameters. OPER SEQUENCE field activates the Automatic Sequence Dialing Following An Operator Release feature.

SFSYS form (5713-1 Record) - Secured Feature ID 66 on the SFSYS form must be set to "S" to make this feature functional for the office.

SEC. 4A69: OSPS SPECIALIZED HANDLING FOR 700 SERVICES RELEASE 2.0

1. FEATURE DESCRIPTION

The capability number for the Specialized Handling for 700 Services - Release 2 feature is 98-5E-0435 This feature is available for 5E7 and later.

The Specialized Handling for 700 Calls - Release 2 feature is a voice service that assigns to the subscriber a permanent 700 number for callers to reach the subscriber when dialing long distance. For more information on Specialized Handling for 700 Services, Release 2.1, see Division 2, Section 4A89. For more information on Specialized Handling for 700 Calls Test Call, see Division 2, Section 4C17.

2. FEATURE ASSIGNMENT

This feature is a secured feature. The ACT field for SFID 69 must be set to "Y" on the SFSYS form (5713-1 Record) to activate these features.

The adjunct processor must be at a software level capable of providing this feature before it can be used. However, existing functionality will remain prior to the adjunct update with no changes required.

See Figure 1 for the form flow for Specialized Handling for 700 Services, Release 1.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP/ ACDPOL	5412	3	4M	26.9 26.10
EISDATA	5462-1	3	4BM	21.51
SERVDATA	5466	3	4BS	21.54
SFSYS	5713-1	3	5AR	8.22

ACDCTP/ACDPOL form (5412 Record) - This form assigns call type information for ACD (Automatic Call Distribution). The "SPCL700" enumeration was added to the CALL ORIGIN field to support this feature. For the Special 700 entry, the CALL TYPE field should be populated with a Service ID as defined in the SVC ID field on SERVDATA form (5466 Record).

EISDATA form (5462-1 Record) - This form defines the operational parameters for a particular OSPS EIS (External Information System). The "CGI" enumeration was added to the VENDOR field to support this feature.

SERVDATA form (5466 Record) - This form is used to define EIS service parameters. The "SPCL700" enumeration was added to the OSPS SVC CODE field to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 69 must be set to "Y".

4. GLOSSARY

ACD	Automatic Call Distribution
ACQS	Automated Charge Quotation Service
CCS7	Common Channel Signaling Version 7
EIS	External Information System
DTMF	Dual Tone Multifrequency
IAM	Initial Address Message
ISUP	Integrated Services Digital Network User Part
OSPS	Operator Services Position System

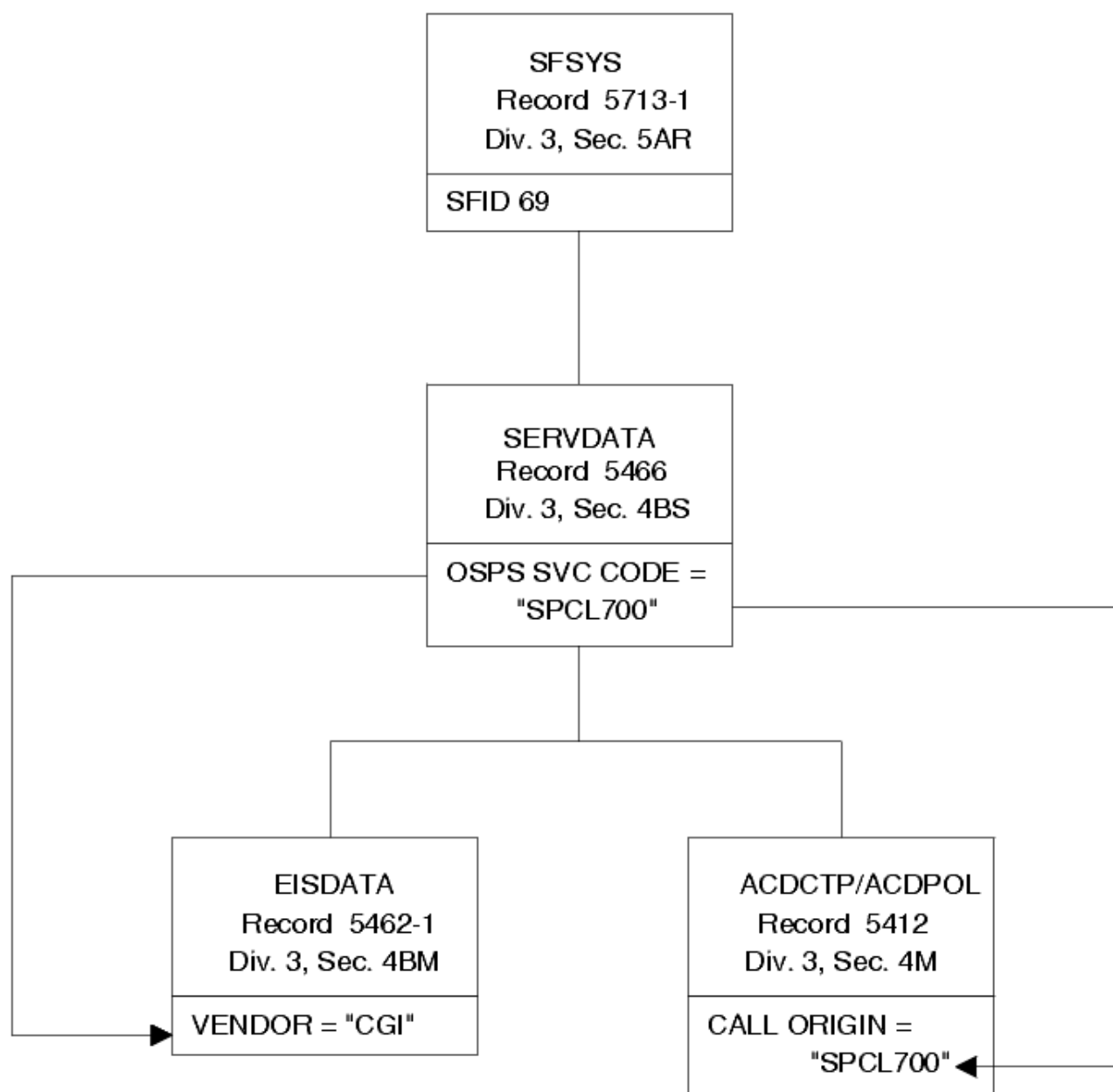


Figure 1 FORM FLOW FOR SPECIALIZED HANDLING FOR 700 SERVICES, RELEASE 1

SEC. 4A70: COIN LINE AUTOMATIC MESSAGE ACCOUNTING

1. BACKGROUND

Prior to this feature, AMA (Automatic Message Accounting) records were not produced for local coin line calls unless done through traffic sampling per coin line. The temporary nature of traffic sampling is not always sufficient and can only be achieved on a per coin line basis. Prior to the CLAMA (Coin Line Automatic Message Accounting) secured feature there existed no method to produce AMA records on an office-wide basis for local coin calls.

2. FEATURE DESCRIPTION

Available with 5E7 and later, CLAMA (Coin Line Automatic Message Accounting) is a secured feature which uses Secured Feature ID 70. This feature provides the capability to obtain, on an optional and per-office basis, detailed AMA records in the local switch for each coin telephone originated, answered, chargeable call that is sent-paid and processed at the end office as a local coin call. These CLAMA records use existing standard LSSGR (Local Switching System General Requirements) AMA record formats and do not include coin collected information. These AMA records can be used in allocating revenues from such local coin calls.

Since there is no flash recall operator system access for a coin sent-paid call unless the original call was operator handled, an operator system cannot be accessed during these calls. There is no change in the existing processing of these calls other than the recording of an AMA record in the local switch.

Billing owners of non-smart coin telephones for sent-paid calls requires the correlation of AMA records from all switches that may control charging of such calls. The originating end office CLAMA records will have to be combined with records at the TELCO operator services switch for detail billing since CLAMA records do not contain any coin collected information. When CLAMA records are combined with AMA information from all associated operator services, detailed billing data will exist for all chargeable sent-paid calls from all non-smart coin telephones processed at the end office.

3. FEATURE ASSIGNMENTS

This secured feature is enabled by setting Secured Feature ID 70 to "S" on the SFSYS form (5713-1 Record) and activated by setting the LOCAL COIN field to "Y" on the OFCOPT form (5509 Record).

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form must be completed for a 5ESS Switch and is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. A new field, LOCAL COIN, has been added under AMA RECORDING OPTIONS . This field indicates whether or not Coin Line AMA records should be produced.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. Secured Feature ID 70 on the SFSYS form must be set to "S" to indicate that the feature has been purchased.

SEC. 4A71: TRANSFER TO ACD FROM AN ARU

1. FEATURE DESCRIPTION

The Transfer to ACD (Automatic Call Distributor) from an ARU (Automatic Response Unit) Special Feature is available for 5E6 and later.

For 5E6, this feature, Transfer to ACD from ARU, provides the ability for the ARU to redirect a call to an ACD agent without the use of loop-around trunks. The calls must enter the switch on non-CCS trunks with a Trunk Class of "IC" or "LTOLLCON". This feature consists of two portions, a basic portion and an enhanced portion for the CCS7 interface. The basic portion of the feature is provisioned on a per-office basis. To activate this feature, enter "S" in the FID 540 field of the FOSYS form (5713-2 Record).

1.1 CCS7 Interface Enhancement

The second portion of this feature is available in 5E7 and later software releases. After the basic feature has been enabled, the secured feature portion for CCS (Common Channel Signaling) interface of this feature may be activated. This portion provides the transfer to the ACD from the ARU for calls that enter the switch on CCS7 trunks with a TRKCLS of "IC" or "LTOLLCON". To activate this part of the feature, enter "S" for FEATURE ID 71 on the SFSYS form (5713-1 Record).

1.2 Automatic Response Unit

An ARU is a processor that screens incoming calls to the 5ESS ACD/MIS Switch before connecting to an ACD agent. The call is routed to the ARU using existing digit analysis and call processing. The ARU prompts the caller to enter digits that affect the routing of the call. If the ARU determines that an ACD agent is needed, the call is transferred to the ACD. Prior to this feature, the originator of an ACD call must be a trunk, so in order to effect this transfer, the call is routed over a loop-around trunk. With this feature, there is no need for loop-around trunks for incoming calls on trunks with TRKCLS of "LTOLLCON" or "IC". Once the ARU has determined that an ACD agent is required, it flashes to put the call from the incoming trunk on hold. The ARU dials the "ACDXFER" access code and the ACD DN (Directory Number) followed by a #. If the access code is ambiguous, the ARU must dial a # after the access code and before the ACD DN. If the access code is unique, the ARU should not dial a # after the access code and before the ACD DN. The ACD DN must always be followed by a #. The ACD DN is sent to the incoming trunk's terminal process where the digits are analyzed using the incoming trunk's dialing plan, and the call is rerouted directly to the ACD. The call then terminates to an ACD agent.

1.3 The ARU Line Features

The ARU line may have the Call Forwarding Busy Line, Call Forward Don't Answer, or Call Forwarding Variable feature active. The call to the ARU can then be forwarded to the ACD using this feature. The forward-to-DN should contain the access code and the ACD DN. If the access code is ambiguous, a # MUST separate the access code from the ACD DN. If the access code is not ambiguous, the # after the access code is optional in the forward-to-DN digit string. A # cannot be at the end of the forward-to-DN string.

When this feature is active, the ACD agent will not notice any change in the way ACD calls are received or distributed.

1.4 Treatment if Feature Is Not Activated

If the access code associated with this feature is dialed or is included in the forward-to-DN and the office is not configured as an ACD provider, reorder treatment is given.

The following conditions will result in the call being transferred to the ACD via loop-around trunks:

- the access code associated with this feature is dialed or is in a forward-to-DN, and the feature has not been activated.
- the access code associated with this feature is dialed or is in a forward-to-DN, and the signaling type of the call's incoming trunk is CCS7 but the secured portion of the feature is not active.
- the access code associated with this feature is dialed or is in a forward-to-DN, and the Trunk Class of the incoming trunk is not "IC" or "LTOLLCON".
- the access code associated with this feature is dialed and the call was previously transferred within this

switch before terminating at the ARU dialing the access code.

The CCS interface portion of this feature supports only ISUP (ISDN User Part) signaling, and only for 5E7 and later software releases.

2. FEATURE ASSIGNMENT

To provision this feature, the following assignments must be made.

1. The Transfer to ACD from ARU (ACDXFER) access code(s) dialed by the ARU must be defined in the ODP (Office Dialing plan) or the ARU's IDP (Individual Dialing Plan).

For an ODP, define the access code for this feature on the PDIT form. The access code is defined in the DIGITS TO INTERPRET field. "ACDXFER" is specified in the ACTION field. The feature is the null feature (*).

For an IDP, define the access code on the IDPDCA form for this feature. The access code is defined in the INC DIGITS field. "ACDXFER" is specified in the ACTION field. The feature is the null feature (*). The same access code can be used by all the ARUs on the same switch.

2. The dialing plan used by the trunk on which the call comes into the switch must be set up so that the ACD DN (dialed by the ARU after the access code) causes the call to route directly to the ACD.
3. In the event that one of the conditions for the use of this feature is not met (for example, if the feature isn't active, or the call entered the switch on a line, or on a trunk with a TRKCLASS other than "IC" or "LTOLLCON"), the dialing plan used by the ARU must be set up so that the call can route to the ACD via loop-around trunks, using the ACD DN dialed by the ARU.
4. If a call to an ARU line is to be forwarded to an ACD using a call forwarding variable, busy line or don't answer feature (such as /CFV, /CFBL or /CFDA), the forward-to-DN must be updated to include the "ACDXFER" access code, a pound sign, and the ACD DN. If the access code is ambiguous, it and the ACD DN must be separated by a #.
5. To enable this feature, the FID 540 field must be set to "S" on the FOSYS form. To enable this feature for CCS7 portion, the FEATURE ID 71 field on the SFSYS form must be set to "S".
6. Commercial ACD must be available in the office before the Transfer to ACD from ARU feature can be used. For more information on CACD see Division 2, Section 3D.
7. The line to the ARU must be an analog line with an individual line Class of Service. The terminating treatment may be individual or MLHG.
8. The ARU line must not have the Call Forwarding over Private Facilities feature active.
9. The CCS interface portion of this feature does not support CCS6 signaling.
10. The maximum number of digits allowed in the ACD DN digit string is 15 (i.e., access code + # + ACD DN must be 15 or fewer digits).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
IDPDCA	5601	4	2B	9.13
PDIT	5300-2	3	3B	9.2

3.1 Translations

IDPDCA form (5601-1/2 Record) - This form is used to define the dial codes associated with IDPs. The enumeration "ACDXFER" was added as a valid action to the ACTION fields. This action is only valid with the NULL feature (/*).

PDIT form (5300-2 Record) - This form is used to define the Prefix/Feature Digit Interpreter in a 5ESS Switch. The enumeration "ACDXFER" was added to the ACTION field. This action requires that the null feature (/*) be used.

SEC. 4A76: OSPS ORIGINATING LINE SCREENING ALTERNATE ROUTING

1. FEATURE DESCRIPTION

This secured feature is available for 5E7 and later Software Releases. It is activated after it is purchased by setting ACT field to "Y" for SFID 76 on the SFSYS form (5713-1 Record). The feature number for this feature is 98-5E-0519.

The OLS (Originating Line Screening) Alternate Routing feature allows an OSPS to populate alternate routing translation data for a call and apply the data just before routing the call from the OSPS to the final routing destination. The final routing destination is based on the alternate screening index associated with the screening code for the back line number of the call. Possible destinations can be anything that can be accomplished through routing translations: including announcement facility (e.g. 13A announcement), reorder, or an alternate trunking arrangement.

This feature uses the screening code applied to the back number of the call to determine the alternate screening index to be used. OAR (OLS Alternate Routing) feature works in conjunction with the existing OLS feature which allows the OSPS to assign OLS code(s) to a given back-line number(s). The OSPS could choose to assign all the back line numbers to one OLS code or to assign back line numbers to separate OLS codes. This feature provides a finer control in handling the call appropriately.

1.1 Routing to a Local Announcement

To use this feature, the OSPS examines the translation data assigned and decides what OLS codes should be used, and which screening indexes should be placed into the new OAR table (SCROAR form, 5481 Record). The OSPS populates the translation data so that the new screening indexes along with the other routing data associated with the call result in routing the call to the desired destination. The OSPS can assign the destination to be an announcement facility, so that the OSPS can record an announcement locally. This announcement will be played to the caller (calling from a line number that the OSPS wants to screen) to tell the caller the reason that the call is not going through before the call is disconnected.

1.2 Routing to a Different Trunk Group

The feature can also be used to change routing, based on the OLS code, to different trunk groups than the ones normally used.

1.3 Routing Affected by OAR

This feature affects routing to forward numbers and international forward numbers only. The following are NOT affected: routing to route numbers, back numbers, conference numbers, international route numbers, emergency numbers, BLV (Busy Line Verify) network, and SDN NRA (Software Defined Network Network Remote Access) private network.

This feature affects automated, operator handled, and sequence calls dialed from the screened lines regardless of class charge, TCS (Terminating Code Screening), or TCS override. AATOS (Alternate Access To Operator Services) calls are also affected if the OSPS has routes AATOS calls from those screened lines to an OSPS that contains OAR data for those back line numbers. (However, any call set up to route over the private network will be exempted from the OAR treatment.)

2. FEATURE ASSIGNMENT

The following translations are needed to assign this feature:

- If the OLS data has not already been populated with the screening codes that will be used to identify the back number(s) for the OAR feature, then:

The SCRNCODE form (5415 Record) needs to be populated with the screening code information.

The LINESCRN form (5416 Record) needs to be populated with the screening code identified by the OSPS to be used by this feature for the affected back numbers.

- New screen index tables on the RAR form 5301 Record need to be added to handle the screen indexes entered in the OSPS BACK NUMBER ALTERNATE ROUTING table (SCROAR form, 5481 Record). The OSPS must add the necessary translation data to perform the alternating routing with the screen indexes listed in the OAR table.
- The SCROAR form (5481 Record) must be populated with the alternate screen index associated with each screening code assigned for this feature.
- This feature must be activated on the SFSYS form by setting the ACT field to "Y" for SFID 76.

3. SCENARIOS

3.1 Automated Call

1. The caller enters a 0+ call and receives bong treatment.
2. The Caller enters a valid card number. If the OLS code associated with the back number matches the screening code in the OAR table then depending on how the OAR feature data is set up for the call, the call will receive an announcement, reorder, or be routed over a valid trunking arrangement set up by the OSPS.

3.2 Operator Handled Call

1. Caller enters 0-. Call arrives at an OSPS operator position.
2. Operator enters a forward number whose translation data is set up for OLS alternate routing (routing to either an announcement facility, reorder, or valid alternate trunking arrangement). In this scenario,

three different results are possible:

- If the call scenario allows for early position release after the operator enters a valid COC (Class of Charge) and releases the call, the caller will receive the appropriate response depending on how the alternate routing data was set up.
- If the operator manually outpulses the call and the alternate routing is set up to go to an announcement facility or reorder, a new error display will be given to the operator. This error display is "Termination denied to number". Reorder tone is not heard. However, the announcement will be heard by the operator and caller.
- If this scenario routes the call over a valid trunking arrangement set up by the OSPS, then the appropriate trunk routing will occur.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SCROAR	5481	3	4CG	26.5

SCROAR form (5481 Record) - This form is used to populate the OSPS Back Number Alternate Routing Table. This table provides alternate routing based on the alternate screening index that is associated with the screening index for the back line number of the call.

SEC. 4A77: BLOCKING 900 CALLS FOR LEC CARDS

1. FEATURE DESCRIPTION

The OSPS Blocking 900 Calls for LEC Card feature provides the ability to block 900 calls from being charged to LEC Cards (10 + 4). For 5E7 and later, the identification is based on the NPA (Numbering Plan Area) or RAO (Revenue Accounting Office) code on the LEC calling card. For 5E8 and later, LEC Cards can be blocked for 900 calls on the basis of NPA, NPA-NXX, or RAO code.

2. FEATURE ASSIGNMENT

This feature requires entering the secured feature identification number on the SFSYS form, and assigning the NPA/RAO on the BLK900 form. In addition, CAS (Customer Account Services) Release 1 must be activated on the OSPSOPT form (CAS ON must be "Y") prior to implementing this feature.

3. CALL SCENARIOS

The following describe call scenarios for automated calls and operator handled calls.

3.1 Automated Call Scenario

The following is a call scenario for an automated call.

1. The caller enters a 0+900 number.
2. The caller receives the audible bong treatment indicating that the credit card number should be entered.

3. The caller enters the LEC card number.
4. The LEC card number is found in the blocking table and is marked as "blocked".
5. The caller receives the error announcement, "This card cannot be used for this service. (pause) Please dial a different card number and PIN now". (This is Announcement Header ID 45.).

If the caller enters a blocked LEC card for the second attempt, the caller hears the error announcement, "This card cannot be used for this service. (pause) Please hang up and dial again." (Announcement Header ID 46.) The call is then disconnected.

3.2 Operator Handled Call Scenario

The following is the call scenario for operator handled calls.

1. The caller enters 0-.
2. The call arrives at an OSPS operator position.
3. The operator enters a 900 forward number.
4. The operator enters a LEC card that is found in the blocking table and is marked as "blocked".
5. An error message, "Card type not allowed with 900#", is displayed at the OSPS position, and the class of charge field (back card number) is displayed in reverse video.
6. The operator then requests alternate billing.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BLK900	5482A/B	3	4CH	27.59
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

4.1 Translations

BLK900 form (5482A/B Record) - This form is used to specify (or verify) whether a 900 call can be charged to a LEC (Local Exchange Carrier) calling card. The identification is based on the NPA, NPA NXX, or RAO on the LEC calling card. With 5E8 and later, either all NXXs for an NPA can be blocked, or only specific NXXs within an NPA can be blocked.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. There are no new or modified fields. However, "Y" must be entered in the CAS ON field before this feature can be implemented.

SFSYS form (5713-1 Record) - This form is used to enable Secured Features. To enable the OSPS Blocking 900 Calls For LEC Cards, FEATURE ID 77 must be set to "S".

SEC. 4A79: ACCS 0+800 CALLS FROM WIRELESS

1. FEATURE DESCRIPTION

This feature is available with 5E7 and later Software Releases and identifies calls coming from wireless service providers under contract with OSPS to provide "air time" billing services, and provides special handling of 700, 800, and 900 calls from wireless.

The wireless service provider is connected to the OSPS through a PBX (Private Branch Exchange) Trunk Access to OSPS feature. However, this does not preclude the use of operator trunks. For PBX trunk access, the ANI (Automatic Number Identification) is not signaled from the PBX, but is instead determined from trunk group data at the OSPS. Flash, operator system hold, coin control signaling, and ring back are not supported through this access; furthermore, flash is treated as a disconnect.

If a 0+800 call arrives at an OSPS with an OLS code matching either of the two OLS code parameters defined for the wireless service provider, the OSPS plays an announcement to prompt the caller for a valid card number and informs the caller that there is a charge for the 800 call. The announcement header may be constructed from existing phrases to include the rates for the call. After the announcement is played, the OSPS provides automated calling card treatment with the normal operator bail-out opportunities. At the end of the call, OSPS makes an AMA (Automatic Message Accounting) record for the call.

Normal card sequence call processing is available except for 700, 800 or 900 forward numbers.

1.1 Call for the Operator Position

If the caller reaches an operator position through either dialing 0-, bail-out of automated protocol, or for some other reason, the operator will see the OLS text assigned to the back number, and possibly some information in the CID (Customer Information Display) for the incoming trunk group indicating that the call is coming from a wireless service provider under contract to OSPS for service. The operator will handle the call and secure valid billing before releasing from the position. Valid billing is determined in OLS data. The call is then routed normally and at the end of the call the OSPS makes an AMA record appropriate to the billing service selected by the caller.

1.2 700 and 900 Services

The 700 and 900 services are not supported with this feature. If a 0+700 or 0+900 call arrives at an OSPS from a wireless service provider with an OLS code matching either of the two OLS code parameters defined for the wireless service provider, the OSPS plays a disconnect announcement and the appropriate termination treatment is given. If an operator enters a 700 or 900 forward number at the operator position from a wireless service provider and the OLS code matches either of the two OLS code parameters, the OSPS rejects the entry of the forward number and displays an error message.

1.3 Scenarios

1.3.1 Automated call:

A caller enters a valid 0+800 call from a wireless service provider that has contracted with the OSPS. The caller receives an announcement explaining that a service charge applies and prompts for ACCS (Automated Calling Card Service) treatment. The caller enters a valid card number, and the call is outpulsed to the called number. At the completion of the call, an AMA (Automatic Message Accounting) record is made reflecting the appropriate billing.

1.3.2 Operator Handled call:

A caller enters a 0- call from a wireless service provider that has contracted with the OSPS. The call arrives at an OSPS operator position. The operator enters the valid 800 forward number and the appropriate billing information. The operator releases the call. At completion of the call, an AMA record is made reflecting the appropriate billing.

2. FEATURE ASSIGNMENT

2.1 Announcement Header IDs

The announcement header IDs of OSPSTA 93, 94, 95, and 96 are required for this feature. Although announcement header ID OSPSTA 93 has default data provided by ODA, the TCA may wish to change the rate information in that header ID on ANNHD form (5531 Record), view 8.61.

2.2 Text Display Information

The LECTEXT form (5444 Record), view 27.20 text information may be updated to include text that would be displayed to identify the particular wireless service provider if the call comes to a position. (This is optional.)

2.3 Screen Codes

The OLS code(s) information based on the screen code(s) and valid COC (Class of Charge(s)) that will be assigned to the wireless service provider(s) for this feature should be assigned on the SCRNCODE form (5415 Record), view 26.3. Informational text may be added that identifies the call as coming from a wireless service provider. (The existing OLS feature growth procedures may be used to enter this information.)

The screen code that is used to identify calls from the back number of a wireless service provider is assigned on the LINESCRN form (5416 Record), view 26.2. The ORIG STATION field requires a setting of "NCNPUB" so proper ITNA and TCS handling are performed on the call.

This feature requires that one or both of the WL SCRNCODE 1 and WL SCRNCODE 2 fields on the OSPSOPT form (5424 Record), view 8.9 are entered with the OLS code parameter(s) which identifies the OLS code(s) assigned to each wireless service provider by the OSPS.

▪ **NOTE:** If only one of the fields is assigned, the other field must not be entered.

2.4 Secured Feature

This is a secured feature, therefore the FEATURE ID 79 must be set to "S" on the SFSYS form (5713-1 Record), view 8.22. If this feature is using PF (Private Facility) trunks to connect the OSPS to the PBX, then the PBX Trunk Access to OSPS special feature, FEATURE ID 74, must also be activated.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

3.1 Translations

ANNHD form (5531 Record) - This form is used to assign phrases to an announcement header ID. Header IDs for OSPSTA 93, 94, 95, 96 apply to this feature. Although default data has been entered for OSPSTA 93,

the TCA may wish to change the rate information in this Header ID.

OSPSOPT form (5424 Record) - This form is used to define the global office parameters for OSPS. WL SCRIN CODE 1 and WL SCRIN CODE 2 define the OLS codes used to identify a wireless provider.

SFSYS form (5713-1 Record) - This form is used to activate secured features. FEATURE ID 79 must be set to "S" to activate this feature.

SEC. 4A80: INTRA-SWITCH ANALOG LINE TRANSFER

1. BACKGROUND

IALT (Intra-Switch Analog Line Transfer) reduces the down time interval and expands the number of lines that can be supported during a line transfer. Without this feature, customers can experience excessive down time during office cutover or cable-line transfer. Using LTSB (Line Time Slot Bridging) can somewhat alleviate this situation. However, since many BRCS (Business and Residence Custom Services) features are not supported on LTSB, the down time interval may be longer than desired.

2. FEATURE DESCRIPTION

Available with 5E7 and later Software Releases, Intra-Switch Analog Line Transfer is a Secured Special Feature using Secured Feature ID 80. The feature number for this capability is 99-5E-1400.

The IALT feature is a temporary feature used only during office cutovers or cable-line transfers and provides the ability to duplicate the line data associated with a TN (Telephone Number), including per-line BRCS features, on an associate (new) OE (Originating Equipment) number. The duplicate data assignment helps to minimize any outage associated with a move of analog OE numbers on a 5ESS Switch.

When IALT is assigned, only one of the OE numbers associated with the TN is active or in use at a time. Calls may be originated from either OE, but calls will only terminate to the active OE. Initially, the original OE is active. This means that calls may be originated from the new OE number, but calls will only terminate to the original OE. After the cutover or cable-line transfer, a single, per-office Recent Change may be used to activate service to all the new IALT OE numbers and deactivate the old OE numbers. In addition, if desired, activation of the new IALT OE number may be done on a per-SM (Switching Module) basis. If lines are being moved across SMs, all affected SMs must be set to terminate to the new OE number. This Recent Change needs to be closely synchronized with the physical cable-line transfer or cutover since it will determine to which OE the call will terminate.

The presence of the BRCS/LASS features on both OE numbers allows customers to use most aspects of their custom features throughout the cable-line transfer or cutover. Some functionality is restricted from the new OE whether it is active or not. The major restrictions are inhibiting CORCs (Customer Originated Recent Change), including the modification of TORC (Time Originated Recent Change) schedules, and disallowing LASS screening. CORC attempts from the new OE number, with the exception of MSS (Message Service System) MWI (Message Waiting Indicator) deactivation, will result in REORDER tone being returned to the subscriber.

The work to restore full functionality to all customers would be performed shortly following a cable-line transfer or cutover using two Recent Changes per line. The first Recent Change removes IALT from the line and the second changes OE to the new OE number. These Recent Changes should be done in two consecutive operations since the line will not have service after the first Recent Change is applied. As soon as both Recent Changes for an OE number have completed, that customer again has full service.

3. FEATURE ASSIGNMENT

3.1 Recent Change Procedures

Since the feature is temporary, it is expected that the entire process (IALT assignment, cutover, new OE activation, and IALT removal) will be completed within a few days. The following sequence of steps shows how the feature is expected to be used as the cutover or cable-line transfer work progresses.

1. Planning Interval
2. IALT Assignment RC Set I
3. Lines Transferred
4. IALT Removal RC Set II

The following is a description of the activity for each step in a cable transfer:

1. The planning interval is done prior to IALT feature assignment. The lines to be transferred are identified and the new target OE numbers are created. There must be one new target OE number for each line to be moved.

Also, at this time, two Recent Change scripts need to be prepared. These two scripts are used during later time intervals. The first script is used to assign IALT to each line to be moved. IALT is assigned by setting IALT to "Y", LEADPORT to "Y", and the ASSOC OE field to the target OE for the line on the COMPOSITE LINE view 1.6.

The second script is used to restore full service on the new target OE. This set contains two Recent Changes for each line. The first is an update to view 1.6 to remove IALT by setting IALT to "N", LEADPORT to "N", and the ASSOC OE field to blank. The second Recent Change is another update to view 1.6 to set the CHG OE to the target OE for the line. These two Recent Changes should be executed in pairs since the line will not have any service after the first update has completed. Both Recent Changes should complete within 25-30 seconds. Once the second Recent Change has completed the line has full functionality.

NOTE: For those TNs that have certain BRCS features (e.g., Call Forwarding, Distinctive Ringing, Individual Dialing Plan), the completion time will vary.

2. IALT is assigned to the identified lines using the first Recent Change script created in step 1. The data is duplicated on the new OE number for each of the lines.

Once IALT has been assigned, no other changes can be made to that line via Recent Change until the IALT feature has been removed from the line. Also, IALT lines cannot be identified using office records, but can be found using the line query operation on the MULTIPLE LINE QUERY view A.2.

At this point in time:

- The original OE is active.
- Calls may be originated from either OE.
- Calls will terminate only to the original OE.
- CORCs may be executed from and are applied to the original OE.

- TORCs that execute will apply to the original OE only.
 - The original OE has full BRCS functionality.
3. This is the actual cutover (or cable-line transfer) from the original to the new OE numbers. If all of the IALT lines in the office are moved at one time, only a single Recent Change is needed to make the new OE numbers active. Otherwise, one Recent Change per affected SM is required. One SM is the smallest unit to activate the new OE numbers. To activate the new OE, set ACTIVE to "Y" for FEATURE ID 555 on the SECURED FEATURE UPGRADE view 8.22. To activate the new OEs for the whole office, MODULE should be set to "OFC". Otherwise, it should be set to the affected SM number. In 5E9(1) and later Software Releases, the MODULE, ACTIVE, and FEATURE ID fields must be set from the OPTIONED FEATURES view 8.31.

Once Feature ID 555 has been made active:

- The new OE is active.
- The new OE has most of the BRCS feature functionality.
- CORCs are not allowed except for MSS MWI deactivation.
- TORCs that execute will apply only to the original OE.

The main focus at this point is to keep downtime to a minimum. The Recent Change script to activate the new OE takes less than a minute. If the physical cutover is expected to take several minutes, the outage can be minimized by doing this Recent Change approximately halfway through the physical move. Also, since the active OE does not have full functionality, this interval should be kept as small as possible.

4. IALT is removed from the line and full activation of the new OE number is achieved by using the second set of Recent Changes created in step 1. Once IALT is removed from the lines and the data has been moved to the new OE numbers, the cable-line transfer or cutover is complete. Also at this point FEATURE ID 555 should have ACTIVE reset to "N" for the office or the affected SMs.

3.2 Restrictions and Limitations

- **WARNING:** The IALT feature is not supported during a retrofit. Before a retrofit can be performed, IALT procedures must be complete, and IALT must be "N" on Recent Change View 1.6.

Although there are no per-line BRCS/LASS feature assignment restrictions with the IALT feature, a number of line feature restrictions exist. IALT assignment restrictions and limitations are (where field names refer to view 1.6):

- No multi-line hunt group lines,
- No coin lines,
- No lines without an individual class-of-service (originating and terminating),
- No ISDN,
- MAN EXCL (Manual Exclusion) must be "N",

- CIDIAL limited to DENY, ALLOWED, or REQUIRED,
- NODL (No Dial) must be "N",
- GNDREF (Ground Reference) must be "N",
- BUSY MONITOR must be "N",
- SHARED must be "N",
- FGA (Feature Group A) must be "N",
- ATT MLHG (Attendant Multi-Line Hunt Group) must be 0,
- RBV TGN (Remote Busy Verify Trunk Group Number) must be blank,
- ESP (Essential Services Protection) may have to be "N" (RC Views 5.31, 12.31).

ESP must be "N" if the ASSOC OE specified is on the same SM, LU (line unit), CONC (concentrator), SWG (Switch Group), and SW (Switch), as another line with ESP set to "Y".

An existing restriction to the values allowed for MFRI (Multifrequency Ringing Individual) lines that should be kept in mind when using the IALT feature. LUs, ISLUs, and, in 5E8, IDCUs allow different ranges for the party value for MFRI lines. LUs allow party values 0-9, while ISLUs allow only 1-4 and IDCUs allow 1-5. If an MFRI line on an LU is being moved to an ISLU or IDCU, the party value must be in the valid range for the new OE.

The presence of the BRCS/LASS features on both OE numbers allows customers to use most aspects of their custom features throughout the cable-line transfer or cutover. However, restrictions exist for features applied by CORCs. Attempts to apply CORCs from non-lead ports are blocked whenever IALT is set to "Y". Customers attempting CORCs on non-lead ports receive reorder tone. The only exception to this is MSS MWI deactivation.

TORCs are always applied against the lead port no matter which port is active when the TORC is executed. If the new OE is active when the TORC is executed, the end user will not see the affects of the TORC on the new OE. Should a TORC occur at the same instant as the Recent Change to move to the new OE, that TORC may be lost. Since there is only about a 20 second window in which this can occur, the probability that it will occur is low. Once the cutover is complete and IALT has been removed from the line, the final Recent Change that moves the line data to the new OE also moves any CORCed/TORCed data.

3.3 Changing Subscriber Service

Setting the new IALT field on view 1.6 to "Y" enables feature access from the "B port" OE numbers. Certain restrictions apply to the "B portY", the only allowed recent change activity on that line will be to set the ASSOC OE field to blank and reset the IALT field. A new office mechanism will be used to control the activation of the "B port" OE numbers. Control of the IALT OE numbers will be provided by the OFS (Optioned Feature System). OFS ID 555 will be used for the IALT feature. At cutover, this option will be set to activate the "B port" IALT OE numbers.

The OFS option can be set on a per-office or per-SM basis. However, lines being moved from one SM to another SM must have the IALT activation/deactivation option set/reset on both SMs. If the IALT field on view 1.6 is set to "Y", the following holds for other fields on view 1.6:

- MAN EXCL must be "N",
- CIDIAL is limited to "DENY", "ALLOWED", and "REQ",
- NODL must be "NONE",
- GNDREF must be "N",
- BUSY MONITOR must be "N",
- SHARED must be "N",
- FGA must be "N",
- ATT MLHG must blank,
- RBV TGN must be blank,
- CLSS must be "N",
- SLLC must be blank.

4. TRANSLATION REQUIREMENTS

Provisioning of the IALT feature using ODA input forms is not allowed. Provisioning of this feature is done using Recent Change as described below.

- **WARNING:** The IALT feature is not supported during a retrofit. Before a retrofit can be performed, IALT procedures must be complete, and IALT must be "N" on Recent Change View 1.6.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
LINE	5109	3	1I	1.6

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each TN on a 5ESS Switch. The ODAfield IALT was added which is defaulted to "N" and is notchangeable.

SEC. 4A81: LIDB CHANGE HANDLING OF INDETERMINATE REPLY CODES

1. FEATURE DESCRIPTION

For 5E7 and later this feature gives the OSPS three different treatments for three different sets of LIDB CCD (Calling Card) and BNS (Billed Number Screening) TCAP query replies.

Currently, all "indeterminate" query replies (both LIDB CCD and LIDB BNS) are treated as a group; they are either allowed or denied as a whole. If this feature is active, the OSPS has the ability to select three different treatments for three different sets of LIDB CCD and BNS query replies as follows:

1. Unavailable network resources and nonparticipating group query replies,
2. Timeout query replies, and
3. The "error" query replies, "Missing Group, Misroute, Reject, and Garbled Message".

One of the following three treatments may be selected for each of the above replies:

1. Existing treatment. The treatment given for LIDB CCD indeterminate replies is either allow or deny according to the value of the CC BILL BLOCK field on the OSPSOPT form (5424 Record). The existing treatment for LIDB BNS is for PUBLIC?? to be displayed at the operator's position and the call is allowed or denied per the operator's discretion.
2. Allow, which overrides any existing treatment.
3. Deny, which overrides any existing treatment.

1.1 LIDB CCD Call Scenarios

A caller enters 0+intraLATA call and hears the bong treatment. The caller then enters LEC card number and a query is sent to the LIDB database. The query reply indicates "unavailable network resource".

- If the LIDB Change Handling of Indeterminate Reply Code feature is not active, the CC BILL BLOCK field is checked on the OSPSOPT form. If the field is set to "Y", then the call is rejected and caller is asked to enter the card number for a second attempt. If the field is set to "N", then the call is allowed and a "Thank You" announcement is played.
- If this feature is active, the UNR AND NPG field on the OSPSOPT form is checked after the query reply returns. If the field is set to "E" (existing treatment), then the above scenario applies. If the field is set to "A" (allow), the call is allowed and the "Thank You" announcement is played. If the field is set to "D", then the call is rejected and the caller is asked to enter the card number for a second attempt.

1.2 LIDB BNS Call Scenarios

A caller enters 0+intraLATA call and hears the bong treatment. The caller dials 0 for operator. The call reaches an operator position. The caller wants to bill the call to a third number and gives the operator the third number to bill. An LIDB BNS query is sent to the LIDB database. The query reply indicates "missing group".

- If the LIDB Change Handling of Indeterminate Reply Codes feature is not active, then PUBLIC?? is displayed at the operator's position. The operator informs the caller that third number billing is not allowed.
- If this feature is active, the OTHER INDET field on the OSPSOPT form is checked after the query reply returns. If that field is set to "E" then the above scenario applies. If that field is set to "A", then BLG OK is displayed at the operators terminal and the call is allowed. If the field is set to "D", then BLNG DNY is displayed and the call is blocked from third number billing.

2. FEATURE ASSIGNMENT

This feature must be activated on the SFSYS form by setting the Secured Feature ID field to "S". In addition, three new fields on the OSPSOPT form define treatment for LIDB Change Handling of Indeterminate Reply Codes feature.

3. TRANSLATION REQUIREMENTS

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New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

3.1 Translations

OSPSOPT form (5424 Record) - This form is used to define the OSPS office option global parameters. The following three fields were added to define LIDB handling of indeterminate replay code treatment:

- UNR AND NPG specifies whether LIDB unavailable network resources and nonparticipating group query replies should be allowed, denied or given existing treatment. Existing treatment is specified by the field CC BILL BLOCK for credit card, and indeterminate for BNS.
- TIMEOUT specifies whether a LIDB timeout query reply should be allowed, denied or given existing treatment. Existing treatment is specified by the field CC BILL BLOCK for card, and indeterminate for BNS.
- OTHER INDET specifies whether the other LIDB indeterminate query replies, "Misroute, Missing Group, Reject Message, and Garbled Message", should be allowed, denied or given existing treatment. This field does not apply to reply codes No Translation Address, Subsystem Congestion, Subsystem Failure, Unequipped User, Network Failure, or Network Congestion. Existing treatment is specified by the field CC BILL BLOCK for credit card, and indeterminate for BNS.

SFSYS form (5713-1 Record) - This form is used to enable Secured Features. To enable LIDB Change Handling of Indeterminate Reply Codes, enter "S" for FEATURE ID 81.

SEC. 4A83: OSPS FEATURE GROUP D INCOMING SIGNALING FOR SPECIAL APPLICATION

1. FEATURE DESCRIPTION

For 5E8 and later, FGD SA feature is a secured feature and requires that SFID 83 ACT must be set to "Y" to activate this feature on the switch. The feature number for this capability is 98-5E-2112.

The FGD IS SA (Feature Group D Incoming Signaling Special Application) feature provides FGD signaling access to OSPS Toll and Assistance features for wireless, TRS (Telephone Relay Service), and certain other service applications. It provides identification of wireless calls based on trunk group data, screening, and additions to the AMA records for billing purposes.

With FGD IS, the OSPS is able to receive 1+ and 0+/0- incoming calls signaled using the FGD direct connect protocol. Depending on the trunk group data, either true answer is returned to the originating switch when the call reaches the billing state, or answer is returned after the signaling acknowledgement wink. OSPS services requiring the hold and/or through supervision are not permitted. Pseudo operator hold is provided in the OSPS to prevent a call from disappearing from an operator position when the calling party disconnects while the call is at a position.

For the wireless application, which is identified by the incoming trunk group data, the signaled ANI may contain one of the three II digit pairs, 61, 62, and 63 assigned to mobile service or an II of 00 and the MIN (Mobile Identification Number) of the originating station. When a BDN (Billing Directory Number) is contained in the trunk group data, it is used for rating. If no BDN is contained in the trunk group data, the received MIN is used for rating. The number used for rating is also used as follows:

- the number displayed when a call appears at a position.
- the number placed in the calling number field in the AMA record.
- the number placed in the billing number field in the AMA record for a station paid call.
- the number used for card validation queries.
- the number used for the NCD (Network Call Denial) query for 5E8 only. For 5E9(1) and later, MIN is used for the NCD query when a BDN is present in the trunk group data.

Either the BDN or the MIN may be used for the OLS (Originating Line Screening) and TCS (Terminating Code Screening) depending on the contents of the trunk group data. When a BDN is contained in the trunk group data, it is used. If the BDN is not contained in the trunk group data, the MIN is used. Based on the value of the trunk group screening parameter and a new selective OLS parameter, all incoming calls or just 0+/0- calls can be screened.

The MIN is recorded in the AMA module 931. That module is added to the AMA record for wireless calls by a previous feature, AMA for Wireless. The OSPS does not determine the roamer/non-roamer status of the originating station.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for FGD IS feature.

2.1 Digit Analysis

Digit analysis data needs to be populated unless the OSPS already has it populated.

The DAS must be populated to use the proper incoming LDIT and PDIT. This DAS is used on the TKGRP form.

2.2 Activation of the Feature

On the TKGRP form, populate the BILLING DN field if a trunk group dedicated to wireless traffic should use the BILLING DN rather than the signaled MIN. If BILLING DN is not populated, the MIN will be used. The TRKCLS field must be "LATA", the BILL TRKGRP field (or ATT BILL field on view 5.1) must be "Y", and the DAS field must be set to the DAS that contains the required digit analysis data.

On the OPRTK form, set WIRELESS, the wireless indicator field, to "Y" for the trunk group number that is dedicated to the wireless services provider, and set WIRELESS SA to "Y". For 5E8 only, if WIRELESS and WIRELESS SA are activated, the WIRELESS SA supersedes the functionality of the WIRELESS feature. Also, set the OLS screening indicator, SELECTIVE OLS to "Y" for the trunk group number that is dedicated to the wireless services provider if OLS is to be done only for 0-/0+ calls. Set SELECTIVE OLS to "N" for normal OLS screening (1+/0-/0+ calls).

The wireless secured feature must be turned on, i.e., the SFID 104 on the SFSYS form must be "Y". Also, the SFID 83 must be set to "Y" for the FGD SA feature, which is a secured feature.

The WIRELESS REC field on the OSPSOPT form activates the AMA Recording of Calls from a Wireless Provider feature.

The feature activation ID 572 must be set to "Y" on the FOSYS form to active the FGD IS feature for the

Special Applications feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2/3	3	5AS	8.31
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2/3 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) IDs for Special and Transparency Features. The feature activation ID 572 must be set to "Y" to activate FGD IS feature.

OPRTK form (5417 Record) - This form is used to define the characteristics of InterLATA (Local Access Transport Area) carriers. For FGD IS, the wireless indicator fields, WIRELESS and WIRELESS SA must be set to "Y".

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The WIRELESS REC field must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to enable secured features. The SFID 104 ACT field for the Wireless Secured Feature must be set to "Y", and the SFID 83 ACT field for the FGD SA feature must be set to "Y".

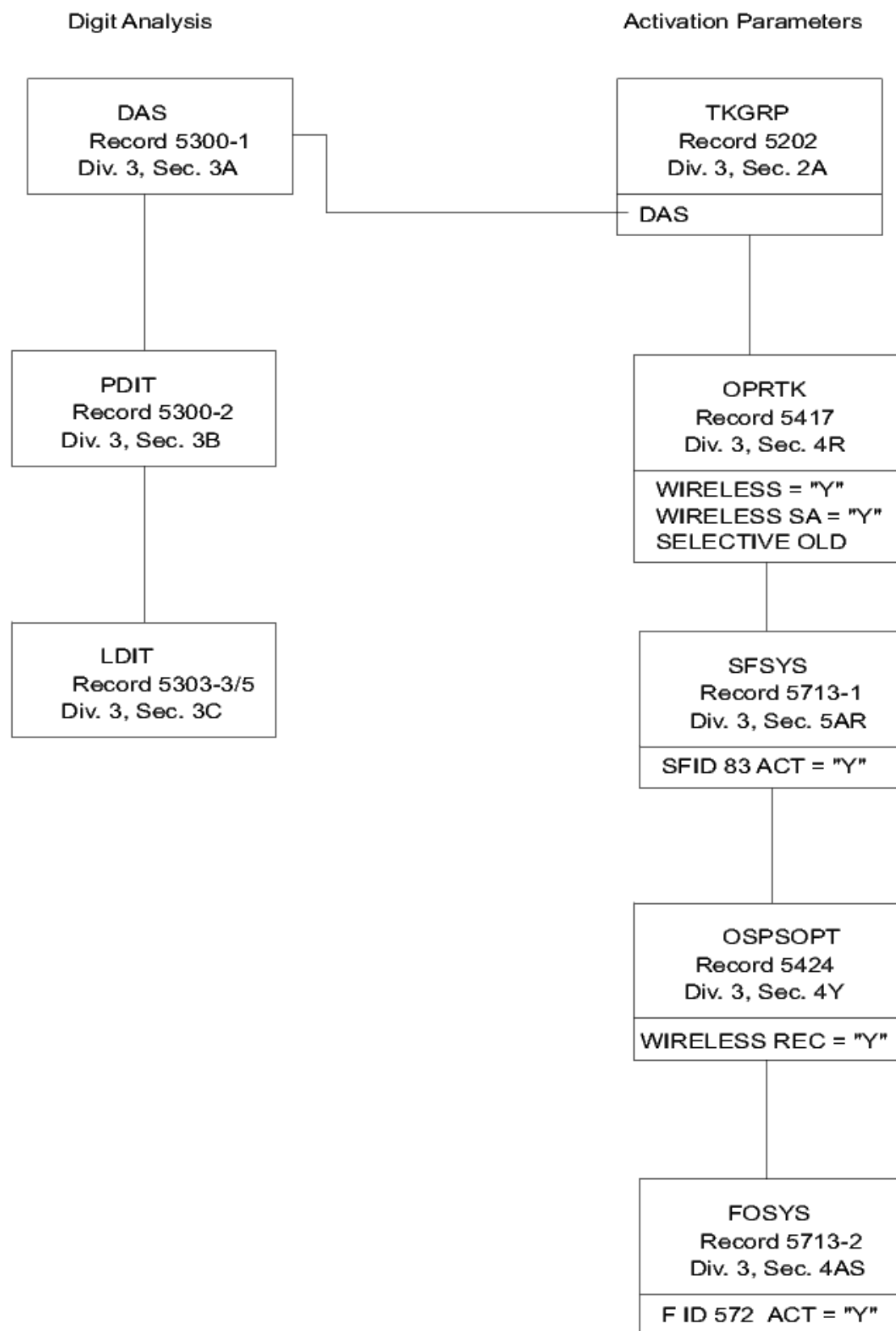


Figure 1 FGD IS SA FORM FLOW**SEC. 4A85: OSPS FTS 2000 NETWORK REMOTE ACCESS****1. BACKGROUND**

The FTS-2000 (Federal Telecommunication System) network is a dedicated network of 5ESS Switches serving Federal Government customers. This network provides connectivity for these government customers between various locations and off-network locations. The FTS-2000 network also provides network attendant services. The network uses 10-digit NANP (North American Numbering Plan) for FTS network destinations.

Calling card billing services for calls are provided in the AT&T network by the OSPS with CAS (Customer Account Services) NCP (Network Control Point) and with special card service to access SDN (Software Defined Networks). The AATOS (Alternate Access to Operator Systems) and SDN NRA (Network Remote Access) features provide the special card services. The SDN NRA feature provides the SDN customer access to the SDN and provides the SDN card holder with card billing to private network, domestic, and international destinations. The AATOS features provide 1+800 dialed calls access to AT&T operator services.

The FTS-2000 NRA feature uses the CAS, AATOS, and SDN NRA capabilities for Federal Card customers.

2. FEATURE DESCRIPTION

The FTS-2000 NRA feature is available for 5E8 and later Software Releases. The feature number for this capability is 98-5E-2081.

The FTS NRA feature offers the customer:

- reduced number of digits dialed for the NRA by FTS Card customers.
- Federal Card billing for international calls.
- access to OSPS for FTS Network calls.
- Federal Card sequence calling. The ability to place sequence calls reduces the number of dialed digits required to place a call.
- 1+800 access to OSPS to reach FTS network, domestic, and international destinations.

For the FTS NRA feature, the OSPS

- recognizes special 700+NXX numbers as FTS NRA calls.
- handles Federal Card initial and sequence calls using an automated protocol (0+, 01+, and 1+800) or operator assistance (0-, 00-, 0+, 01+, and bailout).
- allows Federal Card callers to complete calls from rotary dial phones.

The OSPS identifies FTS calls through

- special 700 numbers or an 800 number assigned to FTS.
- return of a special FTS routing number in calling card validation query replies. Through the routing

number, OSPS can determine if the call is routed to the ASN (AT&T Switched Network) or the FTS network.

2.1 Service Access

SDN NRA and AATOS capabilities recognize special FTS dialed access via special SSC-WXY code (SSC is the Special Service code, see key attribute for the SRVDESIG form (5474 Record) for FTS 1+800 access and 700-NXX digits in the forward number.

2.2 Scenarios

2.2.1 0- Access

1. Call arrives at an operator position.
2. Caller provides a forward number in the NANP or international format, a card number, and a PIN (Personal Identification Number).
3. OSPS determines the call is an FTS NRA call if
 - 700-FTS number is entered.
 - FTS routing number in CAS NCP reply.

2.2.2 0+, 01+Access

1. An NANP or International call arrives at the OSPS.
2. OSPS gives the "bong" tone and prompts the caller for a card number and PIN.
3. A card validation query is sent to the CAS NCP data base.
4. If an FTS Routing number is returned in the query reply, the call is given FTS NRA treatment.

2.2.3 1+800 FTS Access

1. Caller dials a 1+800+FTS+CALL, which is a number assigned to the FTS network.
2. The LEC (Local Exchange Carrier) EO (End Office) recognizes the AT&T 800 number and routes the call to an AT&T OSO (Originating Screening Office).
3. The OSO queries the IDB (INWATS Database) NCP, which translates the 800 number into a routing number of the form SSC(a)-WXY-NPAZ. The SSC(a) code is the same that is used for identifying Advanced 800 services. A unique SSC(a)-WXY code is assigned to the FTS-2000 to distinguish the FTS call from an SLD (Special Long Distance) call.
4. The OSO recognizes the SSC code as an Advanced 800 call and queries the DSD (Direct Services Dialing) NCP with the SSC(a)-WXY-NPAZ and the calling station's ANI (Automatic Number Identification).

5. The DSD NCP translates the SSC and ANI information into an SSC(b)-WXY-NPAZ routing number specific to the OSPS serving area of the calling station.
6. Based on the SSC(b) code, the OSO routes the call to a toll switch which translates the SSC(b) code to the unique SSC(c)-WXY code used to route the call to the appropriate OSPS and sends a 7-digit ANI and the SSC number via FGC (Feature Group C) MF (Multifrequency) signaling.
7. The OSPS recognizes the FTS-2000 call from the SSC(c)-WXY code and marks the call for special FTS NRA call handling.
8. If no ANI is received, the OSPS routes the call to an operator to perform ONI (Operator Number Identification).
9. If the ANI is received, the OSPS prompts the caller to enter the forward number. If the caller is calling from a rotary phone, the caller must timeout for an operator.

If the caller is dialing from a DTMF (Dual Tone Multifrequency) station, the caller can

- Dial an NANP number
 - Dial 01+ and international number
 - Timeout and be routed to an operator, or dial 0 for and operator.
10. If the caller from a DTMF station dials only the forward number and does not enter a card number, the call is sent to an operator.
 11. After the forward number and Federal Card number are collected, OSPS formulates the CCS7 (Common Channel Signaling System 7) TCAP (Transaction Capability) calling card validation query that is delivered to the CAS NCP.
 12. The CAS NCP validates the card number and send a reply message that has a 10-digit routing number in the form SSC(c)-WXY-NPAZ.
 13. OSPS checks the SSC(c)-WXY-NPAZ to determine if it is assigned to FTS-2000.
 14. On a call that is to be routed over the private network, existing denial treatment will be given if a routing number is not returned from the CAS/NCP if a 1 + 800 FTS access number is used.
 15. OSPS routes the call either over the FTS PNI (Private Network Interface) or the ASN. International calls are routed over the ASN or the FTS private network.
 16. Calls routed over the ASN receive AMA (Automatic Message Accounting) recording in the OSPS. Calls routed over the PNI receive AMA treatment from the PNI.

2.2.4 FTS NRA Sequence Calls

1. FTS caller requests sequence calling at the end of a call or as the result of a no answer or busy.
2. OSPS recognizes the # as a request for a new call.
3. OSPS collects the new forward number from the caller and attempts to establish the newly requested

call using FTS NRA.

2.3 FTS PNI

The FTS PNI uses trunk facilities between the OSPS and the FTS-2000 switches. These inter-network trunks use CCS7 signaling. OSPS provides signaling messages to the FTS-2000 switches for FTS network services use.

3. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for FTS NRA feature.

3.1 Secured Feature

This is a secured feature, therefore the ACT field for SFID 85 must be set to "Y" on the SFSYS form (5713-1 Record) to indicate this feature has been purchased. To activate this feature, the ACT field for the option feature ID OFID 563 on the FOSYS form (5713-2 Record) must be set to "Y".

To activate the ATTOS - Change Handling of All Zeros ANI feature, the ACT field for OFID 561 must be set to "Y" on the FOSYS forms.

3.2 Office Parameters

The following fields on the OSPSOPT form (5424 Record) support this feature:

- "Y" must be entered in the CAS R3 ON field to activate the CAS R3 feature. For more information on CAS R3 see Division 2, Section 3I.
- RECOGNIZE 10P4 must be "Y" to activate the Inclusion of 14 Digit Cards in the Card Recognition Tables feature.
- AS FEATURE WORD must be "Y" to activate the AATOS/SDN NRA feature. See Division 2, Section 3I for more information on this feature.

In addition, on the SRVDESIG form (5474 Record), the SSC WXY field must be entered, and the SERVICE TYPE field must be set to "SDNNRA" or "S".

3.3 Announcements

Four new announcement Header IDs have been created in association with the FTS NRA feature. In addition, the FTS NRA feature uses four existing announcements.

The existing HEADER IDs are the following:

HEADER ID 2 is provided to a caller who has entered a calling card (in the caller's initial attempt) and the associated data base reply is either "Invalid Card", "Missing Customer Record", or "Vacant Code".

HEADER ID 4 is provided to a caller who has entered a calling card (in the caller's second attempt) and the associated data base reply is either "Invalid Card", "Missing Customer Record", or "Vacant Code". This announcement is also provided on an initial attempt when the associated data base reply is either "No Translation Data for This Specific Address" or "Unequipped User". After the announcement, the call is

disconnected.

HEADER ID 46 is provided to a caller who has entered a calling card that has an associated FTS Routing Number and the forward number is a 700 Quantum number. After the announcement, the call is disconnected.

The following announcements support the FTS NRA feature:

HEADER ID 166 is provided to a caller when the caller has requested SAB (Subaccount Billing) treatment on an FTS Service Address Call (i.e. 700-FTS or 1+800-FTS). After the announcement, the call is disconnected.

HEADER ID 167 is provided to a caller (on the caller's first attempt) on an FTS Service Address call when the associated data base reply is "Accept" and either an FTS routing number is not returned from the data base or a non-FTS Routing Number was returned.

HEADER ID 168 is provided to a caller (on the caller's second attempt) on an FTS Service Address call when the associated data base reply is "Accept" and either an FTS Routing Number is not returned from the data base or a non-FTS Routing Number is returned. After the announcement, the call is disconnected.

HEADER ID 169 is provided on a sequence attempt (after an initial FTS NRA call) when the associated data base reply is "Accept" and either an FTS routing number is not returned from the data base, or a non-FTS routing number is returned, or the data base response was either "Invalid Card", "Missing Customer Record", or "Vacant Code". After the announcement, the call is disconnected.

3.4 FTS NRA Forms

The following forms support the FTS NRA feature:

- FTSCC form
- FTSNANP form
- FTSNXX form
- FTSRN form

The FTSCC form indicates if an international call is routed on the FTS or ASN network.

The FTSNANP form indicates if a domestic number should be routed on the ASN or FTS network.

The FTSNXX form indicates if the 700 number dialed is a 700-FTS number.

The FTSRN form indicates if the routing number is a valid FTS Routing Number. The SDN DAS entry on the OSPSOPT form is used to analyze the FTS Routing Number.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
FTSCC	5485	3	4CM	27.78
FTSNANP	5486	3	4CN	27.77
FTSRN	5488	3	4CP	27.76
FTSNXX	5487	3	4CO	27.75
SRVDESIG	5474	3	4BZ	27.70

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. Four new announcement HEADER IDS 166 - 169 support this feature.

FTSCC form (5485 Record) - This form identifies international locations that must be routed over the FTS private network rather than the AT&T public switched network. When OSPS processes a call to an international forward number and an FTS Routing Number is returned in the CAS query reply, then this form is checked. If a matching country code is found, the call cannot be completed on the AT&T public switched network. Instead, the call is completed over the FTS private network. If an entry is not found in this form the call is routed over the AT&T public switched network.

FTSNANP form (5486 Record) - This form identifies calls to a domestic forward number that must be routed over the AT&T public switched network rather than the FTS private network even if an FTS routing number was returned in the CAS query reply. If an entry is not found on this form, OSPS routes the call over the FTS private network.

FTSNXX form (5487 Record) - This form identifies the 700 number NXXs that can be dialed by a caller to signal the caller's desire to receive FTS NRA treatment. When OSPS handles a call with a 700 forward number, the FTS NRA feature checks this form for an entry that matches the NXX of the forward number. If one is found, the call receives FTS NRA treatment. If a match is not found, an additional check is made to determine if the number is an Alliance number and should receive Alliance treatment. Otherwise, the call (by default) receives Quantum treatment.

FTSRN form (5488 Record) - This form identifies the 10-digit FTS NRA routing numbers used to route calls on the FTS private network. A routing number is returned to the OSPS from the CAS NCP when a Federal Calling Card is used as the billing method. If a match is found, the routing number is used to route the call on the FTS private network.

SRVDESIG form (5474 Record) - This form is used to determine the expected service type for 1+800 calls arriving on AATOS and SDN/NRA MF trunks. The FTS field indicates if the 1+800 number is an FTS NRA call.

5. GLOSSARY

AATOS	Alternate Access to Operator Systems
ANI	Automatic Number Identification
ASN	AT&T Switched Network
CAS	Customer Account Services
CCS7	Common Channel Signaling System 7
DSD	Direct Services Dialing
DTMF	Dual Tone Multifrequency
EO	End Office
FGC	Feature Group C
Federal Card	a calling card issued by AT&T to FTS 2000 customers.
FTS	Federal Telecommunication System
FTS Routing Number	the number returned in the CAS card validation

IDB	INWATS Database
LEC	Local Exchange Carrier
MF	Multifrequency
NANP	North American Numbering Plan
NCP	Network Control Point
NRA	Network Remote Access
OSO - Originating Screening Office	
OSPS	Operator Services Position System
ONI	Operator Number Identification
PIN	Personal Identification Number
PNI	Private Network Interface
SAB	Subaccount Billing
SLD	Special Long Distance
TCAP	Translation Capability

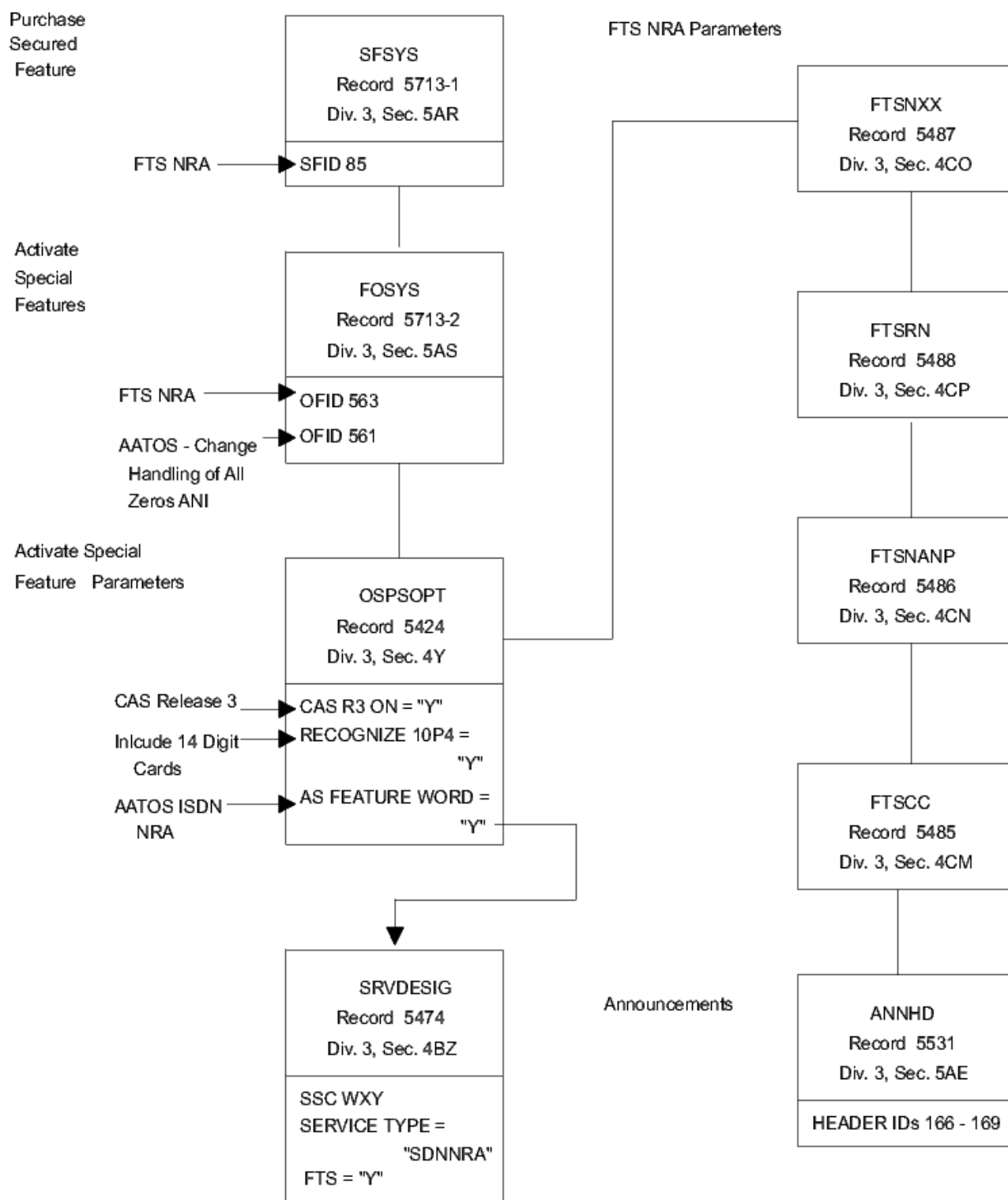


Figure 1 FORM FLOW FOR FTS NRA FEATURE

SEC. 4A86: OSPS EXCHANGE ALTERNATE BILLING SERVICES ALTERNATE ROUTING

1. BACKGROUND

The EABS (Exchange Alternate Billing Services) software provides the switch owner with the ability to direct calling card and BNS (Billed Number Screening) queries to either the LIDB (Line Information Database) or the BVA (Billing Validation Application) for validation. This can be accomplished on a 3-digit or 6-digit basis of the card or billing number. Validations directed to the LIDB use the ANSI (American National Standards Institute) TCAP (Transaction Capability Application Part) CCS7 (Common Channel Signaling 7) signaling. Those directed to the BVA use DCIS6 (Direct Common Channel Signaling 6) signaling.

For 5E8 and later, the EABS Alternate Routing feature provides an alternate destination for the validation of these card and BNS queries. This alternate destination replaces the BVA option and uses existing LIDB signaling.

2. FEATURE DESCRIPTION

The EABS Alternate Routing is a secured feature with SFID 86 and optioned feature ID 562. The feature number for this capability is 98-5E-2093.

The alternate destination is selected in the same way that the BVA is selected. The EABS tables in the OSPSOPT form (5424 Record), DSAPP form (5537 Record), and LIDBLNQ form (5449 Record) determine whether the Card or BNS query is sent to the LIDB or to another destination. This feature effectively changes the "Other" destination from the BVA to an AD (Alternate Destination) that is capable of processing a query using LIDB signaling.

The LIDB and the AD share existing LIDB timeout values, indeterminate treatment handling, event traps, software alarms, and measurements.

3. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for the EABS Alternate Routing feature.

For an AD, "LALT" must be entered in the APPLIC field on the DSAPP form with appropriate values for TRANS TYPE and SUB SYS NBR.

Values for LIDB Calling Card and LIDB BNS queries on the OSPSOPT form should be checked to ensure the queries are sent to the proper database, either the LIDB or the AD database. Queries to the AD also use the other LIDB related fields on the OSPSOPT form for timeouts and software alarms.

Ensure correct processing of Calling Card and BNS queries on the LIDBLNQ form if the OSPSOPT form requires a 3 or 6-digit selection.

EABS Alternate Routing is a secured feature. To enable this feature the ACT field for SFID 86 must be set to "Y" on the SFSYS form (5713-1 Record). In addition, the Optioned Feature ID 562 must be activated by setting the ACT field for OFS ID 562 to "Y" on the FOSYS form (5713-2/3 Record).

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSAPP	5537	3	5AK	8.17
FOSYS	5713-2/3	3	5AS	8.22
LIDBLNQ	5449	3	4AX	27.32
				27.33

OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

DSAPP form (5537 Record) - This form is used to specify the direct signaling application type, the transaction type, and the subsystem number used by the direct signaling trunks which use CCS7 signaling protocols. The application for the LIDB alternate destination is "LALT".

FOSYS form (5713-2 Record) - This form is used to enable transparency and special features. The ACT field for OFS ID 562 must be set to "Y" to enable this feature.

LIDBLNQ form (5449 Record) - This form is used to designate a query destination on the basis of the NPA-NXX or the RAO(0/1)XX. The alternate destination database is used if RANGE LIDB and LIDB fields are set to "N".

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The ATT INTER, LEC INTER, ATT INTRA, LEC INTRA, and DEFAULT fields indicate the database for queries.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 86 should be set to "Y"

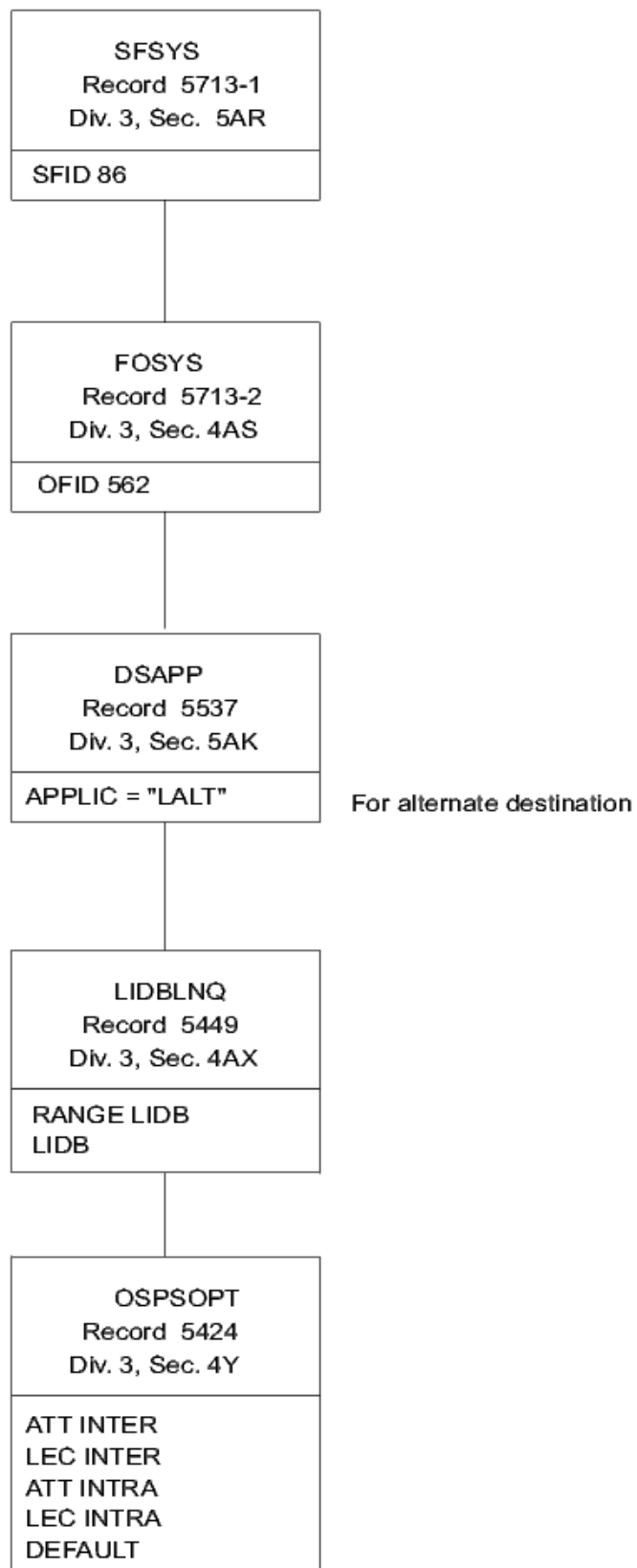


Figure 1 EABS ALTERNATE ROUTING FEATURE FORM FLOW**SEC. 4A89: OSPS SPECIALIZED HANDLING FOR 700 SERVICES RELEASE 2.1****1. FEATURE DESCRIPTION**

The capability number for the Specialized Handling for 700 Services - Release 2.1 feature is 98-5E-2024. This feature is available with 5E7 and later.

The Specialized Handling for 700 Services - Release 2.1 provides four new features:

1. The Back to the Platform feature allows the caller to indicate via DTMF (Dual Tone Multifrequency) input their desire to return to the adjunct for further processing. Input is during pre-answer and post-disconnect.
2. The Forced Return feature returns caller to the adjunct for further processing after an adjunct specified timeout upon forward party disconnect.
3. The Busy/Ring No Answer feature provides an alternate routing number if the forward party is busy or does not answer. After an adjunct specified timeout, the adjunct is notified and an alternate routing number (e.g., messaging service) is specified by the adjunct for routing.
4. The Dual Billing feature provides two AMA records which are generated when a caller is routed to a messaging service. The first record is written against the caller for a completed call. The second record is written against the 800 number used to access the messaging service.

For information on Specialized Handling for 700 Services Release 1, see Division 2, Section 4A69. For information on Specialized Handling for 700 Services testing, see Division 2, Section 4C17.

2. FEATURE ASSIGNMENT

This feature is a secured feature. The ACT field for SFID 89 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

The adjunct processor must be at a software level capable of providing this feature before it can be used. However, existing functionality will remain prior to the adjunct update with no changes required.

3. GLOSSARY

ACQS	Automated Charge Quotation Service
CCS7	Common Channel Signaling Version 7
DTMF	Dual Tone Multifrequency
IAM	Initial Address Message
ISUP	Integrated Services Digital Network User Part
OSPS	Operator Services Position System

SEC. 4A91: ENHANCED LONG DISTANCE / CALL WAITING WITH DISTINCTIVE TONES AND

DISTINCTIVE RINGING FOR LONG DISTANCE CALLS

1. BACKGROUND

The Enhanced LDCW (Long Distance Call Waiting) special feature (feature number 99-CP-3441) modifies the existing Call Waiting With Distinctive Tones and Distinctive Ringing For Long Distance Calls feature and is available for 5E10 and later. This modification does not have a separate secured feature ID. The 5ESS-2000 Switch will no longer support the prior version of this feature after the new feature changes are introduced.

2. FEATURE DESCRIPTION

Prior to this feature, when an incoming call activated call waiting, the called party was alerted via a tone. The same tone was used for both local and long distance calls. The "normal" tone to be provided was determined by the value of the CDPTY TONE INDICATOR field on the CWTFD form (5603-1 Record) that was assigned to the called party's line.

When a handset rang due to an incoming call, both local and long distance calls used the same kind of ringing pattern.

The Call Waiting with Distinctive Tones and Distinctive Ringing for Long Distance Calls secured feature is available for 5E8 and later. This feature allows the current call waiting and ringing operations to provide a distinctive call waiting tone or a distinctive ringing pattern for long distance calls. This feature is assignable on both a per-feature and per-line basis. The feature number for this capability is 99-5E-1105.

2.1 Feature Definition

This feature allows a customer to distinguish between local and long distance calls when the phone rings, or when call waiting produces a tone to indicate an incoming call.

2.2 Call Waiting

The special tone for call waiting is the existing pattern "E", which consists of three beeps as follows:

- 0.1 second on
- 0.1 second off
- 0.3 second on
- 0.1 second off
- 0.1 second on.

This affects only the called party indicator and does not affect the calling party indicator or the party departure indicator as specified on the called party's CWTFD form (5603-1 Record). (See the CDPTY TONE INDICATOR, CGPTY TONE INDICATOR, and DEPTY TONE INDICATOR fields on the CWTFD form.)

The application of this special tone has three options.

1. Apply the normal call waiting tone (CDPTY TONE INDICATOR field) to both local and long-distance calls. In this option the special tone is not used. This is the default option.
2. Apply the special tone (pattern E) to long distance calls and apply no tones for the local calls.
3. Apply the normal call waiting tone (CDPTY TONE INDICATOR field) to local calls and the special call waiting tone (pattern E) to the long distance calls.

Options 2 and 3 override the treatment specified by the CDPTY TONE INDICATOR field, but the treatment specified by the CGTPY TONE INDICATOR and DEPTY TONE INDICATOR fields are not affected.

2.3 Distinctive Ringing

The special ringing for long distance calls is pattern "E":

- 0.3 second on
- 0.2 second off
- 1.0 second on
- 0.1 second off
- 0.3 second on
- 0.4 second off.

Distinctive ringing applies to analog lines (LINE and MLHLN forms) and non-standard Lucent Technologies ISDN BRI (Basic Rate Interface) lines (DSLUSR form).

2.4 Screening

The screening portion of the feature determines which calls are considered local and which are considered long-distance. This screening is used by both the call waiting and distinctive ringing portions of this feature.

2.5 Enhanced Long Distance Call Waiting

The LDCW special feature (feature number 99-CP-3441) modifies the existing Call Waiting With Distinctive Tones and Distinctive Ringing For Long Distance Calls feature. This feature provides the following enhancements:

- Applies SS7 (Signaling System 7) Calling Party number screening treatment of incoming calls over IC (InterLATA Carrier) class of service designated trunks.

This modification treats calls coming in over IC trunks the same as the calls coming in over "LTOLLCON" type trunks. That is, the SS7 CPN (Calling Party Number) information and the screening DAS+NPA+NXX table is used to determine if the call is long distance or not. Thus, the IC trunks would have to be SS7 type trunks. All calls coming in over non-SS7 IC (or non SS7 LTOLLCON) trunks would be treated as local calls.

- Allows a screening NPA+NXX local call table for each DAS (rate center).

This change provides a screening NPA+NXX table for each DAS in the switch. The LOCSCRN form (5545 Record), Recent Change View 8.26 (the DAS+NPA+NXX screening table view) is modified such that the DAS, NPA and NXX number are key fields for the view. The switch treats calls to lines with a specified DAS based on the screening NPA+NXX table associated with that DAS. These added screening tables are used to determine the call treatment for intra-switch and inter-switch calls. The switch supports a screening NPA+NXX table for each DAS (maximum of 99 for 5E14 and earlier and 254 for 5E15 and later) entries.

- Screens intra-switch calls based on CPN and the NPA-NXX table.

This change provides screening of intra-switch calls based on the CPN to determine call treatment (local or long distance). Before this change, all intra-switch calls were treated as local. With the new screening

table per DAS, intra-switch calls (in addition to inter-switch calls) now need to have the CPN number compared with the screening NPA-NXX table of the called line's DAS.

- Removes Charge Party Number from being included in the decision on whether a call is long distance or local.

This change removes the Charge Party Number from being used as secondary information to the CPN for determining call treatment as local or long distance. Before this change, the switch looked at the Charge Party Parameter if there is no information or undecipherable information in the CPN field.

- Determine the treatment of all calls when Calling Party Number information is not available or indeterminate.

This change provides a new LDCW TRMT field on the OFCOPT form (5509 Record), (Recent Change View 8.1) for setting the switch treatment of SS7 calls when no Calling Party Number information is available or the information is indeterminate. Before this feature, the switch considered calls without this information to be long distance. This new field allows these calls to be treated as either local or long distance on a per office basis. A "N" value indicates to treat calls without SS7 CPN information the way the switch treats them now - always as long distance. A "Y" value indicates treating calls without SS7 CPN information as local.

3. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for the Call Waiting with Distinctive Tones and Distinctive Ringing for Long Distance Calls feature.

3.1 Secured Feature

This is a secured feature and must be purchased before Distinctive Tones and Distinctive Ringing can be activated. The ACT field for SFID 91 on the SFSYS form (5713-1 Record) must be set to "Y".

3.2 Call Treatment

Are SS7 calls without Calling Party Number information to be treated as local calls for the Long Distance Call Waiting Feature?

3.3 Screening

For 5E9(2) and earlier, calls coming in over IC trunks (TRKCLS is "IC") are treated as long distance. Calls coming in over trunks which are not SS7 (Signaling System 7) with a trunk class of "LTOLLCON" are treated as local calls. The NPA or NPA-NXX values for calls coming in over SS7 "LTOLLCON" trunks are compared to the table constructed on the LOCSCRN form. The values found in that table are treated as local calls. The values not in the table are treated as long distance calls.

For 5E10 and later, assign a screening NPA+NXX local call table for each DAS (rate center).

3.4 Call Waiting Assignment

The call waiting distinctive tone option is selected via the LONG DST DT field on the CWTFD, CWTLP, CWTMPA and BFG forms.

3.5 Distinctive Ringing Assignment

The distinctive ringing option is selected via the LONG DST DR field on the LINE, MLHLN, and DSLUSR forms. When LONG DST DR is "N", the "normal" ringing is applied for both local and long distance calls. When "Y" is entered, "normal" ringing is applied for local calls, and distinctive ringing pattern is applied to long distance calls.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26A	12.9
CWTFD	5603-1	4	4A	12.15
CWTLPA	5603-2	4	4B	1.24
CWTMPA	5603-3	4	4C	3.24
DSLUSR	5908	5	1I	23.2
LINE	5109	3	1I	1.1
LOCSCRN	5545	3	5AU	8.26
OFCOPT	5509	3	5I	8.1
MLHLN	5111	3	1K	1.6

BFG form (5625 Record) - This form is used to specify and construct BFGs for use when assigning subscriber features to analog lines or ISDN terminals. The LONG DST DT field was added to support distinctive call waiting tones for long distance calls.

CWTFD form (5603-1 Record) - This form is used to define options for Call Waiting features. The LONG DST DT field was added to support distinctive call waiting tones for long distance calls.

CWTLPA form (5603-2 Record) - This form is used to define specific parameters assigned to every non-Multi-Line Hunt line assigned with a specific constructed Call Waiting feature. The LONG DST DT field was added to support a distinctive call waiting tone for long distance calls.

CWTMPA form (5603-3 Record) - This form is used to define specific parameters assigned to every Multi-Line Hunt line associated with a specific constructed Call Waiting feature. The LONG DST DT field was added to support a distinctive call waiting tone for long distance calls.

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user, and 4) defines the On Demand B-channel packet switching attributes of a DSL user. The LONG DST DR field was added to support distinctive ringing for long distance calls.

LINE form (5109 Record) - This form defines the Office Equipment Number and features for each telephone number in the 5ESS Switch. The LONG DST DR field was added to support distinctive ringing for long distance calls.

LOCSCRN form (5545 Record) - This form defines all NPA and NPA NXX entries that are considered local to the office. The NPA or NPA-NXX of an incoming call on an SS7 "LTOLLCON" trunk group is compared to the list compiled on this form to determine if it is a local call or it is a long distance call which may require a distinctive call waiting tone or distinctive ringing for the long distance call. The DAS field was added for 5E10 and later.

MLHLN form (5111 Record) - This form defines the individual terminal numbers assigned to a particular MLHG (Multi-Line Hunt Group). The LONG DST DR field was added to support distinctive ringing for long distance calls.

OFCOPT form (5509) - The 5509 Record provides the office option global parameters residing in the CP (Central Processor). The LDCW TRMT field was added for 5E10 and later.

5. GLOSSARY

BMI - Begin Managed Introduction

BRI - Basic Rate Interface

CPN - Calling Party Number

IC - InterLATA Carrier

LDCW Long Distance Call Waiting

SS7 - Signaling System 7

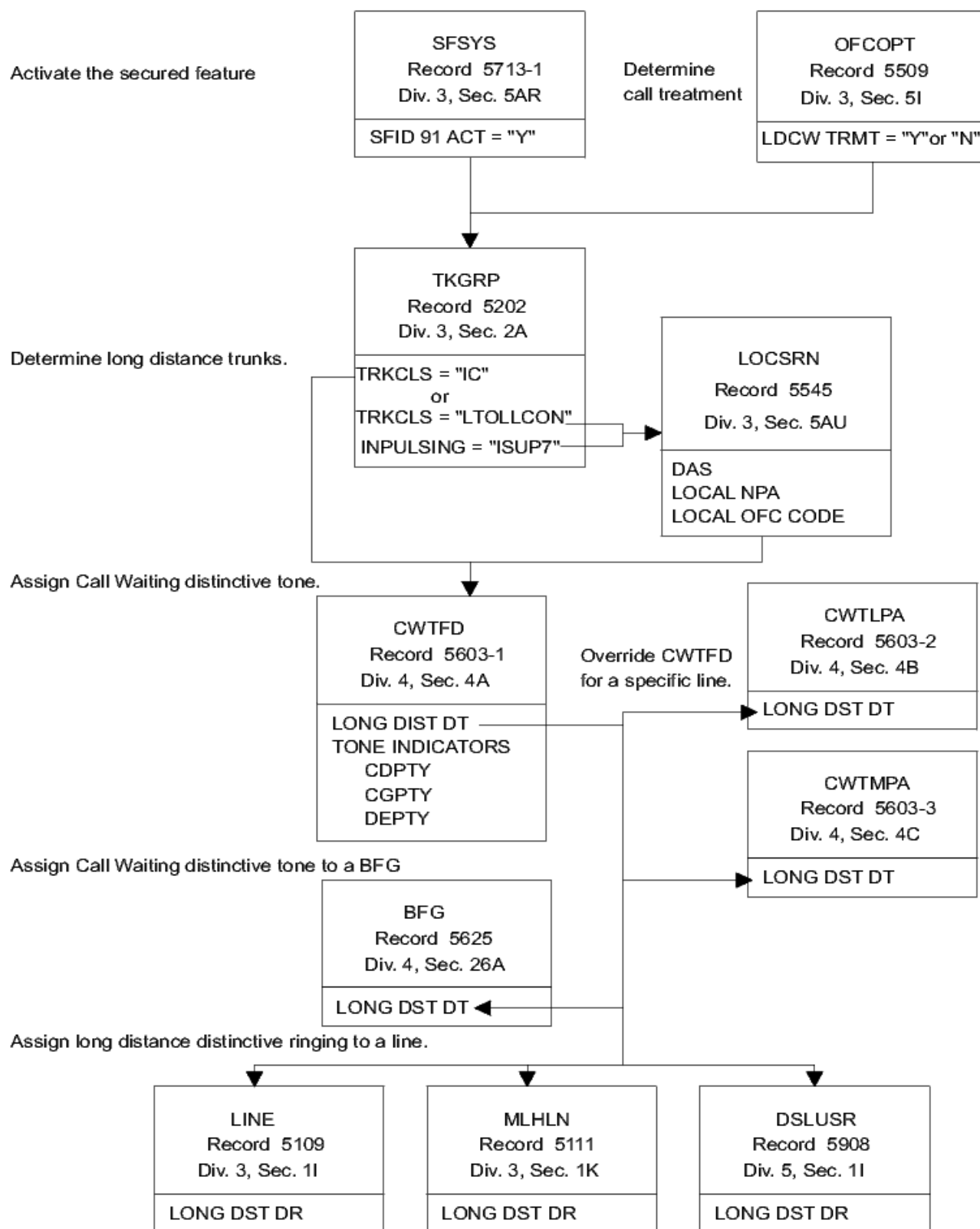


Figure 1 CALL WAITING DISTINCTIVE TONES AND DISTINCTIVE RINGING FOR LONG DISTANCE

FEATURE FORM FLOW

SEC. 4A93: ADVANCED SERVICE INTERFACE PROXY

1. FEATURE DESCRIPTION

The ASI (Advanced Service Interface) Proxy is a secured feature available with 5E8 and later, and provides a 5ESS Switch-based platform for connecting non-ISDN customers to an IP (Intelligent Peripheral). The IP provides automated call handling to subscribers. The ASI Proxy capability on the Switch does not provide the automated call handling by itself; rather, the IP acts as a subscriber "proxy" and provides the switch with the sequences of instructions for call handling, call extension and feature access.

1.1 Modes of Operation

The ASI Proxy capability, which is implemented as a BRCS terminal feature, provides two modes of operation:

- *Implicit Mode* allows the IP to be silently, directly connected onto the subscriber's phone upon origination or secondary dial tone. In this mode, the IP may:
 - Provide information to the subscriber upon origination of a call (through an announcement, dial tone, etc.);
 - Accept non-dialed (such as verbal) non-DTMF user requests and initiate dialing on the subscriber's behalf (dialing by the customer disconnects the IP);
 - Remain silent and wait for explicit invocation.

The subscriber can activate or deactivate the implicit mode feature by a CORC (Customer Originated Recent Change) toggle defined in the ODP. This toggle reverses the current status of the implicit mode feature. The subscriber must have the Implicit ASI Proxy feature assigned.

In this mode, the IP may also be used to provide auto dialing (call extension, feature activation) functions for the subscriber.

- *Explicit Mode* allows the subscriber to dial an ASI Proxy access code to communicate at length with the IP. In this mode, the Switch provides dial pulse to Touch-Tone conversion when necessary and passes along any customer dialed digits ending with "#" to the IP. The IP is also able to dial on behalf of the subscriber.

1.2 Remote Access

Remote Access to ASI is built upon the base ASI Proxy capability. The Remote Access to ASI allows remote access to the IP and allows the IP/subscriber to make calls using the features that are active on their directory number.

1.3 Interactions Between Capabilities

The following text details feature interactions having impact on translations.

1.3.1 Trunk Groups

Only one-way outgoing trunks with TRKCLS of "PFLASH" may be identified as ASI Proxy trunks.

1.3.2 Multi-Line Hunt Groups

Individual lines in an MLHG (Multi-Line Hunt Group) may be assigned any of the ASI Proxy features. However, only MLHG member lines that have individual TNs may have an ASI Proxy feature assigned to them.

1.3.3 Line Assignment

For lines and MLHGs, the CLASS OF SERVICE of "INDIV" on the LCC form (5306 Record) supports ASI Proxy. There is no restriction on the terminating class of service.

1.3.4 Home Intercom

Lines with Home Intercom may not have ASI Proxy assigned to them.

1.3.5 Shared Analog

Shared Analog lines may not have ASI Proxy assigned to them.

1.3.6 Line Time Slot Bridging

ASI Proxy may not be assigned to lines with LTSB (Line Time Slot Bridging).

1.3.7 Measurements

Existing peg counts can tally the explicit mode invocations, or the CORC Implicit Mode toggles. All existing measurements and counts are utilized for the connection to the IP, just like any other outgoing trunk connection.

Measurements may be provided by the 30-minute traffic report on BRCS Feature Measurements. To include ASI Proxy features in the report, the feature data must be populated from the Recent Change view 13.3.

For additional measurements information, refer to AT&T 235-070-100 Appendix 1, *Traffic and Plant Measurements*.

1.4 Feature Activation

ASI Proxy is enabled by setting SFID (Secured Feature ID) 93 to "Y" on the SFSYS form.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASIFD	5630-1	4	30A	12.61
ASILPA	5630-2	4	30B	1.61
ASIMPA	5630-3	4	30C	1.61
ASIGP	5630-4	4	30D	4.61
BFG	5625	4	26A	12.9
FIXRT	5301-1	3	3G	10.1
IDPDCA	5601-1, 2	4	2B	9.13
IMINFO	5510	3	5J	18.1, 11.1
LCC	5306	3	3S	4.1
OFCOPT	5509		5I	8.1,

		3		8.15
PDIT	5300-2	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

2.1 Trunk Translations

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form.

New field ASI PROXY indicates whether the trunk group is capable of carrying ASI Proxy traffic.

2.2 Routing and Charging Translations

FIXRT form (5301-1) - The FIXRT form is used to define Routing and Charging treatment of Fixed Route Types.

One new enumeration ``RASI" for the FIXED ROUTE TYPE field was added to support Remote Access to the Advanced Service Interface feature.

LCC form (5306) - The LCC form is used to define each LCC (Line Class Code) in a 5ESS Switch. A Telephone Number and a Line Equipment Number provide an LCC and Rate Area number. These two inputs are used to access routing and service information contained on this form.

One new enumeration ``ASIRA" for the TERMINATING TREATMENT field was added to support the Advanced Service Interface feature Remote Access.

PDIT form (5300-2 Record) - The PDIT form defines the Prefix/Feature Digit Interpreter in a 5ESS Switch. It provides information defining feature and operator access, and prefix information for dialed codes which are analyzed in the LDIT (Local Digit Interpreter Table). Digit analysis for all line originated calls in a 5ESS Switch starts in PDIT. At least the first digit of every valid dialable code must be represented in PDIT.

Two new enumerations for the ACTION field were added for ASI Proxy. "ASITOG" is a toggle for activating/deactivating ASI Proxy's implicit mode. "ASIUSE" allows use of ASI Proxy in the explicit mode.

2.3 Miscellaneous Translations

OFCOPT form (5509 Record) - The OFCOPT form supplies miscellaneous office options and parameters.

New field ASI ON enables or disables ASI Proxy traffic. The field cannot be changed unless the feature is purchased and SFID 93 has been set to "S" on the SFSYS form (see below).

IMINFO form (5510 Record) - The IMINFO form gathers and builds miscellaneous customer data related to a given SM (Switching Module).

The new field UTD LIMIT is the percentage of UTDs on the SM (Universal Tone Decoders) that may be used for ASI Proxy.

SFSYS form (5713-1 Record) - The SFSYS form enables Secured Features.

An SFSYS form must exist with SFID 93 set to "S" for ASI Proxy to be used.

2.4 BRCS Translations

ASIFD form (5630-1 Record) - The ASIFD form is a new form used to define ASI Proxy attributes for ASI Proxy features.

Remote Access to ASI is built upon the base Advanced Service Interface capability. The RMT BILL, RMT SERV CODE, and REC SERV CODE fields were added to this form to support Remote Access to ASI as the final phase of the ASI Proxy feature development.

ASIGP form (5630-4 Record) - The ASIGP form is a new form that contains information needed to define the routing and signal conversion characteristics of an ASI Proxy group. The MEA field was added to support Modified Extended Access.

ASILPA form (5630-2 Record) - The ASILPA form is a new form that provides a means to create an ASI Proxy Line (keyed by TN) form which overwrites the Default Parameters on the corresponding ASIFD form.

Remote Access to ASI is built upon the base Advanced Service Interface capability. The RMT BILL, RMT SERV CODE, and REC SERV CODE fields were added to this form to support Remote Access to ASI as the final phase of the ASI Proxy feature development.

ASIMPA form (5630-3 Record) - The ASIMPA form is a new form that provides a means to create an ASI Proxy Line (keyed by MLHG/TERM) form which overwrites the Default Parameters on the corresponding ASIFD form.

Remote Access to ASI is built upon the base Advanced Service Interface capability. The REMOTE BILL, RMT SERV CODE, and REC SERV CODE fields were added to this form to support Remote Access to ASI as the final phase of the ASI Proxy feature development.

BFG form (5625 Record) - The BFG form specifies and constructs BFGs (BRCS Feature Groups) for use when assigning subscriber features to analog lines or ISDN terminals.

Five new fields were added for ASI Proxy.

ASI GRP is the name of the ASI Proxy group to be used by the ASI Proxy feature assigned within this BFG.

SERV CODE is the service code digits defining the services allowed during implicit mode access to the IP.

ASI SID is the Subscriber Identification used to identify the subscriber to the IP. If not specified, the SID is the station TN of the line.

IP DIAL BILL indicates if the subscriber wants AMA (Automatic Message Accounting) billing records for an otherwise non-billable call dialed by the IP, and EXP DIAL BILL indicates if the subscriber wants AMA records for an explicit connection to the IP.

For 5E9(1) and later three new fields were added for Remote Access to ASI Proxy.

RMT BILL indicates if an AMA billing record should be generated for remote access to Intelligent Peripheral calls.

RMT SERV CODE is the Remote Access Service Code used to define the set of services allowed during remote access to the Intelligent Peripheral.

REC SERV CODE is the set of services allowed during a remote reconnect to the Intelligent Peripheral.

IDPDCA form (5601-1,2 Record) - The IDPDCA form defines the dialed codes associated with IDPs (Individualized Dialing Plans).

Two new enumerations for the ACTION field were added for ASI Proxy. "ASITOG" is a toggle for activating/deactivating ASI Proxy's implicit mode. "ASIUSE" allows use of ASI Proxy in the explicit mode.

SEC. 4A95: INDEPENDENT COMPANY BRANDING ANNOUNCEMENT

1. FEATURE DESCRIPTION

The ICO (Independent Company) Branding Announcement feature is an OSPS special feature which allows operating companies to play branding announcements based on the telephone company carrying the incoming initial ACCS (Automated Calling Card Services) call. The feature number for this capability is 98-5E-2037. This feature is available for 5E8 and later.

The telephone companies using this feature contract out operator services. Calls from the telephone company are routed to the contractor's OSPS. The OSPS determines the telephone company for these calls by reading the NPA-NXX form and passing the PHRASE ID to ACCS for the correct branding announcement.

The ICO Branding Announcement feature introduces two new announcements based on the independent company carrying the 0+ intraLATA call. The first announcement of the name of the independent company is given just after the bong tone is played to the customer. The second ICO announcement is played as part of the "Thank You" announcement. The customer hears, for example, "Thank you for using *ICO name*".

2. FEATURE ASSIGNMENT

OSPS determines the company carrying the incoming ACCS calls, and determines what announcement to play according to the PHRASE ID entered in the NPAMAP form (5414 Record). OSPS must be capable of playing branding announcements over DSU2-RAF channels for 0+ IntraLATA initial ACCS calls which are not AATOS (Alternate Access to Operator Services) or SDN/NRA (Software Defined Network/Network Remote Access).

At 0+ seizure, the name of the carrier is played after the bong tone. The customer hears a "Thank You" announcement and the Telephone Company's name before the call is routed.

If the operating company does not supply a valid PHRASE ID or if the branding announcement cannot be played because of equipment failure or unavailability, an unbranded announcement is given.

The ICO feature is a secured feature and must be activated with the secured feature ID, SFID 95.

The new phrases must be inserted on the announcement board. The header IDs, phrase IDs, application and duration must be entered on the ANNHD form (5531 Record). The phrase ID, application, phrase text and duration must be entered on the PHRASE form (5534 Record). The PHRASE ID for the telephone company must be entered on the NPAMAP form (5414 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
NPAMAP	5414	3	4O	26.1
SFSYS	5713-1	3	5AR	8.22

NPAMAP form (5414 Record) - This form is used to assign an SM, trunk group, exception area index and a LATA to an NPA-NXX combination. The PHRASE ID field contains the phrase ID for the Independent Operating Company branding name.

SFSYS form (5713-1 Record) - This form is used to enable secured features. To enable ICO, SFID 95 ACT field must be set to "Y".

SEC. 4A96: ORIGINATING LINE SCREENING - CUSTOMIZED MARKET ANNOUNCEMENTS

1. BACKGROUND

Currently, OSPS provides a service called AHIT (Automated Hotel Identification Text) to its customers, through which operators provide branding announcements for hotels. When a call originating from an applicable hotel phone comes to an OSPS position, AHIT OLS text data is displayed on the screen to prompt the operator to give a branding announcement. After providing service on the call, the operator would say to the caller, for example, "Thank you for using AT&T and enjoy your stay at Holiday Inn!". The OLS-CMA special feature provides an AHIT-like branding announcement on ACCS calls for businesses and companies.

2. FEATURE DESCRIPTION

The feature number for this capability is 98-5E-2036. This feature is available for 5E8 and later.

The OLS-CMA feature provides branding announcements for eligible customers on initial ACCS calls. Each customer is provided with up to 20 announcement headers, with which the customer can provide 20 basic messages. Each of these messages when followed by a specific company name phrase, will be used to provide a branding announcement for that company.

The phone numbers for which the OLS-CMA branding announcement applies are populated in OLS, and two new fields have been added; one field points to 1 of 20 announcement headers, and the other new field points to a single RAF phrase that identifies the company name. When a call from an applicable customer comes into the OSPS position, an OLS check is performed, screen information related to the current back number is retrieved, and the associated screen code is written to the call record.

2.1 Interfaces with Existing Announcement Treatments

The OLS-CMA feature interfaces with existing announcement treatments in the following way:

- OLS-CMA announcement is played after the existing Thank You announcement. If there is no Thank You announcement or there is an unbranded Thank You, OLS-CMA replaces it with the default AT&T branding.
- The OLS-CMA announcement does not interact with ICO branding feature. ICO applies to intraLATA calls originating from the Article 4 ICO's service areas, the call owner is not the same as the switch owner and is for the LEC market. OLS-CMA, on the other hand, applies to calls that are marked 288 (AT&T) and call owner is the same as the switch owner. Therefore, the OLS-CMA feature is not used on ICO intraLATA calls, and vice versa.

3. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for the OLS-CMA feature.

To provision the OLS-CMA feature:

1. The TCA (Telephone Company Administration) must ensure that customized announcement board is correctly installed.

2. Phone numbers using the OLS-CMA feature should be populated in OLS.
3. The OLS-CMA secured feature must be activated. (The SFID ACT 96 field is set to "Y" on the SFSYS form.)
4. The ACCS BRAND PHRASE and INIT THANK YOU fields on the OSPSOPT form (5424 Record) must be "Y". Also, "TANN" should be entered in the ACCS 2 field.
5. The announcement header ID and associated phrase IDs must be entered on the ANNHD form, and the PHRASE ID must be entered on the PHRASE form.
6. The ANNC HEADER ID and PHRASE ID fields on the SCRNCODE form must be entered. These two new fields were added to the SCRNCODE form for customized branding announcements.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SCRNCODE	5415	3	4P	26.3

SCRNCODE form (5415 Record) - This form is used to define billing restrictions on the back number. The new fields ANNC HEADER ID and PHRASE ID were added for OLS-CMA.

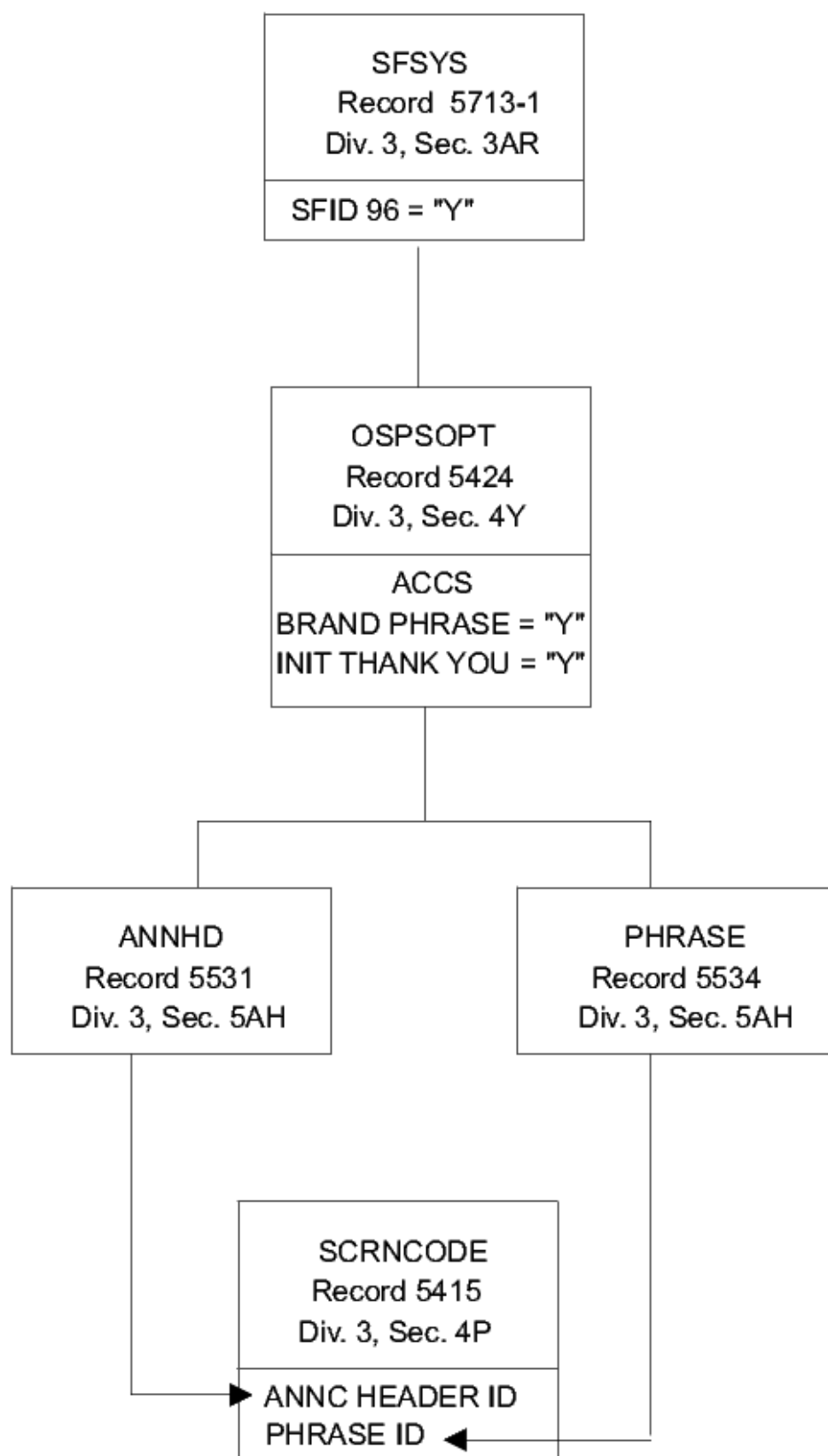


Figure 1 FORM FLOW FOR OLS - CMA**SEC. 4A97: ORIGINATING LINE SCREENING FOR DIRECTORY ASSISTANCE CALL COMPLETION****1. FEATURE DESCRIPTION**

The OLS for DACC (Originating Line Screening for Directory Assistance Call) feature number for this capability is 98-5E-2060. This feature is available for 5E8 and later.

This feature provides the ability to enter OLS restrictions for LSCC (Listing Service Call Completion) calls into the 5ESS Switch. It also provides the ability to pass these restrictions to an EIS (External Information System) vendor, so that the vendor can provide the proper call completion announcements. This is needed so that customers who are not offered call completion are not billed by a method which may later be determined invalid. The OLS restrictions are the following:

- No restrictions, i.e., allow all billing methods on the call.
- Sent paid is denied.
- Alternate billing is denied.
- Only auto-collect billing allowed.
- Deny all call completion to the back number.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for the OLS DACC feature.

This feature is a secured feature and is activated by setting SFID ACT 97 field to "Y" on the SFSYS form, 5713-1 Record. If this feature is turned on then SFID ACT 75 field (Phase 1 of OLS before DACC) is automatically overridden.

The back number and screen code must be entered on the LINESCRN form (5416 Record).

The class of charge restrictions must be entered on the SCRNCODE form (5415 Record).

3. CALL SCENARIO

The following is a call scenario for OLS for DACC.

1. The customer dials 411 from a hotel line to get Directory Assistance.
2. The call is routed to the OSPS, and OLS indicates that the call is a hotel call. The call is marked as restricted against Sent Paid LS Call Completion.
3. OSPS routes the call to an available LS operator. At this point a position seizure message is sent to the EIS informing the EIS of the OLS restrictions on the call. (No Sent Paid)
4. The operator determines that the calling customer wants the number to "Pizza Restaurant" and keys the listing information into the LSDB (Listing Services Database).

5. The EIS displays all the "Pizza Restaurant" information from that area.
6. The operator then keys the line designator for the "Pizza Restaurant" requested and presses the release-to-audio key.
7. The calling party is routed to an ARU trunk where the EIS provides the listed number announcement. This announcement is followed by an announcement, "This call can be completed for an additional charge. Please press 1, if you wish to automatically complete this call."
8. The customer keys 1 to indicate that he/she would like to complete the call.
9. EIS checks the restrictions and determines that sent-paid is not allowed. The only billing methods allowed are either alternate or auto-collect. Since Pizza Restaurant has not subscribed to Auto-collect billing, the caller is provided with the announcement, "Please press 0 if you wish to complete the call using alternate billing."
10. The customer presses 0 to indicate alternate billing.
11. The EIS formats a message to the OSPS indicating to complete the call using an alternate billing method.
12. OSPS receives the indication for call completion and once again checks the OLS data if alternate billing is allowed. Since this billing method is not restricted, the calling party is routed to a DSU2-RAF which provides a bong tone.
13. The calling party enters the calling card. The call is completed to the listed number.
14. Both parties hang up and an AMA record is written with an LSCC module appended to indicate that LSCC had been provided.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SCRNCODE	5415	3	4P	26.3
SFSYS	5713-1	3	5AR	8.22

SCRNCODE form (5415 Record) - This form is used to define billing restrictions on the back number. Three fields were added to SCRNCODE for the OLS for DACC feature.

- DACC PAID field indicates if paid billing is allowed.
- DACC ALT BILL field indicates if alternate billing is allowed.
- DACC ALLOW indicates if DA Call Completion is allowed.

SFSYS form (5713 Record) - This form is used to enable secured features. To enable OLS DACC, the SFID ACT 97 field must be set to "Y".

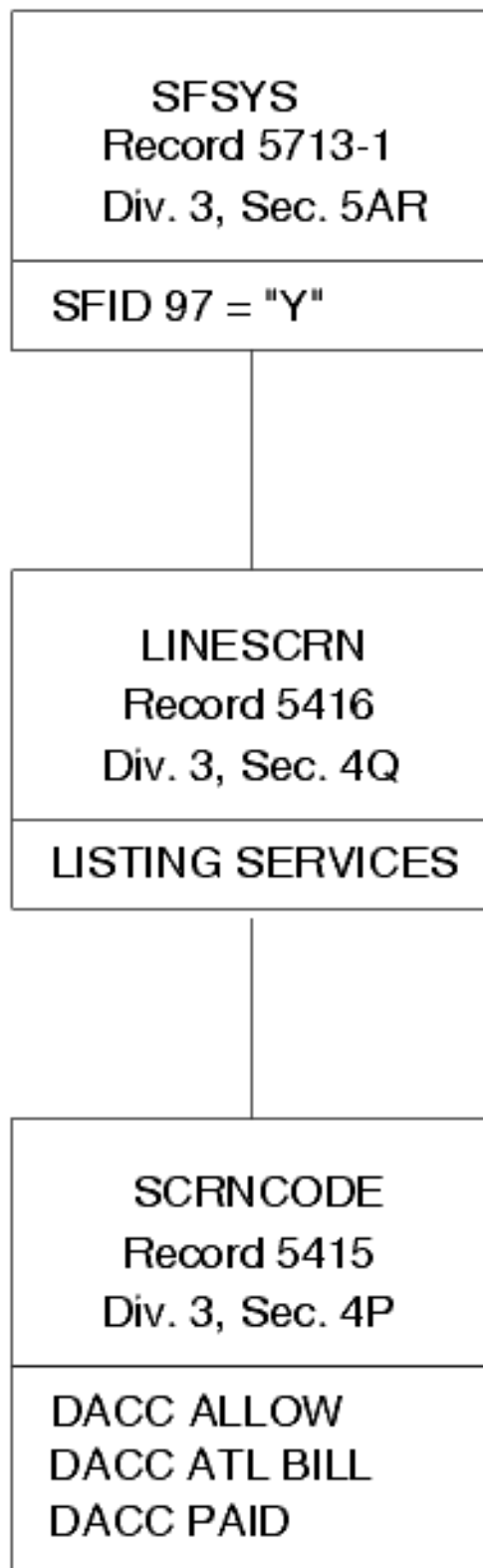


Figure 1 OLS FOR DACC FORM FLOW

SEC. 4A101: OSPS INTERNATIONAL BILLED NUMBER SCREENING

1. FEATURE DESCRIPTION

For 5E8 and later Software Releases, this feature allows an International operator to access an OSPS to perform a billed number screening check on a collect billing number. The billing number must be in the North American numbering plan format and be 10 digits. The OSPS automatically sends a LIDB (Line Information Data Base) query and provides the query results to the International operator via an announcement. This feature only allows queries to a LIDB data base. An announcement indicating that "the service is unavailable" is given if the data indicates that the query should be sent to a BVA (Billing Validation Application) data base.

The international operator may access the OSPS with inward codes of 1173 (Multifrequency signaling) or 1175 (Dual Tone Multifrequency signaling).

Initial digit timing will be 15 seconds. Initial digit timing for all other inward validation remains at 60 seconds.

NCD queries are sent in parallel with the LIDB BNS query if the OFFICE TYPE parameter on OFCOPT form, view 8.1, is set to "Y" indicating a Toll Switch.

1.1 Scenario

The following is an IBNS scenario.

1. The international operator accesses an OSPS by dialing the proper prefix plus 1173 or 1175, depending upon the signaling available to the international operator.
2. The OSPS prompts the operator to enter a billing number.
3. After successful entry of a 10-digit number, the OSPS determines that an LIDB BNS query should be sent. An NCD query will also be sent if the OFFICE TYPE parameter on the OFCOPT form, view 8.1, is set to "Y".
4. Upon analyzing the query reply results, an announcement will be played for either a billing allow or an invalid number. The international operator is then disconnected.

2. FEATURE ASSIGNMENT

2.1 Announcement Headers

The following new announcement headers have been defined for this feature. Phrases are assigned for each header ID on the ANNHD form, view 8.61.

- Initial prompt announcement:
Announcement ID 176 - Recommended phrase is
"Please dial now."
- First incorrect attempt at billing number entry:
Announcement 177 - Recommended phrases are
"Invalid Number. Please dial again now."

- Second incorrect attempt at billing number entry:
Announcement ID 178 - Recommended phrases are
"Invalid Number - Please hang up."
- Query reply indicates allowed billing:
Announcement ID 179 - Recommended phrase is
"Billing Allowed."
- Query reply indicates billing number is denied:
Announcement ID 180 - Recommended phrase is
"Invalid Number."
- Office data indicates query goes to a BVA database:
Announcement ID 181 - Recommended phrase is
"The service you have requested is not available."

2.2 Office Parameters

The IIW INDET DNY field was added to the OSPSOPT form, view 8.9. This parameter indicates if indeterminate replies should be given "deny" treatment.

An attempt to send an NCD query will be made in parallel to the LIDB BNS query, if the OFFICE TYPE parameter on the OFCOPT form, view 8.1 is set to "Y".

2.3 Digit Analysis Tables

The inward codes of 1173 and 1175 may need to be added in the digit analysis tables, LDIT form, View 9.3.

2.4 Secured Feature.

The OSPS International Billed Number Screening special feature is a secured feature. The FEATURE ID 101 must be activated on the SFSYS form, view 8.22.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

3.1 Translations

ANNHD form (5531 Record) - Default data has been added for announcement header IDs 176 - 181.

OSPSOPT form (5424 Record) - This form is used to define OSPS global office parameters. The IIW INDET DNY field was added to the OSPSOPT form, view 8.9. This parameter indicates if indeterminate replies should be given "deny" treatment. The default value is "N", which indicates that IBNS indeterminate query reply treatment results in "allowed" treatment. This parameter should be changed if "deny" treatment should be given indeterminate query replies.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To enable IBNS, FEATURE ID 101 must be set to "S".

SEC. 4A102: 0- TRANSFER OVER FEATURE GROUP D TRUNKS

1. FEATURE DESCRIPTION

Prior to this feature, if a LEC operator received a call that was an IC (Interexchange Carrier) call, the call was either transferred to the IC or the operator would give instructions to the customer on how to reach the carrier.

1.1 TRANS-0-SEND Capability

Available for 5E8 and later, this feature allows the LEC operator to use the TRAN-0-SEND capability to transfer calls to any IC supporting FGD (Feature Group D) signaling. TRANS-0-SEND is the action of transferring a call to the number 0. If the operator enters 288, or enters AT&T as the carrier and uses TRAN-0-SEND to transfer the call, the call is routed over ISP trunks. To transfer calls to non-AT&T carriers, the operator transfers to a 10-digit number that is recognized as operator services by the IC. The 10-digit number is necessary because non-AT&T carriers do not support ISP signaling. If a carrier other than AT&T is entered and TRAN-0-SEND is used to transfer, the call is routed over FGD trunks to the carrier, i.e., (KP+II+ANI+ST)+(KP+0+ST) is outpulsed to the carrier. In both cases, the OSPS generates billing access records using structure code 00625 or 00627 and call type code 110 (InterLATA sent paid). Because the OSPS is not the billing office, it does not do a TRD (Timed Release Disconnect).

1.2 Feature Group D Coin Calls

When a coin call is transferred to a carrier that only accepts FGD (Feature Group D) signaling, the carrier is unable to tell that the call is coin since there is no indication in the signaling. This allows unrestricted billing capabilities which may lead to fraud. This feature provides the carrier with an indication that the call is coin by changing the ANI digits to 27 when TRAN-0-SEND is used on a coin call. In addition, for coin calls, the OSPS turns flash capabilities off and leaves the DTMF (Dual Tone Multi-Frequency) pad enabled throughout the call while the OSPS has control of the DTMF pad. Therefore, the initial deposit can be returned if necessary.

2. FEATURE ASSIGNMENT

This feature must be activated on SFSYS form or Recent Change view 8.22. The Secured Feature ID is 102.

The CIC information must be populated on the DIOPR form or 26.25 view.

If the call is from a coin phone and is transferred to a non-AT&T carrier, the OSPS changes the ANI digits to 27 to indicate to the IC that the call is from a coin phone. On the OSPSOPT form or the Recent Change View 8.9, the LEC has the ability, on a per-switch basis, to control whether or not the ANI digits should be changed to 27.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

3.1 Translations

OSPSOPT form (5424 Record) - This form is used to define the OSPS (Operator Services Position System) office option global parameters. The ID COIN LINE field determines if coin lines are identified on FGD TRAN-0-SEND. If this field is "Y", the ANI INFO digits on coin lines are signaled to the IC as 27 when FGD TRAN-0-SEND is used.

SFSYS form (5713-1 Record) - This form is used to activate Secured Features. To activate the 0- Transfer Over Feature Group D Trunks feature, enter "S" for FEATURE ID 102.

SEC. 4A103: APPLICATION PROCESSOR LINK DIVERSIFICATION

1. BACKGROUND

Without this feature, an AP (Application Processor) can connect up to 16 API (Application Processor Interface) links to a single SM (as defined on the DSLAP form (5963 Record)), and up to 96 links total from multiple 5ESS Switches. However, an AP can interface to only one ISDN SM on any one 5ESS Switch. If that SM, or the data links to the AP from that SM are removed from service, the AP cannot communicate with the 5ESS Switch.

2. FEATURE DESCRIPTION

Available with 5E8 and later, the AP Link Diversification feature has feature number 99-5E-1071. It is a Secured Feature using SFID (Secured Feature ID) 103 and must be purchased to be activated.

This feature enables a single AP to interface with two ISDN SMs on the same 5ESS Switch. Thus, data for a second set of 16 API links is allowed to be defined from an AP processor to a different ISDN SM on the DSLAP form. If an AP SITE ID defined on the DSLAP form has this secondary AP SITE ID (SEC AP SITE ID) entered, this feature will be invoked whenever the communications path through the primary ISDN SM is blocked. The SM number entered on this second DSLAP form would then be used as a secondary (backup) SM for routing purposes. Data would be transmitted to the AP processor and this secondary ISDN SM. This ensures that a problem with a single SM or its AP data links will not result in an interruption of service from the AP.

NOTE: The secondary AP SITE ID number does not refer to a separate physical AP processor. Rather, it is being used as a means of identifying another set of links from a different ISDN SM to the same physical AP processor. All AP SITE IDs must be unique.

3. FEATURE ASSIGNMENT

This feature is a Secured Feature and must be purchased before activation. SFID 103 on the SFSYS form (5713-1 Record) must have the field ACT set to "Y" to activate the feature.

A secondary AP SITE ID (SEC AP SITE ID) can be entered on any existing DSLAP form. However, the secondary AP SITE ID must be defined on its own DSLAP form with

- a different SM number,
- SEC AP SITE ID blank,

- PRIM E911 SITE set to "N",
- SEC E911 SITE set to "N",
- the same ISVM value.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
DSLAP	5963	6	6A	24.7
DSLAP	5963	6	6A	24.7

DSLAP form (5963 Record) - This form is used to define the data links connecting an AP and the 5ESS Switch. Each AP is connected to one ISDN SM with DSL data links. The field SEC AP SITE ID was added for this feature. This field defines the secondary AP SITE ID for this processor which has been used to define backup links to a separate ISDN SM.

SEC. 4A104: OSPS AMA RECORDING OF CALLS FROM WIRELESS SERVICE PROVIDERS

1. FEATURE DESCRIPTION

The OSPS AMA Recording of Calls from WSP (Wireless Service Providers) feature is available for 5E8 and later Software Releases. It allows the TCA (Telephone Company Administration) to administer a new attribute in trunk group data that identifies a trunk group as a WSP. All calls that arrive at the OSPS from this trunk group are treated as WSP calls. When this feature is active, calls over WSP trunk groups are AMA recorded with a unique module to define the wireless service for billing.

1.1 Replaces Method Used by 0+800 Calls from WSP

Once the AMA Recording of Calls from WSP feature has been activated, the 0+800 Calls from WSP Special Feature method used to identify WSP calls will no longer apply. If the AMA Recording of Calls from WSP feature is deactivated for any reason, the OSPS will revert back to the previous mechanism of identifying Wireless Service Providers if the OLS code data still exists in ODD. In the 5E9(1) Software Release, the previous mechanism will be removed.

1.2 Scenarios

The following are scenarios for this feature.

1.2.1 Automated Call:

The caller enters a valid 0+ call from a wireless service provider which has contracted with the OSPS and receives the ACCS (Automated Calling Card Service) treatment with a prompt announcement. The caller enters a valid card number, and the call is outpulsed to the called number. At completion of the call, an AMA (Automatic Message Accounting) record is made reflecting the appropriate billing for a WSP 0+ call.

1.2.2 Operator Handled Call:

The caller enters a 0- call from a WSP which has contracted with the OSPS. The call arrives at an OSPS operator position. The operator enters a valid forward number and the appropriate billing information allowed by this feature, and releases the call. At the completion of the call, an AMA record is made reflecting the appropriate billing for WSP.

2. FEATURE ASSIGNMENT

Populate data for the ACCS for 0+ Calls from WSP Special Feature. See Division 2, Section 4A79 for more information on ACCS for 0+800 Calls from WSP.

To implement the AMA Recording of Calls from WSP, the following data is required.

2.1 Define TGN as Wireless

On the OPRTK form (5417 Record) view 26.26, set the wireless indicator field, WIRELESS, to "Y" for the TGN (Trunk Group Number) that is dedicated to the WSP.

2.2 Secured Feature Activation

This is a secured feature. It is activated by setting the FEATURE ID 104 on the SFSYS form (5713-1 Record) view 8.22 to "S".

2.3 OSPS Office Parameters

The feature also requires that the WIRELESS REC field on the OSPSOPT form (5424 Record) view 8.9 be set to "Y" to activate this feature.

- **NOTE:** When activated, this feature supersedes the functionality of the ACCS for 0+800 Calls from WSP Special Feature. Once it is permanently activated, the TCA may deactivate the previous WSP feature by setting the WL SCR CODE 1 and WL SCR CODE 2 fields to null. (These fields will be removed from the form/view for 5E9(1).)

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

3.1 Translations

OPRTK form (5417 Record) - This form is used to define the common information and type of traffic over each trunk group that can access an OSPA operator. The WIRELESS field must be set to "Y".

OSPSOPT form (5424 Record) - This form is used to define the OSPA office parameters. The WIRELESS REC field must be set to "Y".
SFSYS form (5713-1 Record) - This form is used to activate secured features. FEATURE ID 104 must be set to "S".

SEC. 4A105: CENTREX PRIMARY RATE INTERFACE ENHANCEMENTS

1. FEATURE DESCRIPTION

The CENTREX PRI (Primary Rate Interface) Enhancements feature is a secured feature with secured feature ID 105 and having AT&T feature number 99-5E-1154. Available with 5E8 and later Software Releases, this feature provides the ability to assign tie trunk features to a trunk group with PRI D-channel (Q.931) signaling. In previous software releases, trunk groups with MF (Multi-Frequency), DP (Dial Pulse), and touch tone

signaling can be assigned the following tie trunk features:

- PFA (Private Facility Access)
- ARS (Automatic Route Selection)
- IDPs (Individual Dialing Plans)
- SC (Speed Calling)

With the CENTREX PRI Interface Enhancement feature, these same capabilities can be assigned to a PRI trunk or PRI trunk group when the SFID 105 feature has been purchased (i.e., the ACT field for SFID 105 is set to "Y") and the Trunk Group (TGN) is defined on the TKGRP form with a Trunk Service Class (TRKCLASS) of "EDSL" or "EDSLHM".

1.1 Private Facility Access

The expanded PFA feature provides a private PRI communication link between customer locations served by different central offices or PBXs. The feature can be divided into two categories:

- Outgoing to a PRI tie trunk
- Incoming on a PRI tie trunk.

The capabilities necessary for outgoing PFA calls over a PRI have been available since 5E6. With these capabilities an outgoing PRI call originating from an attendant, a station in the terminal group, or incoming tie trunks is activated via dialed access codes ranging from one to five digits. Dial access by stations, PRI trunks, or the attendant is provided by the Dial Access to Private Facilities feature.

The CENTREX PRI Enhancement feature allows similar features for incoming calls coming to the 5ESS Switch over a PRI. When a business has several CENTREX terminal groups located in multiple switches that are interconnected by PRI tie trunks, the subscriber may request the tandem tie trunk dialing feature (part of PFA) to create a Tandem Tie Trunk Network. The tandem tie trunk dialing feature is activated via dialed access codes. All digits collected by the originating line are manipulated and sent as part of the setup message over the PRI by the originating office to the tandem switch. The tandem switch receives and manipulates the digits and routes the call to a remote switch. The call may terminate at the remote switch or the tandemming process may be repeated again, based on the digits dialed by the originating party and the capabilities assigned to the PRI tie trunks in each office.

The following PFA capabilities are not provided by this feature when the call is incoming via a PRI trunk:

- Overlapped outpulsing
- Cut-through dialing capabilities
- ANI (Automatic Number Identification) over Private Facilities
- Radio Paging Access
- Recorded Telephone Dictation

1.2 Automatic Route Selection

The ARS feature allows flexible routing of calls over the first available (non-busy) PRI trunk. Routing is transparent to the end user because routing preference is provisioned via recent change. The ARS feature has been available since 5E6, but only as automatic entry ARS. With CENTREX PRI, ARS can be activated with an access code or with automatic entry, depending upon the ARS capabilities assigned to the lines and PRI trunks in the office.

1.3 Individual Dialing Plan

The IDP feature provides a common group numbering plan for all lines, trunks, and PRI trunks within the same CENTREX terminal group. An incoming call over a PRI trunk may contain one to fifteen digits, ten of which are then manipulated by the group numbering plan. Either the call is routed to the terminating line or the digits are sent as part of the setup message over an outgoing trunk. This feature allows intercom dialing, access to an attendant, attendant control of facilities, and dial access to private facilities between multiple switches linked by a PRI trunk.

1.4 Speed Calling

The SC feature allows a customer to specify a speed calling list containing dialing sequences, each of which is associated with a unique speed calling code. When the switch with this feature receives an incoming call with a valid speed calling code which was sent over a PRI, the system attempts to complete the call to the dialing sequences in the speed calling list. The Speed Calling feature provides the ability to store dialing sequences of up to 32 characters in length.

2. FEATURE ASSIGNMENT

The following are general restrictions applicable to the CENTREX PRI Enhancements feature:

- The MetroHub feature (secured feature ID 60) is required. Therefore, SFID 60 ACT field on SFSYS Form (5713-1 Record) must be set to "S" (5E8) or "Y" (5E9(1) and later).
- No provision is made for the collection of account codes or authorization codes for a CENTREX PRI.
- The VFY:OFC (Verify Office) input command supports PRI trunks which have been assigned IDP and/or ARS. Craft personnel are able to check translations to determine where incoming and outgoing calls will be routed; VRY:OFC does not work with PFA.
- If access codes, "*" and/or "#" digits are defined in a dialing plan used by an EDSL trunk from a 5ESS Switch to a 4ESS Switch, VRY:OFC output will not find this normally valid condition in error even though the AT&T Custom PRI protocol on a 4ESS Switch does not support access codes, "*" and/or "#" digits.

2.1 PFA

- The trunk class for the PRI with the CENTREX PRI Enhancements feature is assumed to be "EDSL" or "EDSLHM". Because "EDSL" or "EDSLHM" trunk classes utilize 23B+D channel signaling, the following private facility classes are not supported:

"PF"

"PFITT"

"PFLASH"

"PFCPE"

- If all private facilities within the group are busy (busy physical facilities), the ability to return reorder tone after dialing a PFA access code is not supported.

2.2 ARS

- The following ARS actions are not supported:

"ARSCP"
"ARSDCT"
"GPACT"
"GPDCT"
"FRLMAIN"
"FRLALT"
"FRLDMAIN"
"DFRLALT"
"DARSCP"

- Similarly, the activate and deactivate use codes for ARS are not supported over the PRI. However, ARS actions "ARSUSE" (ARS use code dialed), "ARS1USE" (ARS use code dialed for dialing plan 1), and "ARS2USE" (ARS use code dialed for dialing plan 2) are supported.

2.3 Speed Calling

- SC preconstructed or constructed features must be assignable to a PRI trunk member or a PRI trunk group via Recent Change. However, the following SC Customer Changeable List features are not assignable to a trunk:

"/SC1CP"
"/SC1CQ"
"/SC1CPQ"
"/SC2C"
"/SC2CP"
"/SC2CQ"
"/SC2CPQ"

- If the PRI is assigned a SC feature, the administration of the SC entries can be done either by the service provider or via CORC (Customer Oriented Recent Changes) from a user directly connected to the 5ESS Switch. CORCs are not supported from the PRI.
- Customer changeable attributes for SP lists are not supported for PRI trunks by this feature. Likewise, the following IDP codes, which are customer changeable for lines assigned with the IDP feature, are not customer changeable for PRI trunks assigned the IDP feature:
 - the ability to change the IDP group carrier,
 - the ability to activate/deactivate the IDP, or

— the ability to activate/deactivate the Alternate Code Treatment.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. The SFID 105 ACT field on this form must be set to "S" (5E8) or to "Y" (5E9(1) and later) to activate the feature.

SEC. 4A106: USAGE SENSITIVE THREE-WAY CALLING

1. FEATURE DESCRIPTION

The USTWC (Usage-Sensitive Three-Way Calling) is being deployed in a software update for the 5E8 Software Release and in the Beginning Managed Introduction of 5E9(1) Software Release.

This feature is a secured, which is controlled by SFID 106 and has feature number 99-5E-1230.

USTWC allows a customer, by dialing an access code, to request the capability of adding a third party to the two-way connection which is established by subsequent dialing. The customer may be charged for each USTWC established and answered. A USTWC Charge Record may be made for each USTWC if the call is not normally AMA recorded or an indication that USTWC was used would appear in the normal AMA record. Provision is also made to allow billing for the USTWC activation. A USTWC Activation record is created if a two-way connection reaches a talking state after the controller dials the USTWC code. Any number of three-way calls may be made during a single USTWC activation; each one is charged. If the originator disconnects with a party on hold, the originator will be rung back to restore the held party to the talking connection. USTWC is stopped when the originator goes on hook, except when there is a held party. USTWC differs from the existing MW (Multi-Way) TWC (Three-Way Calling) feature in the following ways:

1. Assignment of the feature to the user - when USTWC is turned on in an office, any valid terminal can access it without subscribing to it.
2. Access of the feature by the user - to activate usage of the USTWC feature, the user dials the USTWC access code before placing a call. The user must decide in advance that a three-way call will be established.
3. Billing of the feature to the user - the user is billed per usage rather than the flat rate fee charged for subscription TWC. Two types of records may be optionally made -- USTWC Charge records and USTWC Activation records. Generation of each is controlled independently on an office-wide basis.
4. Feature interactions - the user is not allowed to use the feature if already subscribed to any other MW feature or to a TG (Terminal Group) feature. CW (Call Waiting) will be inhibited while USTWC is active on a call.

The following is an end user activation scenario for USTWC. For this scenario, the three parties are designated A, B, and C. Parties A and B represent the stable 2-way call with A being the controlling (calling) party and party B being the terminating (called) party of the original 2-way call. Party C represents the third or added on party.

1. A USTWC customer, party A, requests activation of USTWC by going off hook, receiving dial tone, and dialing the USTWC dialed code. If the dialed code is recognized, special dial tone is returned to party A, and the BRCS feature attempt count for the USTWC feature is pegged.
2. Party A now dials the DN associated with the first leg of the call, that is, party B. When B answers, a normal two-party connection is established. A USTWC Activation Record is made when B answers if USTWC Activation Records are enabled in the office. At this point, the USTWC activation is complete. Party A can now make a three-way call if desired.
3. Party A initiates a switch hook flash. The two-party call is interrupted and B is temporarily placed on hold. Special dial tone is returned to A.
4. Party A dials the second leg of the call, adding on Party C. If C answers, a USTWC Charge Record is made or the Service Feature Field is marked in the existing AMA record for the call if USTWC Charge Records are enabled in the office. The BRCS feature activation count for the USTWC feature is also pegged.

Party A and C are now talking. At this point, if A initiates a flash, B is taken off hold and a three-way call is established. This connection remains until one of the parties abandons the call by going off hook.

5. If A disconnects with a called station party on hold and ring back applies, then party A is rung back.

The USTWC feature is automatically deactivated when the activating customer, party A, disconnects unless there is a party on hold. If a called party is on hold, USTWC is deactivated when the held party goes on hook provided A is still on hook. If the controller goes back off hook to reestablish a call with the held party, USTWC is still active.

Deactivation is not recorded for billing purposes. There are no traffic counts associated with this automatic deactivation.

The following describe abnormal end user interactions. For these interactions, the two parties are designated A and B. Parties A and B represent the stable 2-way call with A being the controlling (initiating, calling) party and party B being the terminating (called) party of the original 2-way call.

1. Error treatment is given if:
 - A. USTWC is not allowed on party A's line because the service class or the feature set is not valid (described below),
 - B. USTWC has a valid service class and feature set but has been denied use of the USTWC feature on MLHLN (described below).
 - C. the originator, party A, dials the USTWC access code, and has subscribed to another flash feature,
 - D. the originator, party A, dials the USTWC access code, and USTWC is already activated on that call,
 - E. the originator, party A, makes an error dialing the USTWC access code or the called party's DN,
2. The originator, party A, is not allowed to flash if the first called party, party B, has not answered.

USTWC is not activated until the called party answers.

3. If the originator, party A, flashes and there are no three-port facilities are available, the flash is ignored.

2. FEATURE ASSIGNMENT

To activate USTWC:

1. Enable the feature by setting the ACT field for SFID 106 on the SFSYS form (8.22 Record) to "Y".
2. Install the USTWC preconstructed feature /MWUS3WC.
3. Allow the new USTWC dialed code action (US3WC) to be assigned to a USTWC feature.
4. On the MLHLN form (5111 Record), USTWC ALW field default is "Y" for all valid terminals. For invalid terminals, USTWC ALW defaults to "N". Valid terminals are those with a service class of "INDIV", "PBX", or "4WINDIV" (MLHLN form LCC, RAX fields where the SERVCL is specified on LCC form) except shared analog terminals, terminals that are "HOT" or "MAN" lines (MLHLN NO DIAL field), or those that have the Calling Line Side Supervision feature (MLHLN form CLSS field).

For every terminal which is valid but which should not be allowed to access USTWC, update MLHLN form field USTWC ALW to "N".

5. Define a USTWC feature, if desired, on OFCOPT or use the new preconstructed feature /MWUS3WC.
6. On the OFCOPT form, set the USTWC fields as follows:

— USTWC FEAT:

To activate the USTWC feature in the office, enter the desired USTWC feature -- either "/MWUS3WC" or the feature constructed on MWFD form.

To deactivate the USTWC feature in the office, enter blank.

The default for USTWC FEAT is inactive (blank). This field cannot be changed from the default unless the USTWC feature has been purchased.

— USTWC ACT:

To make USTWC AMA Activation Records for all USTWC calls in the office, set this field to "Y".

Set this field to "N" if USTWC AMA Activation Records should not be made on USTWC calls.

The default for USTWC ACT is "N". This field cannot be changed from the default unless the USTWC feature has been purchased.

— USTWC CHRG:

To make USTWC AMA Charge Records for all USTWC calls in the office, set this field to "Y".

Set this field to "N" if USTWC AMA Charge Records should not be made on USTWC calls.

The default for USTWC CHRG is "N". This field cannot be changed from the default unless the USTWC feature has been purchased.

7. On the PDIT form, define the USTWC dialed code by setting FEATURE to either "/MWUS3WC" or the feature constructed on the MWFD form and ACTION to "US3WC".

2.1 AMA (Automatic Message Accounting)

A USTWC AMA Activation Record is made when the first called party answers if the USTWC ACT office parameter is "Y". The Structure Code for the USTWC Activation record is 00028; the Call Type is 049.

A USTWC AMA Charge Record is made for an added on party that answers if the USTWC CHRG office parameter is "Y" and there would not normally be an AMA record made for this call. The structure codes for USTWC Charge records are 00001 and 00101; the Call Type is 048. The Service Feature Field in this record is populated with a value of 018.

- **NOTE:** Unlike the Activation Record, this record is generated when the call is disconnected or at midnight in cases where long duration records apply. For more information see the *Billing Features and Specifications* document 235-190-300.

If an AMA record would normally be made for the added on party call, the Service Feature Field in this record is populated with a value of 018 if the USTWC CHRG office parameter is "Y".

- **NOTE:** Unlike the Activation Record, this record is generated when the call is disconnected or at midnight in cases where long duration records apply. For more information see the *Billing Features and Specifications* document 235-190-300.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MLHLN	5111	3	1K	1.6
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular Multi-Line Hunt Group. The USTWC ALW field was added to this form.

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and parameters. The fields USTWC FEAT, USTWC ACT, and USTWC CHRG were added to this form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The SFID 106 ACT field on this form must be set to "Y"

SEC. 4A108: DUAL EMERGENCY SERVICES ADJUNCT FOR E911

1. BACKGROUND

Without this feature, a pair of E911 AP (Application Processor) data links is used to connect one ESA to a 5ESS Switch. This provides redundancy in case of a communications failure on one link. However, it does not

address a failure within the ESA or problems with both AP data links.

2. FEATURE DESCRIPTION

Available with 5E8 and later, the Dual ESA for E911 feature has feature number 99-5E-1401. It is a Secured Feature using SFID (Secured Feature ID) 108 and must be purchased to be activated.

This feature permits a single 5ESS Switch to interface to two ESAs for E911 selective routing service. This feature improves the reliability of E911 service by allowing the use of a second ESA. The secondary link pair need not be on the same ISDN SM as the primary pair. In fact, it is recommended that the secondary link pair be on a different ISDN SM than the primary pair. If communication with the primary ESA fails, the 5ESS Switch will attempt to communicate with the secondary ESA via the second pair of AP links. This prevents a failure with a single ESA (or its AP link pair) from interrupting E911 selective routing.

3. FEATURE ASSIGNMENT

To provision this feature:

- Set the ACT field for SFID 108 to "Y" on the SFSYS form (5713-1 Record).
- Set PRIM E911 SITE to "Y" on a new or existing DSLAP form (5963 Record). Only one form may this this field set.
- Set SEC E911 SITE to "Y" on a second or existing DSLAP form. Only one form may have this field set.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
DSLAP	5963	6	6A	24.7
OFCOPT	5509	3	5I	8.1, 8.15

DSLAP form (5963 Record) - This form is used to define the data links connecting an AP and the 5ESS Switch. Each AP is connected to one ISDN SM with DSL data links.

The field SEC E911 SITE was added for this feature. This field designates a set of links for secondary (backup) E911 ESA. For 5E9(1) and later, the existing field E911 SITE was changed to PRIM E911 SITE.

OFCOPT form (5509 Record) - This form must be completed for a 5ESS Switch and supplies various miscellaneous office options and parameters.

For 5E8 and later, the existing text-only field E911 APID was renamed PRIM E911 APID. The text-only field SEC E911 APID was also added.

SEC. 4A111: AUTOMATIC CALLBACK BLOCKED TO PRIVATE NUMBER

1. BACKGROUND

The LASS (Local Area Signaling Services) AC (Automatic Callback) feature allows a user to call back the number associated with the last call to have alerted the user. A customer can originate Automatic Callback calls from an ISDN terminal by using the AC dialed code or feature button. Analog attempts to invoke AC are dialed code only. The ILHB (Incoming Line History Block) contains information associated with the last incoming call, including the privacy indicator. A call is marked private if the call originator has the All-Call

Privacy feature or uses Per-Call Privacy feature to make the private call. The POLIN (Private Option for the Last Incoming Number) feature also causes an incoming number to be marked as private. Prior to this feature, attempts to invoke AC to a private number were not blocked.

2. FEATURE DESCRIPTION

The Automatic Callback Blocked to Private Number feature is a secured feature using SFID (Secured Feature ID) 111 and must be purchased before being activated. The Lucent Technologies feature number for this feature is 99-5E-1169.

Available with 5E8 and later, the Automatic Callback Blocked to Private Number secured feature allows a switch to block attempts to invoke AC towards a private number by routing the customer to a switch changeable rejection announcement. This feature provides a switch option to block or not block AC calls to private numbers.

When AC is invoked, this feature will check to determine whether the last call had a private number. If the calling number is private, and the AC Blocked to Private Number secured feature has been purchased and active, the call will be routed to an announcement or reorder treatment.

There is no interaction of Calling Name Delivery features with the AC Blocked to Private Number feature since use of a Calling Name Delivery Privacy option on an incoming call will not affect the status of the Calling Number field in the ILHB (assuming that a Calling Number Privacy option is not also involved).

2.1 Scenario

The following is a sample call scenario:

Line A has a LASS AC feature assigned. Line B has All-Call Privacy. The AC Blocked to Private Number Special Feature has been purchased and activated to return an error announcement.

- B calls A.
- A goes offhook.
- A and B talk.
- A and B go onhook.
- A dials the AC code.
- A is routed to the error announcement specified on the LASSOP form.

Without the AC Blocked to Private Number secured feature, the previous call would attempt to route normally and would not be blocked.

3. FEATURE ASSIGNMENT

When this feature has been purchased, it can be activated on the LASSOP form (5945 Record). In addition, the route index of the announcement to be played when AC Blocked to Private Number occurs can also be specified on the LASSOP form.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
LASSOP	5945	5	5F	8.21
SFSYS	5713-1	3	5AR	8.22

LASSOP form (5545 Record) - This form is used to supply global office options and parameters for the LASS features. Two new fields were added. The AC BLOCK TO PRIV field is used to activate the feature. The AC BLOCK RTI field specifies the route index of a switch changeable rejection announcement (or as a switch option to an existing announcement or to reorder tone) to be played when AC is blocked to a private number.

SFSYS form (5713-1 Record) - This form is used to enable secured features. This feature must be purchased, and SFID 111 ACT field must be set to "Y" to enable this feature.

SEC. 4A113: OSPS INTRAFLOW TO INTERFLOW CALL HANDLING WITH INTERFLOW CALL QUEUES

1. FEATURE DESCRIPTION

The feature number for this capability is 98-5E-2087. This feature is available for 5E8 and later, and provides the ability to intraflow calls to an interflow destination and to queue calls for an interflow trunk on the sending switch. This is a secured feature, therefore the SFID 113 ACT field must be set to "Y" on the SFSYS form to activate this feature.

This feature also allows interflow serving teams to be assigned as intraflow supporting teams. These serving teams will follow the same rules as any other supporting teams for call distribution through the intraflow feature.

If the data is translated by the ACD (Automatic Call Distributor) as a serving team that is assigned to an interflow destination and all interflow links on that serving team are busy, this feature allows the ACD to place the call on queue.

2. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for the Intraflow to Interflow Call Handling with Interflow Call Queues feature.

This feature depends on a serving team and call queue being added for each interflow destination. Because of data restrictions for 5E8 and 5E9(1), the data for serving teams 110 through 117 and for call types 110 through 117 are reserved for this feature. These correspond to interflow serving teams 129 through 136.

NOTE: Secured Feature ID 113 should not be activated prior to loading the Software Update.

1. All serving teams in the range 110 - 117 inclusive must be inserted. Insert serving teams 110 - 117 and call types 110 - 117 on OSPSCT form (5404 Record). The call type and serve team number must be the same (i.e., call type 110—serving team 110, etc.). No other call type may have a serving team of 110 through 117 as its primary serving team. Nor may call types 110 through 117 be used as active call types.
2. All call types in the range 110 - 117 inclusive must be inserted. Each call type must point to the corresponding serving team (i.e., call type 110 to serving team 110, call type 111 to serving team 111, ...).

3. No other call type may have a serving team of 110 through 117 as its primary serving team. Nor may call types 110 through 117 be used as active call types.
4. Activate the secure feature parameter. The Intraflow to Interflow Call Handling with Interflow Call Queues feature is a secured feature with SFID 113.
5. Turn on intraflow for the applicable serving teams (i.e., 110 - 117). A feature activation parameter, local to the switch, has been included in the OSPSOPT form (5424 Record).
6. INFLTADP form (5452 Record) will show the interflow destinations and the serving teams which support them in the ISERVTM field.

If the serving teams and call types are inserted and the secured feature parameter is activated, intraflow and the intraflow percentage can be updated to activate intraflow for that serving team (110 - 117) on STINFO form (5402 Record). The intraflow supplemental teams are inserted/updated on OSPSCT form.

NOTE: Interflow calls were not queued before this feature. Therefore, check the queuing information on OSPSCT form for valid data of service objectives, delay thresholds, and announcement route indices.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
INFLTADP	5452	3	4BA	27.52
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

INFLTADP form (5452 Record) - This form is used for Destination (outgoing) Interflow Serving Team information for OSPS (Operator Services Position System). This form defines the interflow destinations and associates them with B- and D-channels. The ISERVTM field shows the interflow destinations and the serving teams which support them.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. INTRA TO INTER is the feature activation parameter, which is local to the switch.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The SFID 113 ACT field must be set to "Y" to activate this secured feature.

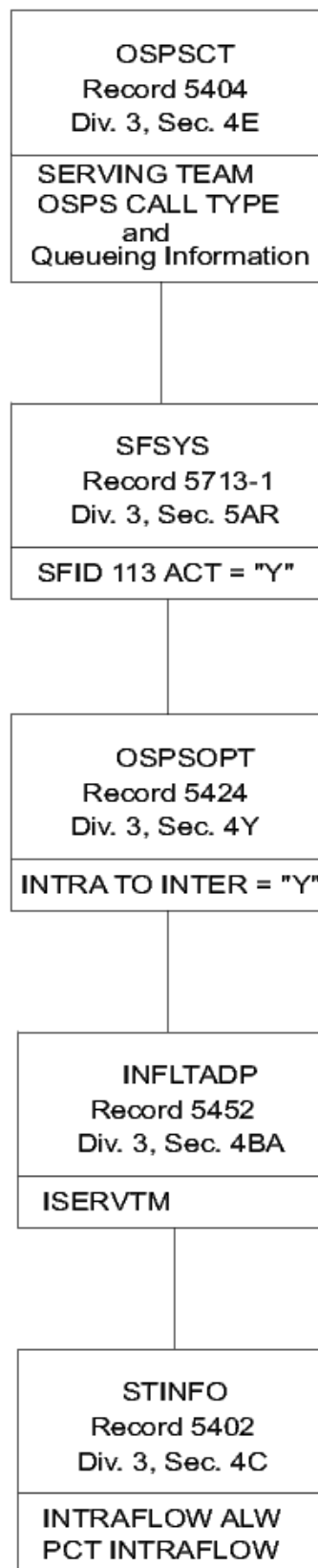


Figure 1 INTRAFLOW TO INTERFLOW CALL HANDLING WITH INTERFLOW QUEUES FORM FLOW**SEC. 4A114: ISDN PSAP SUPPORT****1. FEATURE DESCRIPTION**

The feature number for the ISDN PSAP (Public Safety Answering Point) Support feature is 99-5E-1505. Available for 5E8 and later, this feature provides the ability to assign a BRI (Basic Rate Interface) as a voice connection to a PSAP and have it, together with a PC (Personal Computer), provide all the functionality that currently exists with a CAMA PSAP. This is a secured feature; the SFID 114 ACT field on the SFSYS form must be set to "Y" to activate the feature.

The E911 (Enhanced 911) secured feature (SFID 61) must be available and active before ISDN PSAP Support can be used. The Calling Party Number Delivery on Enhanced 911 Calls secured feature (SFID 116) can be used in conjunction with the ISDN PSAP Support feature. For more information about these features see Division 2, Section 1BD, and Division 2, Section 4A116.

E911 provides switch functionality to recognize E911 originations in an E911 office, launch a query to the ESA (E911 Service Adjunct), and interpret the response message received from the ESA. The normal response message from the ESA is an ESN (Emergency Service Number) that the switch translates into a Primary PSAP, two Alternate PSAPs, up to six Selective Transfer numbers, and an FCD (Flash Control Digit). The E911 CESID (caller's Customer Emergency Services Identifier) is delivered to the PSAP and is used for access to the ALI/DMS (Automatic Location Information / Data Management System) database to retrieve the caller's information (such as address). With the ISDN PSAP Support feature, the Primary and/or Alternate PSAPs, and any of the Selective Transfer numbers can be ISDN PSAPs, which have full E911 functionality.

For more information on all the features available for the E911 Service please refer to document 235-190-115, Section 9.

1.1 Hardware Requirements

The ISDN PSAP hardware consists of a PC connected to an ISDN 7506 or 7507 (or equivalent) phone via an RS-232 interface. The PC abides by the protocol specified by the ISDN Asynchronous Data Module 2 Feature Package 3.2 API over an RS-232D interface between the PC and the ISDN phone. The PC has an additional interface to the ALI/DMS database or uses B-channel circuit switched data or D-channel packet (if the ALI/DMS has these capabilities) for ALI lookup requests. The BRI line provides voice and E911 CESID to the PSAP position. The ISDN PSAP PC Software is a separate deliverable. Optionally, an ISDN 7500 set to be used for data can be configured on a Multipoint DSL.

1.2 Call Scenario

The call scenario that follows demonstrates a 911 call as it is routed through the E911 system to an ISDN PSAP. In this case the PSAP is a member of a Multi-Line Hunt Group. The caller reports a fire; the PSAP attendant uses the Selective Transfer option to route the call to the appropriate fire department.

- A. A caller dials 911 to report a fire.
- B. The call is routed to the E911 serving switch over a CAMA, PRI, or SS7 trunk.
- C. The E911 serving switch determines that the call is an E911 call and launches a query with the E911 CESID to the ESA (E911 Service Adjunct).
- D. The ESA passes back the appropriate ESN (Emergency Service Number) based on the E911 CESID.

- E. The switch retrieves the routing data associated with the ESN and routes to the Primary PSAP. For this scenario, the Primary PSAP is an ISDN PSAP with an MLHG DN where member 3 is available. The switch hunts and routes the call to member 3 of the MLHG and passes the E911 CESID and the flash control information along with the call.
- F. The PC connected to the receiving attendant's phone launches a query to the ALI/DMS data base with the E911 CESID using a B-channel or D-channel data call over the same ISDN BRI line that received the 911 call. Note that the query is launched even before the call is answered..
- G. The ALI/DMS system returns location information that the PC displays on the screen when the attendant answers the 911 call. Then the attendant can see the ALI data as the attendant interrogates the caller.
- H. Once the attendant determines that the caller is reporting a fire, the attendant presses the selective transfer function key for fire.
- I. The switch uses the selective transfer number for fire associated with the caller's ESN and sets up a 3-way call between that number and the 911 caller. The E911 CESID of the 911 caller, rather than the number of the PSAP initiating the transfer, is passed to the fire department's phone.
- J. When the fire department answers, the transferring PSAP may disconnect to complete the transfer.

1.3 General Feature Characteristics

- An ISDN PSAP DN is blocked from dialing 911.
- When routing an E911 call to an ISDN PSAP, if the ISDN PSAP Support feature is not activated, the call receives alternate routing and an assert is delivered to the craft.
- When routing an anonymous call to an ISDN PSAP, if the ISDN PSAP Support feature is not activated, the call receives reorder and an assert is delivered to the craft.
- When routing an E911 call to an ISDN PSAP, the E911 CESID is sent to the ISDN CPE for display. This display information is used by the PC for the ALI/DMS look-up. An ICI code of "Emr" indicates that the incoming call should be flashed on the PC.
- When routing an E911 call to an ISDN PSAP, DN Privacy is ignored and the E911 CESID is included in the information sent to the ISDN PSAP. Calls routed to administrative DNs (not 911) at the PSAP are subject to DN Privacy.
- Anonymous calls are identified with a "000-911-0000" display. Default Routed calls are identified with a "000-911-0TTT" display where TTT is the ESCO (Emergency Service Central Office) of the caller.
- If a busy non-CAMA PSAP is encountered on an E911 call, ACBC (Automatic Callback Calling) camp-on is not allowed.
- When an ISDN user with multiple call appearances is on a 911 call, LASS (Local Area Signaling Services) AR (Automatic Recall) and AC (Automatic Callback) ringback are allowed.
- When an ISDN PSAP receives an anonymous call, the Incoming Line History Block (if applicable) is updated with the caller's DN and this DN is marked PRIVATE so that LASS cannot be used to get this anonymous caller's number. So, for AC from the PSAP to the anonymous caller, the display shows

"PRIVATE NUMBER."

- Multipoint Digital Subscriber Line is allowed assignment to an ISDN PSAP. B-channel blocking is possible if two or more terminals are assigned to a single B-channel, or if 3 or more terminals are assigned to two B-channels. MDSL supports multiple voice and data terminals (up to 8) on the same BRI. Each ISDN PSAP that is separately connected to the BRI has a unique USOP (User Service Order Profile) and therefore subscribes to the ISDN PSAP features individually. It is recommended that no more than two ISDN PSAPs be assigned to a Multipoint DSL.
- If CPN/BN (Calling Party Number/Billing Number) is assigned to an ISDN PSAP, it does not overwrite the Display IE (Information Element) for E911 and anonymous calls.

1.4 MLHG ISDN PSAPs

The following paragraphs describe ISDN PSAPs arranged in an MLHG.

- The PSAP MLHG DNs (Group DNs, Individual Hunt DNs and Individual No-Hunt DNs) are considered Emergency numbers and, if dialed directly (not by dialing 911), such calls are considered anonymous calls.
- The ISDN PSAP Support feature does not change how MLHG works, but it uses MLHG capabilities such as Group Make Busy to trigger "Alternate Routing" - similar to the Trunk Group Make Busy Keys used on CAMA PSAPs..
- Two types of busy that can be given different treatment are:
 - group make busy key that controls the MLHG, and
 - traffic or maintenance busy indicated by the MLHG member status.
- When forwarding with CFBL, if the forward-to DN is a CAMA PSAP and all trunks are busy, the reroute DNs are attempted. If all reroutes are busy, alternate routing is attempted.

The treatment given is determined by the type of busy detected. When CFBL is encountered, an attempt to route to the forward-to DN is made. The limit of sequentially active intraoffice call forwarding legs that can be used on any call forwarded call is specified by the SEQ ACT FWD LEGS field on the CFBL feature. The default is 5; therefore, 15 routes may be attempted (5 for each of the 3 ESN routes).

- When attempting to complete to an ISDN PSAP with the Group Make Busy key operated, the switch attempts alternate routing as follows:
 - If CFBL is assigned to the MLHG, an attempt to route to the forward-to DN is made first.
 - If neither CFBL nor CFBL-IMB is assigned, or if CFBL is assigned and the destination indicated by the forward-to DN fails, the first Alternate Routing DN is used.
 - If CFBL-IMB is assigned, the first Alternate Routing DN is used.
 - If the destination indicated by the first Alternate Routing DN fails, the second Alternate Routing DN if populated in the ESN is used.
 - If all attempts fail, reorder is returned to the caller.

- When attempting to complete to an ISDN PSAP where all members of the MLHG are busy, the switch attempts Alternate Routing as follows:
 - If no idle member is found and CFBL or CFBL-IMB is assigned to the MLHG, the forward-to DN is used to complete the call.
 - If the forward-to DN fails (i.e., busy or reorder), or CFBL or CFBL-IMB is not assigned, the first Alternate Routing DN is used.
 - If the destination indicated by the first Alternate Routing DN fails, the second Alternate Routing DN if populated in the ESN is used.
 - If all attempts fail, reorder is returned to the caller.

1.5 Individual ISDN PSAPs

When attempting to complete to an individual (non-MLHG) ISDN PSAP where the PSAP is busy, the switch attempts Alternate Routing as follows:

- If CFBL is assigned to the the ISDN PSAP, first the forward-to DN is used to complete the call.
- If the forward-to DN fails (i.e., busy or reorder), or CFBL is not assigned, the first Alternate Routing DN is used.
- If the destination indicated by the first Alternate Routing DN fails, the second Alternate Routing DN if populated in the ESN is used.
- If all attempts fail, reorder is returned to the caller.

1.6 Selective Transfer for ISDN PSAPs

The following paragraphs describe Selective Transfer for ISDN PSAPs.

- Selective Transfer provides switch functionality to transfer an established E911 call from a primary PSAP to an emergency agency based on the transfer information contained in the ESN tuple.
- An ISDN terminal can have up to six possible selective transfer feature buttons. These buttons may be used from any PSAP DN on the terminal. The lamp provides confirmation treatment for Selective Transfer buttons when the CPE is in dial tone state with a call on soft hold. Rejection treatment is given when the selective transfer button is pressed in any other state; e.g., on-hook, talking, or call on hard hold.
- Selective Transfer is applicable when an E911 call has been routed to a PSAP using Selective, Alternate, or Default routing. Since anonymous calls are not processed by the E911 feature software, no ESN information is available, and therefore the Selective Transfer feature is unavailable for anonymous calls to the PSAP.
- When attempting a selective transfer to a CAMA PSAP where all trunks are busy, the reroute DNs are attempted. If all reroutes are busy, busy tone is applied.
- "One-Button" Selective Transfer can be initiated with the PC as follows:

- Select the Selective Transfer function key on the PC.

The result is to place the incoming E911 call on soft hold, initiate the call to the selected location, and conference the incoming E911 call, the attendant, and the transferred-to party together.

- Disconnect to complete the transfer.

- Selective Transfer can be initiated without the PC as follows:

- Push the Conference button on the ISDN CPE. The incoming E911 call is placed on soft hold.
- With auto-hold, the switch selects a new call appearance.
- Push the appropriate Selective Transfer feature button or dial the appropriate Selective Transfer dialed code.
- Push the Conference button again either during ringing or after the secondary PSAP answers. This joins the two calls in a three-way connection.
- Disconnect to complete the transfer.

- Selective Transfer updates the outgoing line history block used for LASS Automatic Recall to "invalid" for AR resulting in Long-term Denial treatment on a subsequent AR invocation.

1.7 Fixed Transfer

The following describes Fixed Transfer which is invoking transfer and then speed calling.

- "One-Button" Fixed Transfer can be initiated with the PC as follows:
 - Select the appropriate Fixed Transfer function key on the PC. The result is to place the incoming E911 call on soft hold, initiate the call to the selected location defined by the speed call number, and conference the incoming call, the attendant, and the transferred-to party together.
- Fixed Transfer can be initiated without the PC as follows:
 - Push the Conference button on the ISDN CPE. The incoming E911 call is placed on soft hold.
 - With auto-hold, the switch selects a new call appearance.
 - Push the appropriate Speed Call button or dial the speed call code.
 - Push the Conference button again and the switch joins the two calls in a three-way connection.
 - Once the other PSAP answers and the primary PSAP disconnects, the transfer is complete.

1.8 Manual Transfer

Manual Transfer allows the PSAP attendant to transfer a caller to another PSAP attendant by dialing a valid

telephone number or the speed calling codes (or pressing a speed call button). Manual Transfer PSAP attendant operation is similar to the Fixed Transfer operation.

1.9 All Transfer/Conference Features

All transfer/conference features have the following in common:

- Transfer can only be on an intra-switch basis if E911 feature operation is to be maintained for the call.

When the transferred-to PSAP is on another switch, and the Handoff capability is used in conjunction with the transfer, the receiving switch sees the transferred E911 call as a new E911 call, with dialed digits of 911 and the original caller's E911 CESID. The receiving switch is responsible for correctly routing the E911 call and for providing E911 functionality.

- Two calls that are both on PSAP call appearances can be merged for conference/transfer; but a call on a PSAP call appearance cannot be merged with a call on a Non-PSAP call appearance.

When conference (or transfer) is invoked while active on a PSAP call appearance, the switch checks to see if there is a soft-held call on a Non-PSAP call appearance. If there is, the conference on the Non-PSAP call appearance is negated and the PSAP conference is allowed. The Non-PSAP call is put on hard-hold.

- If the transferred-to or conferenced-in party is a PSAP, the E911 CESID of the "911 caller" is sent instead of the calling party information about the PSAP initiating the transfer or conference call.
- When an ISDN PSAP transfers an E911 call to a station with B911 Class of Service, and the transfer is completed leaving the original caller connected only to the B911 station, B911 Emergency Ringback and B911 Forced hold capabilities are available if the call originated from a line on the E911 serving switch.

There is no interaction between the Three-way 911 feature and the ISDN PSAP Support feature; i.e., when an ISDN PSAP is the controller of a 3-way call that has added a B911 PSAP, the PSAP can:

- Drop the last added party; i.e., drop the B911 PSAP.
- Transfer the incoming 911 call to the B911 PSAP.
- Allow bridging if the controller is on a Shared Call Appearance.

- If a transfer/conference is unsuccessful and was initiated with the PC, the attendant can activate the DROP function on the PC to restore the connection to the 911 caller. Activating the DROP function is interpreted by the PC as a request to disconnect the transferred-to/conferenced location and restore the initial connection.

If the transfer/conference was initiated without the PC, the attendant can press the Drop button on the CPE and then press the Call Appearance of the original call.

- If any conference attempt fails, the PC informs the attendant that the conference attempt failed. The attendant may choose to wait for answer on the second call and then toggle back to the original E911 call.
- Selective, Fixed, or Manual Transfer is not allowed while in stand-alone because the required conference

circuits are not accessible. The attendant can make the call and toggle back to the E911 call, interrogate the caller, and relay the information to the other PSAP.

Any conferences that are up at the time the RSM goes into stand-alone will be dropped because the conference circuits are not on the RSM.

- Six-Way Conferencing - because an ISDN PSAP cannot have a TG (Terminal Group) feature assigned, it defaults to POTS TG for Multiway filtering. Transferred-to PSAPs also default to POTS TG. Therefore, the transfer of a Six-Way conference looks like an intra-group call and is allowed.
- A conference on a shared call appearance of an ISDN PSAP is always eligible for transfer regardless of whether the controller (member that initiated the conference) is still on the call or whether parties were added by members other than the controller.

A Shared DN member active on a conference call can drop the last added party provided that party was added by the member requesting the drop. This is an existing Shared DN capability that is preserved for ISDN PSAP.

1.10 Call Forwarding Features

The CF (Call Forwarding) features are described below:

- When CF is assigned to an ISDN PSAP DN, the E911 call originator's E911 CESID is preserved and displayed at the forward-to PSAP. The ESN and associated data must be available after forwarding.
- Whenever CF is encountered in routing or transferring an E911 call to an ISDN PSAP, the ICI code of "EMR" is included in the Display IE to indicate that the E911 CESID is to be flashed on the PC screen.
- If CFDA (Call Forward Don't Answer) is assigned to the ISDN PSAPs, this takes precedence over Alternate Routing. That is, the call rings a specified number of times and then attempts to forward to the forward-to DN. If the forward-to DN is busy and has CFBL treatment, an attempt is made to forward again; if the forward-to DN is busy and does not have CFBL treatment, the caller continues to receive audible ringing.

When an ISDN PSAP is forwarded using CFDA (CF Don't Answer), if forwarding fails or, if the last DN of the CF chain is busy or a busy CAMA PSAP trunk group is reached, the base station continues to ring. The reroute DN for a busy CAMA PSAP trunk group is not tried.

- Any CF feature that has TG requirements cannot be assigned to an ISDN PSAP because a TG feature cannot be assigned to a PSAP.

2. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for the ISDN PSAP Support feature.

2.1 Set Up Procedures

- A. Activate the E911 and the ISDN PSAP Support secured features(SFID 61 ACT and SFID 114 ACT must be set to "Y" on the SFSYS form). ISDN PSAPs cannot be defined unless the ISDN PSAP

Support feature is unlocked.

- B. If Shared DN is to be used for supervisory monitoring, activate the Shared DN Bridging onto Conference secured feature (SFID 92 ACT must be set to "Y" on the SFSYS form). This feature allows a Shared DN member to bridge onto a conference. It also allows multiple bridgers on a call. Without this feature, an attempt to create a conference fails when a call is being monitored on a shared call appearance.
- C. Specify the ISDN user as a PSAP.

To guarantee that the PSAP DSLs are initialized as quickly as possible during a retrofit or full initialization of an SM, it is recommended that the PSAP DSLs and the ESA DSL links belong to the lowest numbered DSL groups (in particular, group 0) to take advantage of the current implementation on the switch which initializes DSL groups sequentially starting at DSL group 0 (note that this ordering is NOT a switch requirement - it is the current implementation and is, therefore, subject to change).

An ISDN User can be specified as an E911 PSAP on the DSLUSR form. To make a user an ISDN PSAP set E911 PSAP to "Y". It is recommended that AUTO HOLD and ONE TOUCH be set to "Y".

A Calling Party Number display feature and a Multi-Way Calling feature are also required (but not enforced) for 911 functionality and should be assigned to the user on a LINEFA, BFG, or associated CLUSTR form.

When E911 PSAP is "Y", the following restrictions apply for that user:

1. The user must have Circuit Switched Voice capabilities (CSV must be greater than 0).
2. The user cannot use Series Completion (to or from); SERHLN must be blank and BCK LNK must be "N".
3. The user cannot have suspended origination or termination; SUSO and SUST must be "N".
4. The user must be on a Type A, B, or D Terminal; TERM TYPE must be "TYPEA", "TYPEB", or "TYPED".
5. The user must be on a custom BRI; DSL CLS on the corresponding DSL form must be "PP" or "MP". If the user is on a point-to-point DSL (DSL CLS is "PP"), an ACSR Group must not be specified - to prevent "bumping" the ISDN PSAP into "limbo".

- D. When an ISDN PSAP is assigned to an MLHG, the following applies:

1. On the MLHG form, the MLHG must be marked as a PSAP; E911 PSAP must be "Y".

If an ISDN PSAP is a member of an MLHG, the MLHG must be marked as a PSAP group. When assigning a PSAP MLHG in Recent Change, the MLHG must be marked as an E911 PSAP group before members can be added.

All members of the MLHG must be ISDN PSAPs.

Once members have been added to an MLHG, the E911 PSAP field cannot be updated in Recent Change. The E911 PSAP field can be updated only after all members of the MLHG have been removed.

2. Also on the MLHG form, the MLHG cannot be marked as a Message Service Center; it cannot be marked for Modem Pooling; and MLHG queuing is not allowed.

MSC must be "N"
 MPTYPE must be blank.
 QFEATURE must be blank.

3. On the MLHGFD form, the bearer type must be circuit-switched voice, and HUNT TYPE must be one of the following types: Uniform Call Distribution, Circular Hunt or Regular Hunt.

BEARER must be "VOICE".
 HUNT TYPE must be "UCD", "HTC", or "REG".

4. Secondary-only DN/MLHG-members are supported as PSAPs (within existing restrictions) on terminals where the Primary DN is PSAP.
5. To do supervisory monitoring, Shared DN can be assigned with MLHG. Each member to be supervised needs an Individual DN. The supervisory position has shared call appearances that correspond to the first call appearance of each of the members to be monitored.
6. On the DSLUSR form, if the user is a member of an MLHG, the member cannot be outdial; CKT MEMB must be less than or equal to 2015.

- E. Associate feature buttons with Selective Transfer action. Feature buttons are associated with selective buttons via a Configuration Group on the CFGGRP form. The following entries populate buttons X through X+5 as the feature buttons for the 6 selective transfer numbers associated with the ESN.

BUTTONLIST[n].BUTTON: X
 BUTTONLIST[n].FEATURE: /*
 BUTTONLIST[n].ACTION: SEL1XFER
 BUTTONLIST[n].PARAM: blank

BUTTONLIST[n+1].BUTTON: X+1
 BUTTONLIST[n+1].FEATURE: /*
 BUTTONLIST[n+1].ACTION: SEL2xFER
 BUTTONLIST[n+1].PARAM: blank

BUTTONLIST[n+2].BUTTON: X+2
 BUTTONLIST[n+2].FEATURE: /*
 BUTTONLIST[n+2].ACTION: SEL3XFER
 BUTTONLIST[n+2].PARAM: blank

BUTTONLIST[n+3].BUTTON: X+3
BUTTONLIST[n+3].FEATURE: /*
BUTTONLIST[n+3].ACTION: SEL4XFER
BUTTONLIST[n+3].PARAM: blank

BUTTONLIST[n+4].BUTTON: x+4
BUTTONLIST[n+4].FEATURE: /*
BUTTONLIST[n+4].ACTION: SEL5XFER
BUTTONLIST[n+4].PARAM: blank

BUTTONLIST[n+5].BUTTON: X+5
BUTTONLIST[n+5].FEATURE: /*
BUTTONLIST[n+5].ACTION: SEL6XFER
BUTTONLIST[n+5].PARAM: blank

In addition, GRP TYPE must be "CUSTOM".

To associate the feature buttons defined in the configuration group with the ISDN PSAP, specify the configuration group name in the CONFIG GRP field on the DSLUSR form.

These selective transfer actions can be verified on Recent Change View 23.22 (Call Appearances and Feature Buttons).

- F. Assign an ICLID (Incoming Calling Line Identification) feature to the PSAP (for example /LICNDA and /LIDLXA; however, /DIDLX does NOT work).
- G. Assign additional features.
 - 1. If Shared DN is assigned, the display feature, /LICNDA, is required in order to ensure that the Display IE (Information Element) is delivered to all members of the Shared DN group.
 - 2. Multi-Way Call Transfer Individual All Calls for ISDN, /MWICTIA, is required in order to set up 3-way conferences and allow transfer.
 - 3. Multi-Line Hunt Group is optional.
 - 4. ISDN Six-Way Conference Calling /MWI6WC, if desired, should be assigned to an ISDN PSAP terminal. The PC "Phone Buttons" configuration needs to be coordinated with the feature.
 - 5. ESP (Essential Service Protection) provides priority service to subscriber lines designated by the administrative personnel as "essential". It is recommended that ESP be assigned to ISDN PSAPs by setting the EL field on RC View 23.2 to "Y".
 - 6. Supervisory monitoring can be accomplished using Shared DN. The supervisor can share a call appearance with each member of a PSAP MLHG. The limiting factor is the availability of call appearances on the supervisor's terminal.

7. CFDA (Call Forwarding Don't Answer), CFBL (Call Forwarding Busy Line), CFBL-IMB (Call Forwarding Busy Line - Inhibit Make Busy), CFV (Call Forwarding Variable) are optional.

It is suggested that ISDN PSAPs use the CFBL feature to provide the PSAP-busy reroute capability. This allows the assignment of a DN that is used if all members of the MLHG are busy when a termination is attempted.

The assignment of CFBL also allows calls to busy individual ISDN PSAPs to be rerouted.

- H. The options selected on the PC must be consistent with the features assigned to the line. See CALL-STALKER(R) ISDN PSAP Installation Guide, for details on configuring the ISDN PSAP PC software.
- I. It is recommended that an originate-only call appearance be assigned to the PSAP DN to be used for conference and transfer.

If desired, the customer may configure the E911 call appearances as denied origination. This provides a service similar to that of the existing CAMA PSAPs. If provisioned in this way, it is necessary to provision secondary PSAP call appearances to be used to set up conference or transfer.

- J. Global Recent Change is not supported for ISDN PSAP.
- K. The following paragraphs describe feature interactions with the ISDN PSAP Support feature. Assignment of the following features to an ISDN PSAP is blocked:

- Account Codes
- ASP (Advanced Services Platform)
- ACSR (Automatic Customer Station Rearrangement)
- ARS (Automatic Route Selection)
- Authorization Codes
- CFPF (Call Forwarding over Private Facilities)
- Call Pickup, including Call Park
- ISDN Intercom
- MDR (Message Detail Recording)
- MSS (Message Service System)
- Modem Pooling
- PP (Precedence and Preemption)
- PFA (Private Facility Access)

- Queuing
- Series Completion (both to and from an ISDN PSAP)
- Suspend Origination (block setting to "Y" if ISDN PSAP)
- Suspend Termination (block setting to "Y" if ISDN PSAP)
- TGSR (Terminal Group Station Restriction)
- TOD (Time of Day)

Most of the above features are terminal features and thus are blocked from secondary (administrative) DNs as well as the PSAP DNs. TGSR, Series Completion, PP, and Call Pickup Terminating are assigned to DNs and, if desired, can be assigned to the non-PSAP secondary DNs.

If any of the above blocked features is assigned to an ISDN user, the user cannot be marked as a PSAP.

- L. PSAP cannot be assigned to an ACD Position DN without the Pinnacle ACD E911 feature (refer to Division 2, Section 4A143 for more information on this feature).
- M. E911 PSAP cannot be set to "Y" for Shared Analog. However, this does not prevent a Shared Analog DN from being an administrative DN on an ISDN PSAP terminal.
- N. If a Shared DN is a PSAP DN, the Primary DNs of all terminals that share that DN must be PSAP. Before the DN is shared to a PSAP, it must already be marked as a PSAP; a Shared DN cannot be made an ISDN PSAP.
- O. The ISDN phone is capable of using either B-channel circuit switched data or D-channel packet switched data to access the ALI system.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CFGGRP	5964	6	7A	12.5
DSLUSR	5908	5	1I	23.2,23.8
MLHG	5110	3	1J	3.5
SFSYS	5713-1	3	5AR	8.22
SHTN	5902	5	1C	23.20

CFGGRP form (5964 Record) - This form is used to assign BRCS (Business and Residence Customer Service) feature actions to CPE (Customer Premises Equipment) terminal buttons. The new ACTION values "SELnXFER", where n is 1 - 6, were added to assign selective transfer keys to ISDN PSAP terminals. These keys can be assigned only to terminals on Custom (non-Standard) DSLs.

DSLUSR form (5908 Record) - This form is used to define the TN and status of a DSL user. The E911 PSAP field was added to define the user as an E911 Public Safety Answering Point.

MLHG form (5110 Record) - This form is used to define a Multi-Line Hunt Group. The E911 PSAP field was added to define the MLHG as an E911 Public Safety Answering Point.

SFSYS form (5713 Record) - This form is used to enable secured features. The SFID ACT 114 field must be set to "Y" to activate this secured feature.

SHTN form (5902 Record) - This form is used to assign shared TNs and MLHG members to ISDN terminals. The E911 PSAP field was added to define a secondary only TN or MLHG member as an E911 Public Safety Answering Point.

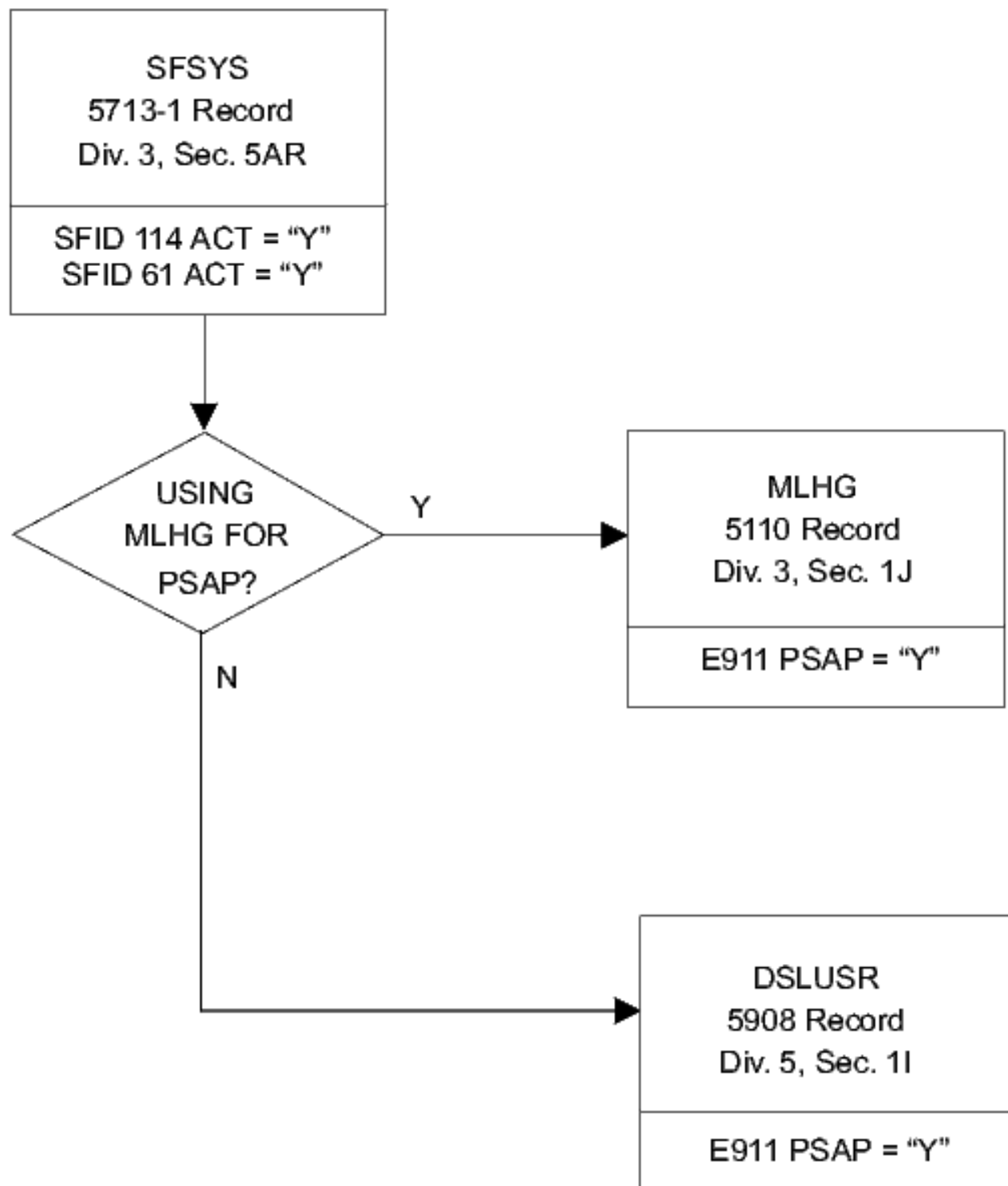


Figure 1 ISDN PSAP SUPPORT FORM FLOW

SEC. 4A116: CPN (CALLING PARTY NUMBER) DELIVERY ON E911

1. FEATURE DESCRIPTION

Available with 5E8 and later, the CPN (Calling Party Number) Delivery on E911 Calls feature has feature number 99-5E-2202. It is a Secured Feature, using SFID (Secured Feature ID) 116, which must be purchased to be activated.

This feature is dependent on the E911 (Enhanced 911) secured feature (SFID 61), which must also be purchased and activated. See Division 2, Section 1BD.

The CPN Delivery on E911 Calls feature specifies on a per office basis whether the BN (Billing Directory Number) or the CPN will be used for ESA (E911 Service Adjunct) queries, PSAP (Public Safety Answering Point) displays, and ALI/DMS (Automatic Location Information / Data Management System) look-ups. This number is referred to as the CESID (Customer Emergency Services Identifier).

To route an E911 call, the CESID used for the ESA query and subsequent ALI/DMS look-up is obtained as follows:

- For calls delivered over CAMA trunks, ANI is used as the CESID. (CPN delivery over CAMA trunks from an end office to an E911 serving switch is not supported. For an end office to take advantage of the CPN Delivery on E911 Calls, SS7 trunks must be used.)
- For calls delivered over SS7 trunks or local lines:
 - If CPN Delivery on E911 Calls has been activated, the CESID is the CPN or BN, depending on the option set for the office.
 - If CPN Delivery on E911 Calls has not been activated, the BN is used as the CESID.
- For calls delivered over PRI trunks, the CESID depends on the option set for the trunk group: CPN or BN. This is not affected by the CPN Delivery Special Feature.
- If the CESID is supposed to be the CPN but the CPN is not available, the BN will be used.
- If the CESID is supposed to be the CPN, but the "nature of address" is not public, the BN will be used.
- If the CESID is supposed to be BN, but BN is not available, the call will be default routed.

The CESID will be displayed at the terminating PSAP.

2. FEATURE ASSIGNMENT

To enable this feature, SFID 116 on the SFSYS form (5713-1 Record) must have ACT set to "Y".

In addition, the E911 CESID field on the OFCOPT form must be set to "BN" or "CPN". The value will be used for E911 calls from lines on the serving switch and E911 calls incoming over SS7 trunks.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
OFCOPT	5509	3	51	8.1

OFCOPT form (5509 Record) - This form is used to define miscellaneous office options and parameters.

The field E911 CESID was added for this feature. This field determines whether the Billing Number or the Calling Party Number will be used for ESA queries, PSAP displays, and ALI/DMS look-ups.

SEC. 4A117: OSPS ENHANCEMENTS TO DA AND DACC FOR WIRELINE AND NON-WIRELINE USERS

1. FEATURE DESCRIPTION

OSPS Enhancements to DA and DACC for Wireline and Non-Wireline Users provides enhancements to the OSPS DA (Directory Assistance) and DACC (Directory Assistance Call Completion) features to allow an OSPS, in cooperation with an LSDB (Listing Services Data Base), to provide improved DA and DACC service on calls delivered to the OSPS by CMC (Cellular Mobile Carriers) and other traffic aggregators such as universities and hotels.

The feature number for this capability is 98-5E-2057. This feature is a secured feature with secured feature ID 117.

The feature allows trunks from CMCs and other aggregators to be marked, so that all DA calls arriving on those trunks (and any subsequent DACC calls) are given special treatment.

It allows Telephone Company Administrations to define a 5-digit ID (Identification Code) for as many as 32 CMCs or other traffic aggregators, and associate an aggregator ID with each incoming DA aggregator trunk. The aggregator ID will then be explicitly identified in the AMA record made for all DA/DACC calls made on those trunks.

It also allows the OSPS to indicate to the associated LSDB that a DA call is from a particular CMC or other traffic aggregator, and thus allow the LSDB to provide custom announcements.

In addition, this feature handles the complications caused by roaming cellular users. An NPA and NXX associated with the MTSO (Mobile Telephone Switching Office) from which calls originate will be entered for each trunk carrying CMC traffic. The MTSO NPA/NXX will be used to perform LATA mapping and Exception area determination.

2. FEATURE ASSIGNMENT

The secured feature ID for this feature is SFID 117. The SFID must be activated the SFSYS form (5713-1 Record) before feature data can be populated.

Separate trunk groups must be defined to carry traffic from each DA aggregator (CMC, university, hotel, etc.) to the DA OSPS. This is required because the aggregator ID for the AMA record is defined in trunk group data.

For CMCs, separate trunk groups must be defined to carry traffic from each LATA and exception area served by the CMC. This is required because the MTSO NPA/NXX used for LATA and Exception Area determination is defined in trunk group data.

Existing DA/DACC growth procedures should be used to grow the necessary trunks to carry DA aggregator traffic. Any of the trunk types which support DACC may be used to carry DA aggregator traffic.

For DA aggregator trunks that have AGGR IS CMC set to "Y", the OPRTK form (5417 Record) must indicate that coin calls are not carried, i.e., COIN and COIN POST PAID are set to "N" and SIG TYPE is "NOCN", and that Originating Line Screening type is not dedicated, i.e., OL SCRIN is not "DED". For all DA aggregator trunks, LSTG SVC TRAF must be "Y".

Once the existing growth procedures for the aggregator trunks are completed, the data for this special feature may be defined.

On the OPRTK form, each aggregator should be assigned an aggregator ID in the range 0-99999 and an aggregator index in the range 0-31. The aggregator ID will be included in the new module appended to the AMA record for each DA/DACC call from the aggregator. The aggregator index will be passed to the LSDB if needed to identify the aggregator.

For each DA aggregator trunk from a CMC, an appropriate NPA/NXX should be determined. The NPA/NXX chosen will determine the LATA and Exception Area index used for calls on that trunk.

The LSDB must be able to identify aggregator-initiated DA calls and provide any special announcements or treatment required.

3. SCENARIO

The scenarios for this feature are identical to those for other DA/DACC calls, with the following exceptions:

- Module 150 will be appended to any AMA records for DA and any subsequent DACC calls.
- The OSPS will not assert if the signaled ANI for a call from a CMC is not found in office data.
- Determination of LATA and Exception Area for DACC calls from CMCs will use the MTSO NPA and NXX from trunk group data.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OPRTK	5417	3	4R	26.26
SFSYS	5713-1	3	5AR	8.22

OPRTK form (5417 Record) - This form is used to define the common information and type of traffic over each trunk group that can access an OSPS operator. An OPRTK form must be completed for each incoming trunk group in the office that can access the OSPS operator.

The aggregator fields on this form are:

- DA AGGR TRK - indicating whether this special feature should be applied to this trunk group
- AGGR ID - the 5-digit ID for the aggregator
- AGGR INDEX - the index of the aggregator
- AGGR IS CMC - indicates if the aggregator is a Cellular Mobile Carrier
- AGGR NPA and AGGR NXX - the NPA and NXX for LATA determination (only allowed for CMC aggregators).

SFSYS form (5713-1 Record) - This form is used to activate secured features. "Y" should be entered in the ACT field for SFID 117.

SEC. 4A118: 15A CASCADING ANNOUNCEMENT

1. FEATURE DESCRIPTION

The 15A Cascading Announcement feature is a secured feature using SFID (Secured Feature ID) 118 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-2211.

Available on the 5ESS-2000 Switch for 5E9(2) and later, this feature provides the capability of connecting the end user to the desired announcement that will start playing next. In order to accomplish this, the 15A unit can be configured with two circuit packs each having eight channels, with each starting the announcements at a different time. The software determines which channel will start playing next and connects the caller to that trunk. For trunk groups connected to the 15A cascading announcement circuits, the calls are routed to the announcement that plays next, thereby minimizing the delay between the camp-on to the announcement trunk and the actual connection to the announcement.

When the announcement is recorded, the 15A frame divides the length of the announcement (maximum of 60 seconds) by eight (the number of trunks) to determine how far apart to begin each announcement. This is all done internally by the 15A frame. All the customer must do is record the announcement.

This arrangement gives the caller the shortest possible waiting time and ensures that the entire announcement is heard from start to finish. This is especially useful when used in conjunction with ACD BRCS vectoring, where multiple announcements are often necessary.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
TKGRP	5202	3	2A	5.1
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features. The 15A Cascading Announcement feature is a secured feature and is activated by setting the ACT field for SFID 118 to "Y" on the SFSYS form (5713-1 Record).

TKGRP form (5202 Record) - This form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form.

The translations for this feature are very similar to those of the 13A announcement trunks. In addition, the new field CASCADING was added to this form. Setting this field to "Y" treats this trunk group as a 15A Announcement trunk group.

When this field is "Y" the MAXCALLS field must be set to 60 on the TKGRP form. MAXCALLS is also listed on the Trunk form (5204 Record) but must still be set to 60. 15A Announcement trunks are also allowed to have the AUD RNG field on the TKGRP form set to "N".

NOTE: Once the data has been setup for the 15A trunk group, the trunks MUST BE REMOVED AND RESTORED before they will be treated as a 15A group. For installation information please refer to the 15A hardware documentation AT&T 201-522-101 that is included with the hardware.

SEC. 4A119: ALTERNATE LANGUAGE LASS ANNOUNCEMENT CAPABILITY

1. FEATURE DESCRIPTION

The Alternate Language LASS Announcement Capability feature gives the 5ESS Switch the ability to provide the LASS DSU2-RAF (Digital Services Unit 2 - Recorded Announcement Frame) interactive announcements in either of two languages on a per-line basis. The LASS Selective Features that support this feature are:

- SCA (Selective Call Acceptance)
- CAR (Computer Access Restriction)
- SCF (Selective Call Forwarding)
- SCR (Selective Call Rejection)
- SDA (Selective Distinctive Alert)

This feature also supports Two-Level AC (Automatic Callback) and Two-Level COT (Customer Originated Trace). A per line subscription option provides the LASS announcements in either the main language (e.g. English) or the alternate language (e.g. Spanish). The office determines which language is the main language for the office.

This feature is secured feature, which is controlled by secured feature SFID 119 and is available for 5E8 and later. The feature number for Alternate Language LASS Announcement Capability is 99-5E-2331.

The alternate language DSU2-RAF announcement packs can be ordered using the existing DSU2-RAF custom announcement process. The announcement phrase IDs (ANNHD form) for the alternate language must exactly match the phrase IDs for the main language. Therefore, the translation from English must be a phrase by phrase translation.

This feature does not modify the order of the phrases used to voice back numbers. For example, the number "21" is voiced back in English (assume that English is the main language) as a combination of the phrase "twenty" followed by the phrase "one." In the alternate language the number "21" must also be voiced back as the phrase for "twenty" followed by the phrase for "one" (with each phrase translated into the alternate language.) It is not possible to have the phrase reversed in the alternate language (i.e., "one" followed by "twenty.")

This feature provides the ISDN displays associated with LASS features in English. (It does not modify the current operation of ISDN displays associated with LASS features.)

The feature does not affect the 13A/14A announcements provided by any of the LASS features.

This feature only modifies the operation of AC (Automatic Callback) if the AC ACT LVL switch parameter on the LASSOP form is set to 2. This feature only modifies the operation of COT if the COT ACT LVL switch parameter on the LASSOP form is set to 2.

2. FEATURE ASSIGNMENT

The following steps are necessary to activate the feature assuming that the main language RAF is currently available:

- Grow in the DSU2-RAF for the alternate language according to AT&T Practices Document 235-190-115, "5ESS Switch Local and Toll System Features Document" section 8. Verify that the Announcement Application SM List (form ANNAPL) for LASS and 2LEVEL is updated to include the SMs which contain the alternate language DSU2-RAF units.

- On the FIXRT form (5301-1 Record), populate the fixed route types "ALSLE" and "AL2LVL" with the route index for the alternate language DSU2-RAF.
- Activate the Secured Feature ID 119 on the SFSYS form.
- For the lines which desire the alternate language, set the line parameter ALT LANG to "Y" on the LINE or MLHLN forms for analog lines or the DSLUSR form for ISDN lines.

When a customer requests one of the LASS features that is supported by this feature, verify on the LINE or MLHLN forms for analog users or DSLUSR form for ISDN users that the correct language is selected by the ALT LANG field. A value of "Y" indicates that the user will be routed to the alternate language DSU2-RAF via the FIXED ROUTE TYPE "ALSLE" or "AL2LVL". A value of "N" indicates that the user will be routed to the main language DSU2-RAF via the fixed route "SLE" or "2LEVEL". The default value for the ALT LANG field is "N" indicating that the main language for the office will be provided by default.

See Figure 1 for feature assignment form flow for Alternate Language LASS Announcement Capability.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2, 23.8
FIXRT	5301-1	3	3G	10.1
LINE	5109	3	1I	1.5, 1.6
MLHLN	5111	3	1K	1.6

DSLUSR form (5908 Record) - The 5908 Records are used for four major purposes:

- Defines the associated TN(s) and status of a DSL user. The OE field on this form is the field that associates a user with a particular DSL.
- Defines the circuit switching (voice and data) attributes of a DSL user.
- Defines the D-channel packet switching attributes of a DSL user.
- Defines the On Demand B-channel packet switching attributes of a DSL user.

The ALT LANG field was added to support this feature. The ALT LANG field is used to specify if an alternate language is to be used for announcements.

FIXRT form (5301-1 Record) - The 5301-1 Record defines the Routing and Charging treatment of Fixed Route Types. FIXED ROUTE TYPE entries "AL2LVL" and "ALSLE" are added to support this feature.

LINE form (5109 Record) - The 5109 Records define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch. The ALT LANG field was added to support this feature. The ALT LANG field is used to specify if an alternate language is to be used for announcements.

MLHLN form (5111 Record) - The 5111 Record defines the individual Terminal Numbers assigned to a particular MLHG. The ALT LANG field was added to support this feature. The ALT LANG field is used to specify if an alternate language is to be used for announcements.

4. GLOSSARY

AC	Automatic Callback
COT	Customer Originated Trace
CAR	Customer Access Restriction
SCA	Selective Call Acceptance
SCF	Selective Call Forwarding
SCR	Selective Call Rejection
SDA	Selective Distinctive Alert

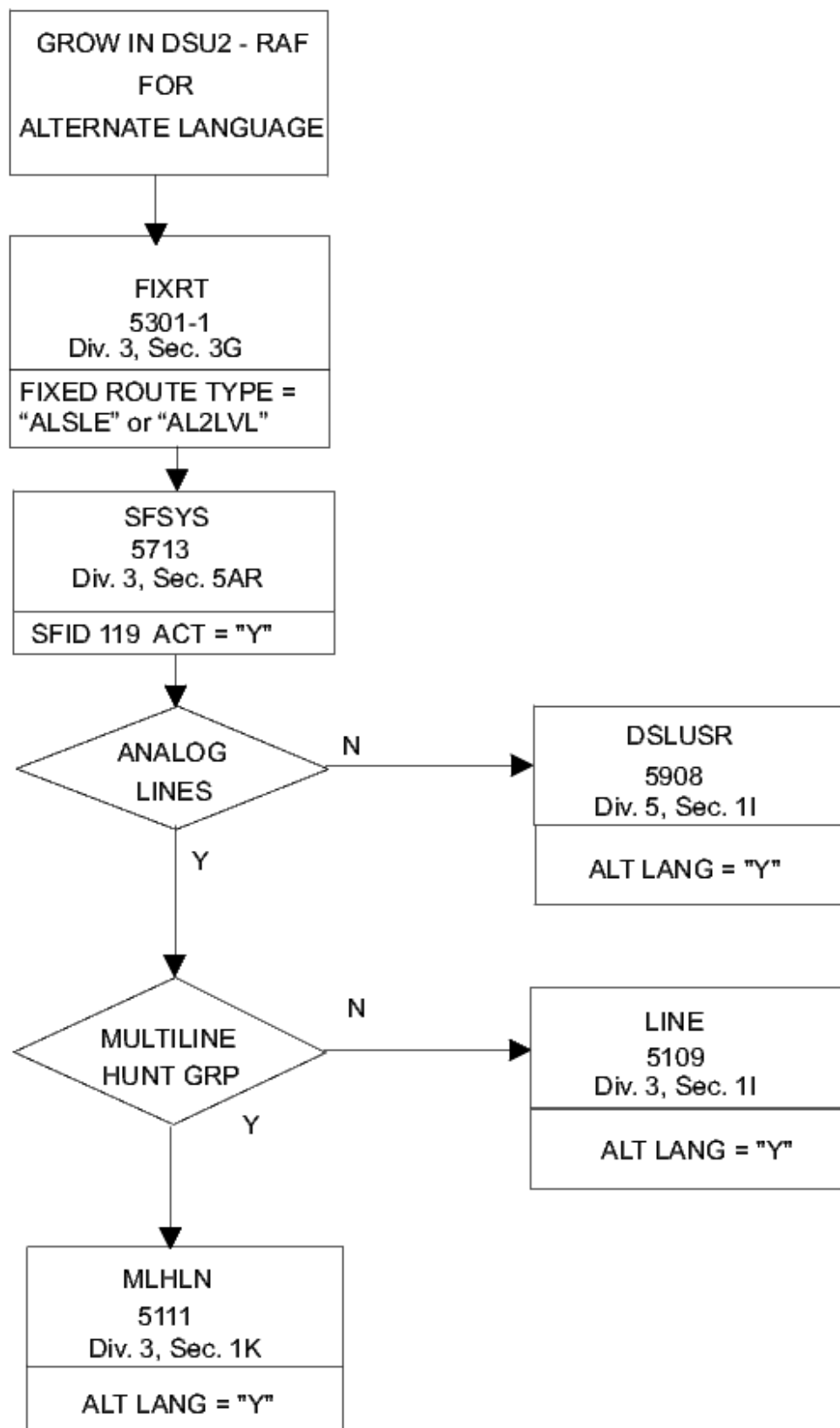


Figure 1 FORM FLOW FOR ALTERNATE LANGUAGE ANNOUNCEMENT CAPABILITIES**SEC. 4A120: ORIGINATING AR/AC DESTINATION POINT CODE****1. FEATURE DESCRIPTION**

The Originating AR (Automatic Recall) or AC (Automatic Callback) DPC (Destination Point Code) feature is a secured feature (SFID 120) for the 5ESS Switch, 5ESS Switch CDX (Compact Digital Exchange), and 5ESS Switch VCDX (Very Compact Digital Exchange) that is available with the 5E14 and later Software Releases. The feature number for this feature is 99-5E-7567.

When an AR or AC session is invoked, the AR/AC Initial Query TCAP (Translation Capabilities Application Protocol) message is sent using GTT (Global Title Translation) SCCP (Signaling Connection Control Part) routing. The STP (Signaling Transfer Point), in conjunction with a Service Control Point (when Number Portability is involved) performs the GTT to derive the DPC of the terminating switch and routes the message. When the originating switch receives a message from the terminating switch subsequent to sending the Initial Query message, the message contains the DPC and Subsystem Number of the terminating switch. Currently, the 5ESS Switch does not store this DPC or Subsystem Number of the terminating switch, but instead uses GTT routing for subsequent TCAP messages. In the latest version of the Telcordia Technologies AR and AC TRs (TR-215 Issue 3, and TR-227 Issue 3) new requirements (R-209 in TR-215 and R-223 in TR-227) were added to require that the originating switch save the Point Code and Subsystem Number of the terminating switch and use Point Code SCCP routing (instead of GTT SCCP routing) for all subsequent messages sent to the terminating switch during the AR/AC session.

2. FEATURE ASSIGNMENT

For 5E14 and later, to enable this feature, the ACT field for SFID 120 on the SFSYS form (5713-1 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features. The ACT field for SFID 120 must be set to "Y" on the SFSYS form to enable this feature.

SEC. 4A121: ACD BRCS - AUTOMATIC CALL DISTRIBUTOR BUSINESS AND RESIDENTIAL CUSTOM SERVICES**1. ACD/BRCS 5E9(1) - 5E10****1.1 Feature Description**

For 5E9(1) and later, this feature gives the ability to use both ACD (Automatic Call Distributor) capabilities and ISDN BRCS (Business and Residence Custom Services) capabilities from the same ISDN station set over a BRI. The BRI interfaces supported for ACD/BRCS secured feature are the Lucent Technologies Type B or Type D terminals. Incoming ACD calls are directed to the agent serving a particular team (hunted calls) who has been idle the most. These calls receive ACD Originating treatment, Call Vectoring, Queuing, and Delay Treatment. For more information on Custom ISDN features see 235-190-105, *Custom ISDN Feature Descriptions*.

1.2 BRCS Features

The BRCS features are allowed for outgoing calls and incoming non-hunted calls. Multiple call appearances and multiple DNs are available to the station set. Shared DN (Directory Number) is not allowed on the primary DN at a terminal to which ACD is assigned (the position DN), but it is allowed on a secondary DN. Position DNs may not be assigned to Multi-Line Hunt group members, nor are Multi-Line Hunt group features allowed on Position DNs. (A Position DN is defined to be a CKT TN (Circuit Telephone Number) on the DSLUSR form with an entry in the ACD POS NUM field. A CKT TN is the primary DN on an ISDN phone position.)

The ACD/BRCS feature eliminates the need for loop around trunks that were used for originations into the ACD from lines, for terminations from ACD agents to lines, and for billing of agent originated calls.

ACD agents can conference and transfer between ACD calls and external parties (outside the ACD), and the ACD agents can transfer a call after a conference has been established. ACD agents can conference and transfer with other ACD agents, or with any other parties to which they can connect. An ACD agent can place an active ACD call on hold to answer a non-ACD call.

Agents can use the 5ESS-2000 Switch ISDN Data Services such as ODB (On Demand B Channel Packet Switching) and PPB (Permanent Packet B Channel Packet Switching). Data calls are not affected by the ACD functionality at the terminal.

1.3 ACD Features

Current ACD functions are maintained, such as MIS (Management Information System) statistics on ACD calls, DAA (Direct Agent Access) by dialing a Directory Number that links to a specific agent, monitoring agents (also known as service observing), the ability to dial agents by an access code plus an agent ID, and the ability to dial queues by access code plus queue number. Also, MIS information is provided on calls to ACD Call Appearances when the DAA agent is not logged in. However, they are tracked against the physical position rather than an agent ID.

This feature also provides the ability to mix ACD agents that are served from the ACD OSPS platform and those that are served from the ACD/BRCS platform on the same switch, which also may include the same customer and serving team.

The following is a summary of the ACD capabilities:

- Incoming ACD calls can be placed in a queue and given call vectoring treatment, which includes the ability to collect digits for the Call Vectoring PROMPT step.
- TGSR screening is provided.
- Forwarding treatment is provided for a DAA agent who is not logged in.
- Monitoring permissions are available for the ability to monitor ACD/BRCS agent's voice calls and the associated displays.

1.4 Call Processing Data Flow

The call processing data flow for ACD/BRCS ACD and DAA DNs, Agent Intercom Calls, Agent login, Agent Makebusy, and Agent monitoring follow.

ACD Hunted Call and DAA DN Call Data Flow - The Customer dials an ACD DN or DAA DN.

1. Perform digit analysis.
2. Route the call.
3. Determine the ACD treatment.
4. For ACD DN: Check the queue to see if it is open or closed.
5. For ACD DN: Queue the call.
6. For ACD DN: Determine the available agent for ACD.

For DAA DN: Determine if the DAA agent is logged in.

7. For ACD DN: Dequeue and deliver the call.
8. Retrieve ISDN/BRCS resources.
9. Select the features for ACD/BRCS position.
10. Offer the call to ACD/BRCS position.

Agent Intercom Call Data Flow - An agent dials the AIC (Agent Intercom Call) code.

1. Perform digit analysis.
2. Determine if called agent is logged in.
3. Locate called agent and deliver call.
4. Retrieve ISDN/BRCS resources.
5. Select features for the agent position.
6. Offer call to ACD/BRCS position.

Agent Login Data Flow - The agent depresses the login button.

1. Route the button request.
2. Check the position status.
3. Light the login and MAKEBUSY lamps.
4. Prompt the agent for login and password.
5. Verify the login, password, and TGID.

Agent Makebusy Data Flow - The agent depresses the MAKEBUSY button.

1. Route the button request.

2. Update the position status.
3. Update the agent status.
4. Light the MAKEBUSY lamp.

Agent Monitoring Data Flow - The Service Observer goes off hook on a non-hunted Position DN call appearance.

1. Depress SO (Service Observing) button (service observer).
2. Route the button request.
3. Check the service observer's preconditions.
4. Update the position status.
5. Light the SO lamp.
6. Prompt the service observer for the target agent.
7. Verify the target agent.

1.5 Feature Assignment

See Figure 1 for data assignment form flow for the ACD/BRCS feature.

The following BRCS features are required for ACD Position Numbers: a CFW feature with FWD CONDITION of "ACDI"; an MW feature with Multiway Control of "3WAY" and Feature Button of "Y"; a TGSR feature; and an IDP feature.

The following BRCS features are not allowed for ACD Position Numbers: ACVT features, ACSR features, and PP features.

No features may be assigned to ACD or DAA Telephone Numbers.

1.6 ACD/BRCS Position Assignment

- Office Set Up -

The new dial access codes for an entire office are entered in the PDIT form (5300-2 Record) and new dial access codes for Business Groups are entered in the IDPDCA form (5601 Record).

- MIS Link -

The MISLINK form (5637 Record) is used to make MIS Link assignments, which provide the capability to provision an MIS Event Link for ACD/BRCS on all valid DSLs (Digital Subscriber Lines).

- Feature Assignment -

An existing feature may be used, or a feature may be constructed for the ACD/BRCS Position. If the feature is included in a cluster the CLUSTER form, (5600 Record) must be updated. If it is included in a

BFG then the BFG form (5625 Record) must be updated. New ISDN feature button configurations are entered in the CFGGRP form (5964 Record).

- Line Assignment -

Terminal assignment is entered on the DSLUSR form (5908 Record). The feature assignment is entered on the LINEFA form for ODA, and on View 23.8 for Recent Change. The Line Parameters are assigned on the CFWLPA, MWLPA, TGSRLPA, and IDPCLPA forms. Secondary DN assignments are entered on the SHTN form (5902 Record).

1.7 ACD Serving Team, Agent, and Call Type Assignment

The serving team is assigned on the STINFO form, view 21.2, with the operator assignment on the OSPSOA form, view 21.4 and the call type assigned on the OSPSCT form, view 21.22.

Displays are entered on the OBSTS form, view 21.26. Call vectoring is assigned on CTECT form, view 21.41.

The ACD TN and DAA TN are defined on the ACDTN form, view 4.15. The ACD TN is a number that is assigned to a serving team, such as the Home Shopping Network number. The DAA TN is a number that is assigned to a specific agent.

1.8 Secured Features

ACD/BRCS is a secured feature and requires that the following SFIDs be set to "Y" on the SFSYS form (5713-1 Record):

- SFID 121 - ACD/BRCS Interworking
- SFID 122 - ACD/BRCS Position Provisioning
- SFID 123 - ACD/BRCS Agent Login
- SFID 16 - OSPS ACD/DAA for DAA
- SFID 64 - Music On Hold
- SFID 4 - Live Mike

1.9 Translation Requirements

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDTN	5631-1	4	32A	4.15 for 5E9(1) - 5E10 6.10 for 5E11 and later
CACDPARM	5458	3	4BF	8.30
CFWFD	5614	4	15A	12.12
CFGGRP	5964	6	7A	12.5
DSLUSR	5908	5	1I	23.8/23.2
IDPDCA	5601	4	2B	9.13
MISLINK	5637	4	32B	23.19 for 5E9(1) - 5E10 6.11 for 5E11 and later
OSPSCT	5404	3	4E	21.22
OSPSOP	5401	3	4B	21.23
PDIT	5300-2	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22
STINFO	5402	3	4C	21.2

ACDTN form (5631-1 Record) - For 5E9(1) and later, this form is used to define an ACD directory number or a DAA (Direct Agent Access) directory number. See Figure 1 for form flow of cross checks for ACDTN.

CACDPARM form (5458 Record) - This form assigns office options and parameters. The following three parameters for the maximum number of simultaneous forwarded calls were added for the ACD/BRCS feature: SIMINTRA, SIMINTER, and CF MAX.

CFWFD form (5614 Record) - This form defines the feature options for Call Forwarding. "ACDI" is the forward condition for ACD/BRCS feature.

CFGGRP form (5964 Record) - This form assigns BRCS feature conditions to the CPE user terminal button. The following action entries were added for ACD/BRCS: AATOG, BITOG, CLTOG, CWLMP, ECUSE, EMUSE, LGNTOG, MBTOG, SAUSE, and SOTOG.

DSLUSR form (5908 Record) - The DSLUSR form defines associated TN and status, the circuit switching attributes, D-channel packet switching, and On Demand B-channel packet switching attributes of a DSL user. For 5E9(1) and later, the ACD POS NUM field identifies an ACD/BRCS position.

IDPDCA form (5601 Record) - This form is used to define the dialed codes associated with IDPs. The following actions were added for ACD/BRCS feature: AAON, AAOFF, AIUSE, AQCUSE, CLON, CLOFF, EMUSE, and SAUSE.

MISLINK form (5637 Record) - This form is used to make MIS Link assignments, providing the capability to provision an MIS Event Link for ACD/BRCS on all valid DSLs.

OSPSCT form (5404 Record) - This form is used to assign OSPS call types. This form has two Recent Change / Verify only fields for ACD/BRCS. The TGID field displays the Terminal Group Identifier if it is assigned to an ACD/BRCS serving team. The ACD OR DAA TN field displays the ACD or DAA telephone number for the CALL TYPE on the OSPSCT form.

OSPSOP form (5401 Record) - This form defines each operator position and assigns the RISLU ports. The corresponding Recent Change/ Verify screen displays the ACD LCEN, ACD POS TN, and the TGID.

PDIT form (5300-2 Record) - The purpose of PDIT is to provide information defining feature and operator access and to provide prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). The following ACTIONS were added for ACD/BRCS: AAOFF, AAON, AIUSE, AQCUSE, CLOFF, CLON, EMUSE, and SAUSE.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The following secured feature IDs should be set to "Y" to activate the secured features associated with ACD/BRCS:

- SFID 121 - ACD/BRCS Interworking
- SFID 122 - ACD/BRCS Position Provisioning
- SFID 123 - ACD/BRCS Agent Login
- SFID 16 - OSPS ACD/DAA for DAA
- SFID 64 - Music On Hold
- SFID 4 - Live Mike

STINFO form (5402 Record) - This form provides information about the serving team. The fields AFTER CALL WK, LIVE MIKE, WARN TONE, and TGID were added for the ACD/BRCS feature.

2. ACD/BRCS INTERWORKING II (5E11 AND LATER)

2.1 Feature Description

To support the trend in today's ACD marketplace for smaller and specialized agent groups which require more

switch queue capacity, this feature expands the current queue limitation and increases the switch capacity for the following switch resources:

- ACD DN (256 - 2048)
- Agent IDs (8999 - 32,767)
- Call Classes (511 - 2048)
- Call Vector IDs (256 - 2048)
- Destination DN (256 - 2048)
- Display Indices (276 - 2047)
- Position IDs (4095 - 9999)
- Queues (128 - 999)
- Queue Slots (5000 - 40000)
- Serving Teams (128 - 999)
- Vectors (1024 - 2048)

This feature is available for 5E11 and later Software Releases. The feature number is 99-5E-2776 for ACD/BRCS Interworking II.

2.2 Feature Assignment

See Figure 2 for feature assignment form flow for ACD/BRCS Interworking II feature.

To improve the maintainability and quality of the ACD product, new Recent Change and Verify views have been developed for administering ACD resources which were previously administered using common views with OSPS.

For 5E11 and later, data entry for ACD/BRCS has been moved to new forms which are specific to ACD/BRCS. To help transition from provisioning in 5E9(1) - 5E10 to provisioning in 5E11, the following table gives a correlation of the 5E10 forms to the 5E11 forms.

5E10 Forms VS 5E11 Forms	
5E10 Form	5E11 Form
ACDTN	ACDTN
CACDPARM	ACDBPARAM
CVDSTTN	ACDVCTN
CVECT	ACDVCT
MISLINK	MISLINK
OBSTS	SZDISP
OSPSCT	CQPARAM
OSPSOA	AGNTID
STINFO	STPARAM

Two new verify only Recent Change views correspond to the 5E10 views as shown below:

5E10 Views VS 5E11 Verify Views	
5E10 View	5E11 View
21.3	
21.32	

2.3 ACD Group

The attribute called "ACDGROUP" allows a centrex customer to define multiple ACD groups and provide security between the groups. This enables the ACD to define separate clients within a Terminal Group and is sometimes defined as client partitioning.

2.4 AIU and MIS Changes

This feature requires co-ordinated changes between the switch, the AIU (Application Interface Unit), and the MIS (Management Information System). The MIS and AIU changes allow existing customers to easily transition from a 5E10 and earlier release to 5E11. The changes to the AIU and MIS software must be installed prior to the installation of the 5E11 Software Release on the 5ESS-2000 switch.

2.5 ICLATA Secured Feature

To add the preferred intraLATA carrier ID for the ICLATA secured feature (SFID 149) to ACD/BRCS, the PTC field on the ACDTN form (5631-1 Record) must be entered in addition to the ICLATA feature being activated on the switch. The PTC field on the ACDTN form (5631-1 Record) provides a second carrier ID for ACD and DAA DNs to provision the presubscribed intraLATA carrier ID.

2.6 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDBPARM	5645	4	32K	6.9
ACDTN	5631-1	4	32A	6.10
ACDVCT	5643	4	32H	6.7
ACDVCTN	5644	4	32I	6.8
AGNTID	5639	4	32D	6.3
CQPARM	5640	4	32E	6.4
DSLUSR	5908	5	1I	23.2
				23.8
MISLINK	5637	4	32B	6.11
SREINCR	5547	3	5AW	8.40
STPARM	5638	4	32 C	6.1
SZDISP	5641	4	32F	6.5

ACDBPARM form (5645 Record) - This form defines the parameters for ACD/BRCS features, ACD users, and the limits for call vectoring.

ACDTN form (5631-1 Record) - This form defines the ACD directory number or the DAA (Direct Agent Access) number. The PTC field was added to support the ICLATA (InterLATA Carrier IntraLATA Capability) feature for ACD/BRCS.

ACDVCT form (5643 Record) - This form defines the Call Vectoring steps that determine how an incoming call is to be treated while waiting for an ACD agent.

ACDVCTN form 5644 Record) - This form defines and administers remote telephone numbers for the call vectoring process.

AGNTID form (5639 Record) - This form associates an Agent ID with a serving team.

CQPARM form (5640 Record) - This form assigns administrative data to be applied to call queues.

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user, and 4) defines the On Demand B-channel packet switching attributes of a DSL user. For 5E11 and later, the range for ACD POS NUM was increased and the ACD GROUP field was added to support this feature.

MISLINK form (5637 Record) - This form assigns MIS event links for ACD/BRCS on all valid DSLs. The Recent Change View number was changed from 23.19 to 6.11 for 5E11 and later.

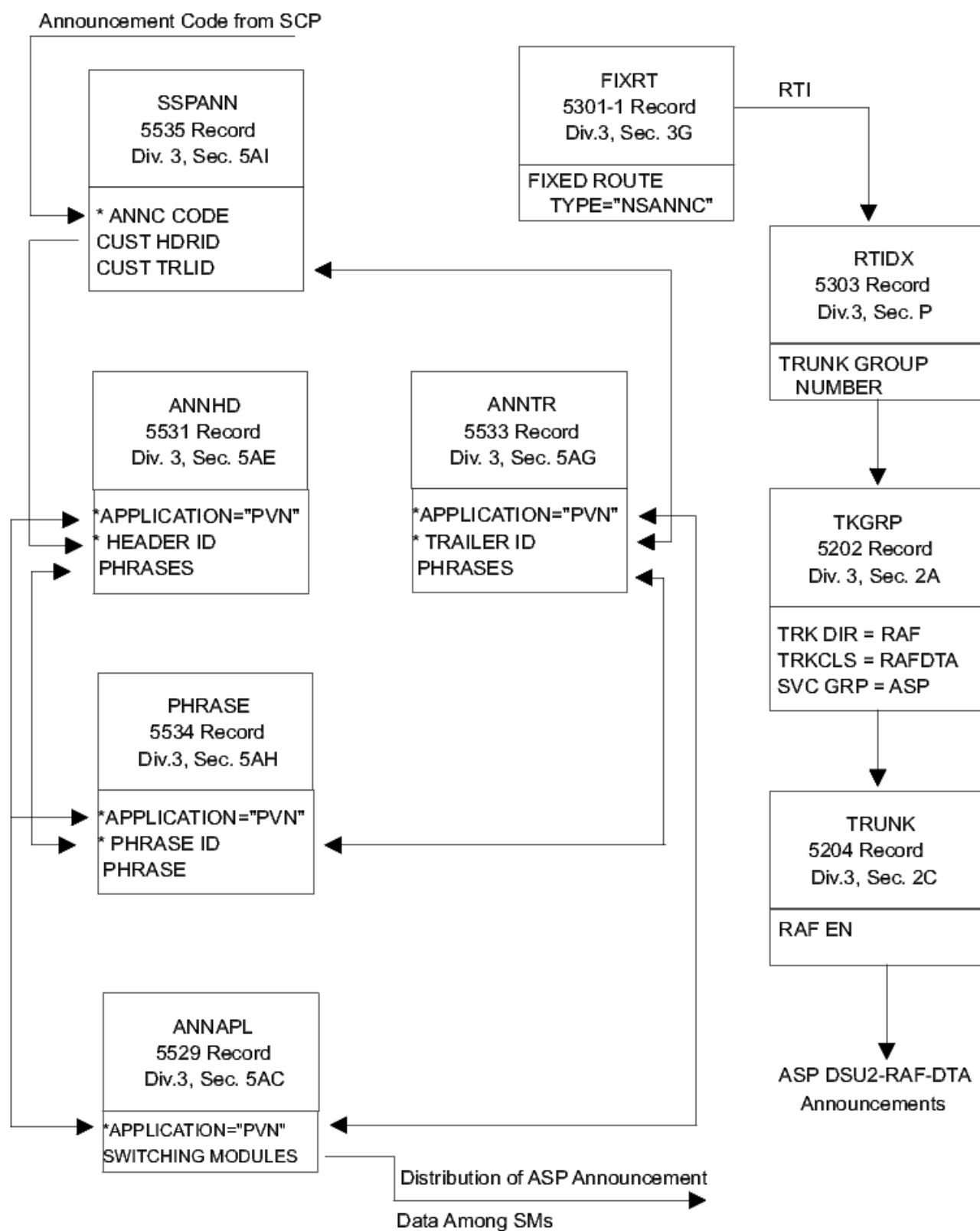
SREINCR form (5547 Record) - This form is used to maintain incremental global parameters per SM. The SOFTWARE RESOURCE entry "QVSTATE" was added to support this feature.

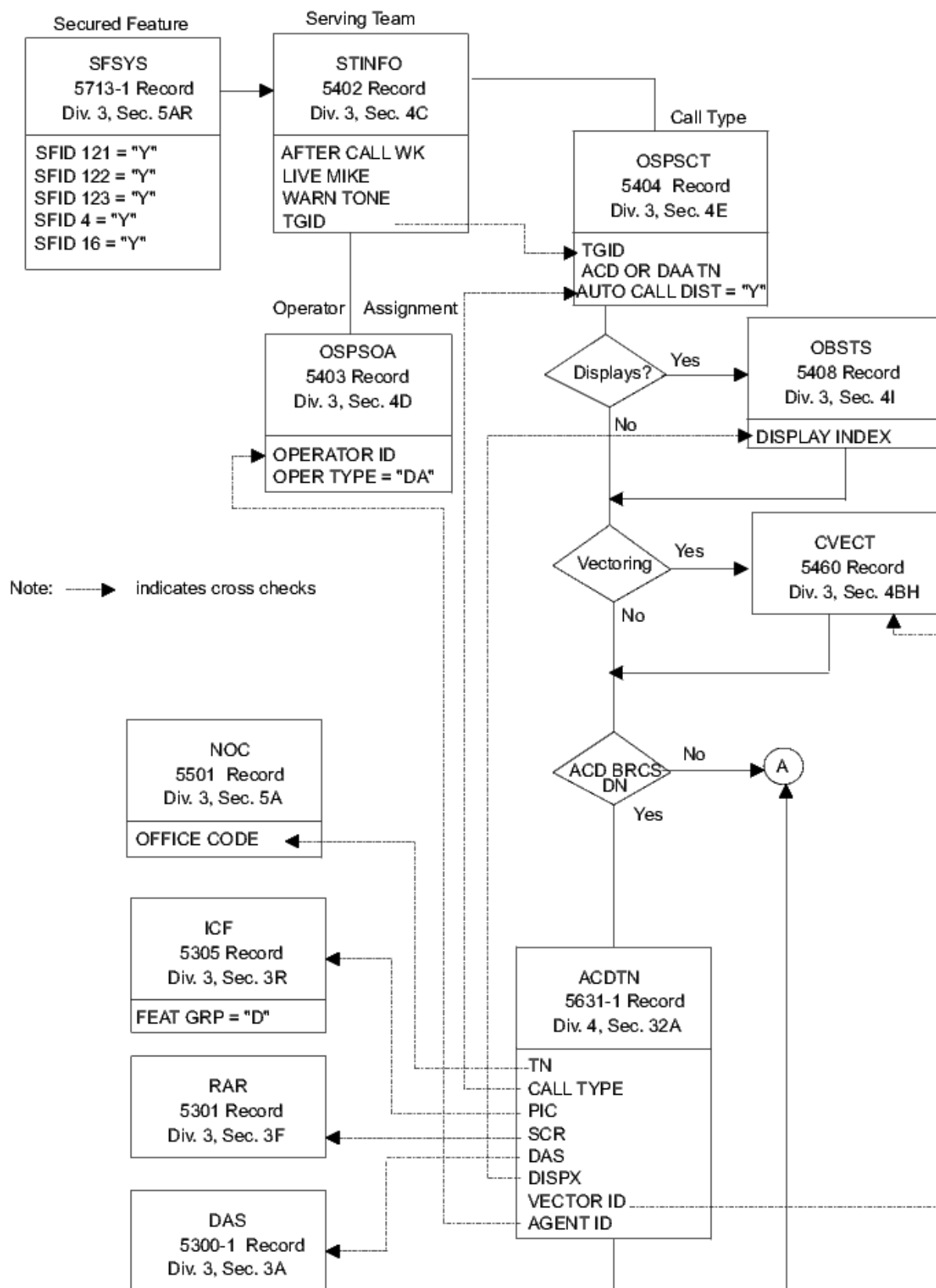
STPARM form (5638 Record) - This form defines parameters for an ACD/BRCS serving team.

SZDISP form (5641 Record) - This form defines the display parameters provided when the operator position is seized for an ACD/BRCS call.

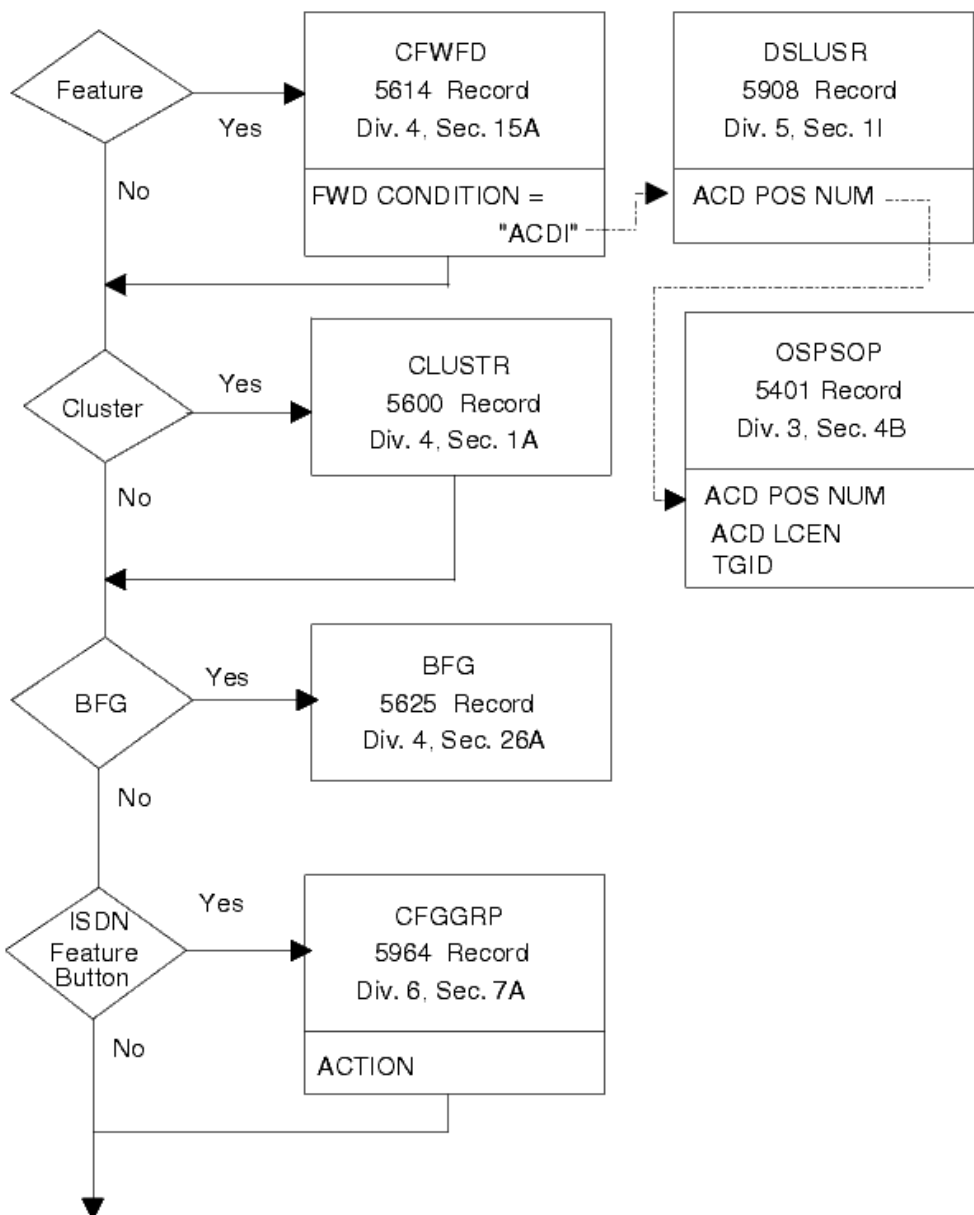
3. GLOSSARY

ACD	Automatic Call Distributor
AIC	Agent Intercom Call
AIU	Application Interface Unit)
BRCS	Business and Residence Custom Services
DAA	Direct Agent Access
DN	Directory Number
DSL	Digital Subscriber Line
ISP	Intermediate Switching Point
MIS	Management Information System
ODB	On Demand B Channel Packet Switching
OPT	Operator Position Terminal
PPB	Permanent Packet B Channel Packet Switching
SO	Service Observing
TGID	Terminal Group Identifier
TN	Telephone Number





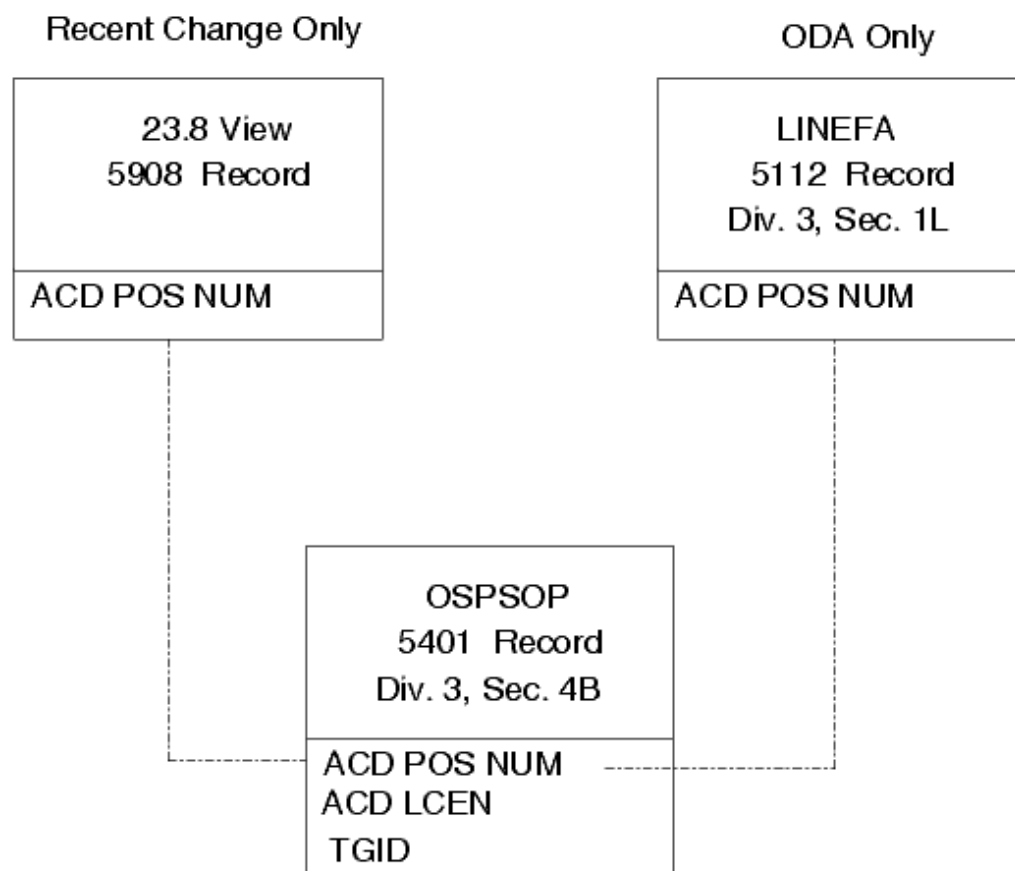
Feature Assignment



Terminal Assignment

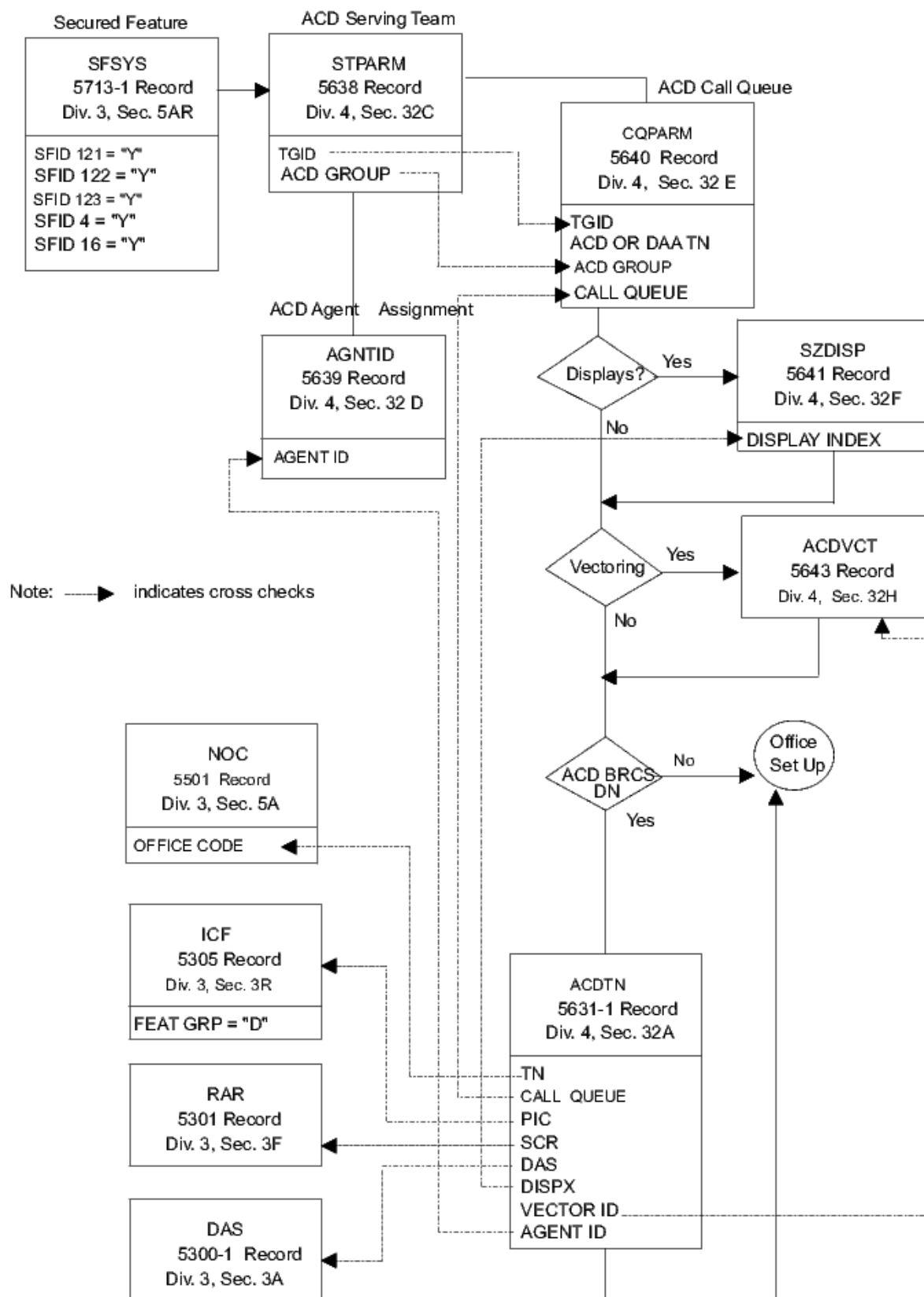
Note: -----> indicates cross checks

Terminal Assignment

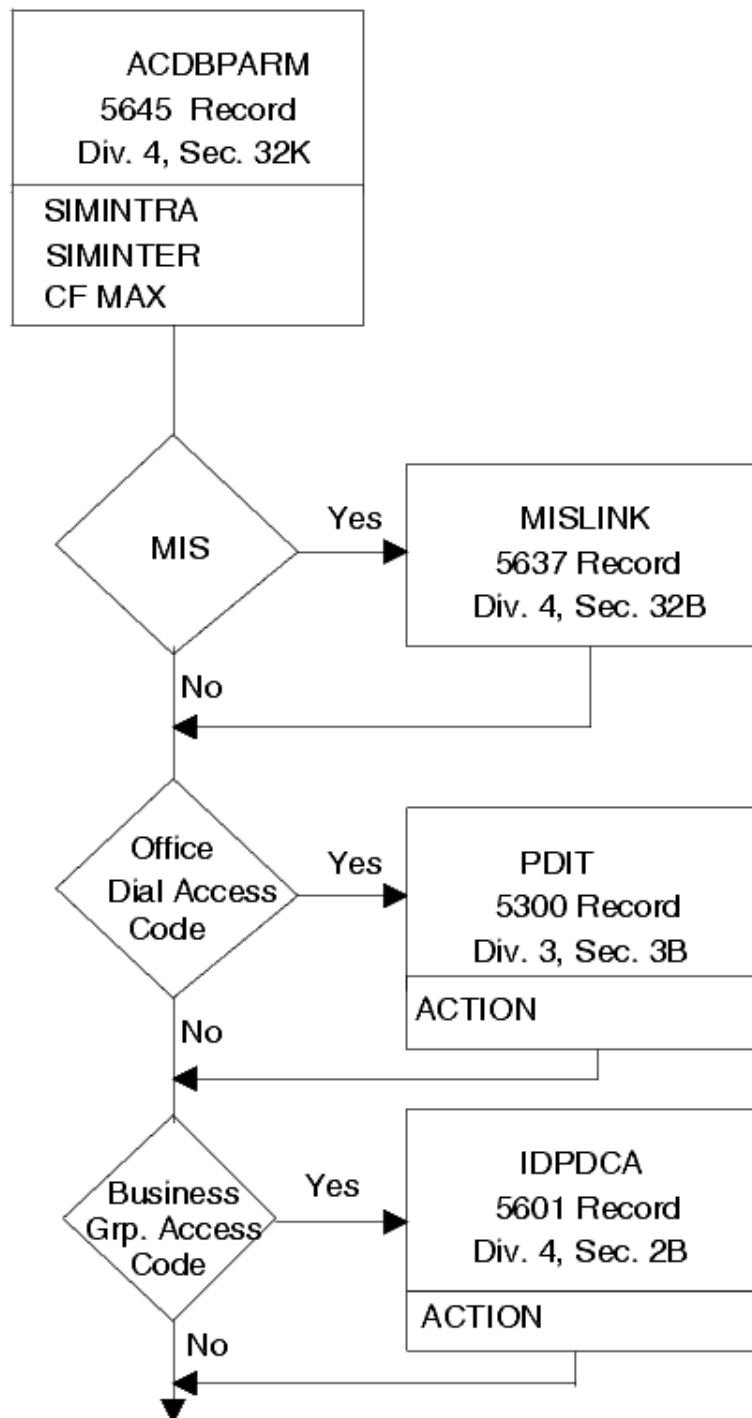


Note: -----> Indicates cross checks

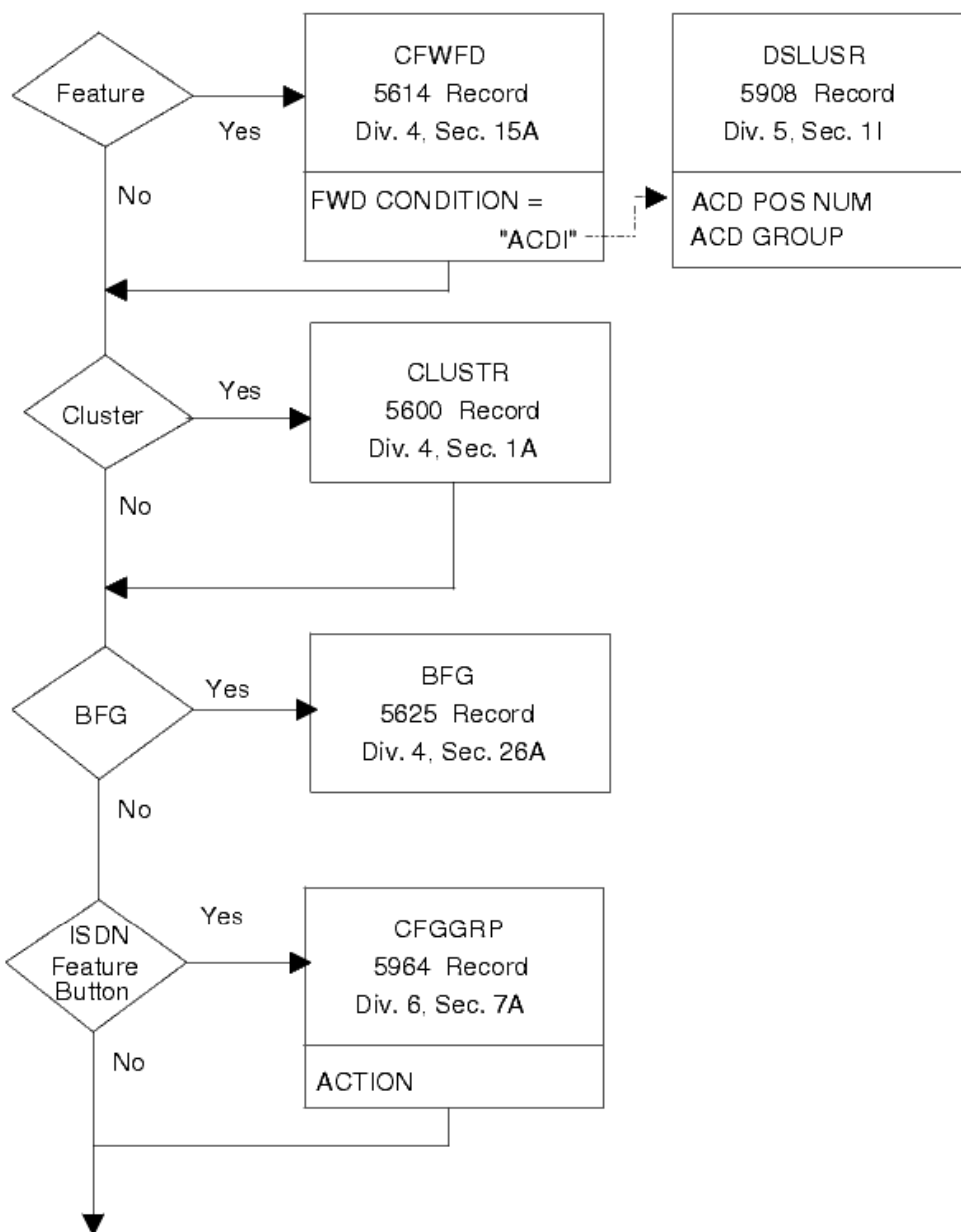
Figure 1 ACD BRCS DATA 5E9(1) 5E10 FORM FLOW



Office Set Up



Feature Assignment

Feature Assignment

Terminal Assignment

Note: -----> indicates cross checks

Terminal Assignment

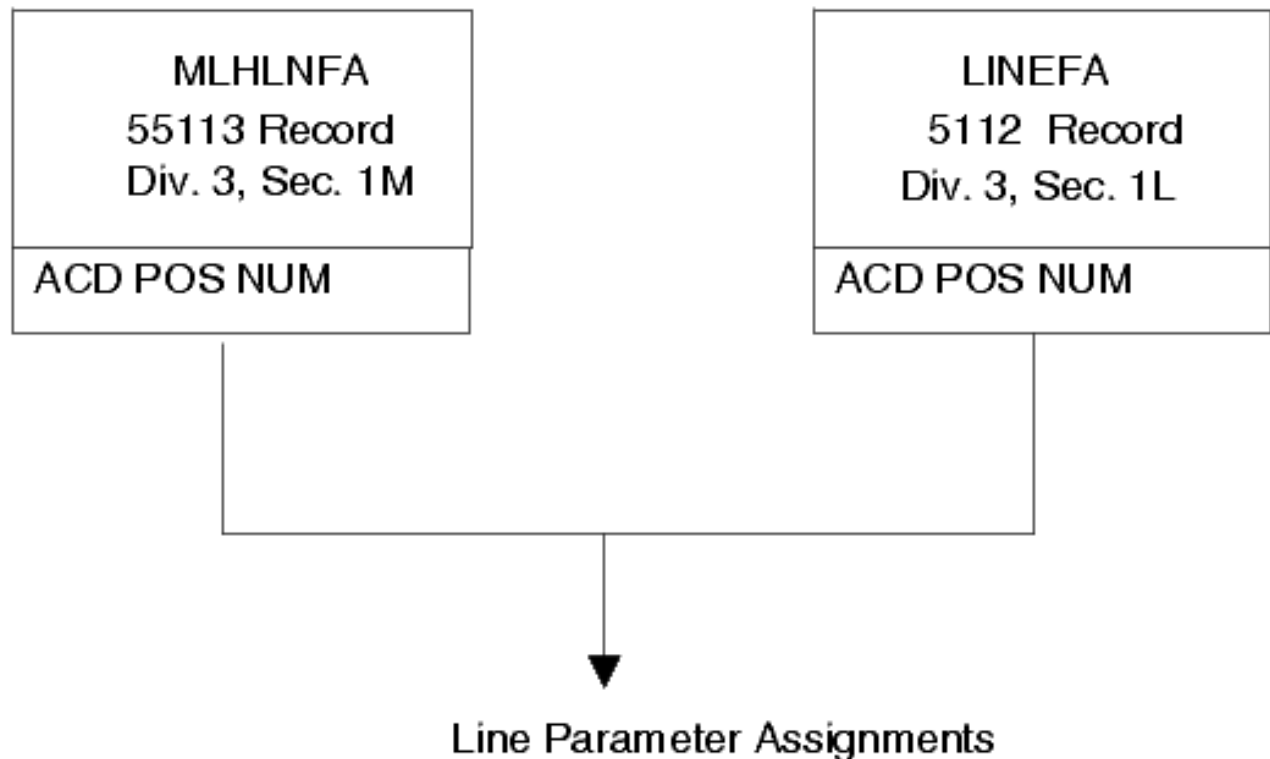


Figure 2 ACD BRCS DATA 5E11 FORM FLOW

SEC. 4A124: CALL PARK

1. FEATURE DESCRIPTION

Available with 5E9(1) and later, Call Park is a secured feature which uses Secured Feature ID 124. Call Park is a Custom ISDN and analog Centrex feature with characteristics similar to Call Hold and Call Pickup. The Call Park service is comprised of the feature capabilities:

- Basic Call Park
- Directed Call Park
- Answer Back
- Retrieve

- Ring-back after Time-out
- Call Park for Attendants

The following describes each capability and its use:

- Basic Call Park - Basic Call Park allows a user active on a call to park a call (similar to placing the call on Hard Hold) against the user's DN (directory number) or extension.

Analog: User A performs a switch-hook flash and gets recall dial tone as user B is put on soft hold. User A enters Call Park access code, receives confirmation tone followed by silence. User B is now parked against A's DN. The parked party B receives silence (or music, if Music on Hold is assigned) while parked.

ISDN: User A presses a Call Park feature button, receives confirmation tone followed by silence. User A's Call Park feature button lamp lights and then is extinguished. The active Call Appearance lamp on user A's terminal is extinguished. User B is parked against user A's DN which was active with B. The ISDN MBKS (Multibutton Key System) has a feature button for Retrieve. Therefore, the switch will light the lamp corresponding to the Retrieve button indicating that a call is parked against the station set's primary DN. The parked party B receives silence (or music, if Music on Hold is assigned) while parked.

The call may be retrieved by the DN against which the call was parked (Parked DN) or answered back from any DN within the same terminal (Centrex) group. After parking the call, the Parking Party may go on hook; once on hook, the parking party is free to receive incoming calls or originate outgoing calls.

Basic Call Park is useful when a party receiving a call wishes to physically move to another location for convenience or to locate information; the party may Park the call, walk down to another office, and then answer back the Parked call. In this way Call Park serves as an alternative to call transfer, in situations when the user does not know to which extension to transfer the call.

- Directed Call Park - Directed Call Park allows station users to park a call against their own DN or to direct the call to be parked against another directory number in the terminal (Centrex) group.

Analog: If user A is connected with user B and wishes to park the call against user C's DN, user A flashes, receives second dial tone, dials the Directed Call Park access code and receives a recall dial tone. User A dials user C's extension and receives confirmation tone followed by silence. User B is no longer on hold and is parked against user C's DN. The parked party B receives silence (or music, if Music on Hold is assigned) while parked. The call from user B can be answered back by another user in the same terminal (Centrex) group or retrieved by user C's station.

ISDN: If user A is connected with user B and wishes to park the call against user C's DN, user A presses a Directed Call Park feature button placing user B on park hold. User A selects an idle call appearance, receives second dial tone, dials C's extension, and receives confirmation tone followed by silence. User A's lamp associated with Directed Call Park lights for a few seconds and then is extinguished. User B is no longer on hold and is Parked against user C's DN. The parked party B receives silence (or music, if Music on Hold is assigned) while parked. User A's two call appearances involved in the parking party's terminal (the active appearance and that of the call which was park-held) have their lamps extinguished

The call from user B can be answered back by another user in the same terminal (Centrex) group or retrieved by user C's station.

Directed Call Park is most useful in loudspeaker paging applications, where the attendant has an allocated range of extensions on which to Park paging calls. Call Park is also useful in situations where a secretarial station providing call coverage wishes to park a call, locate the desired party for the call (possibly via an intercom call), and have that party pick up on the parked call. The parked party perceives that the call has been placed on "hold".

- **Answer Back** - Answer Back of a parked call allows a call to be answered back from any station set (DN) within the terminal group.

Analog: If user B is parked against user A's DN, user C in the same terminal (Centrex) group can Answer Back the parked call. User C originates and receives dial tone, enters an Answer Back access code, receives rcall dial tone, and enters the extension of the parked DN (A's DN). Connection between user C and user B is established.

ISDN: If user B is parked against user A's DN, user C can Answer Back the parked call. User C originates and receives dial tone, enters an Answer Back access (or presses a Call Park Answer Back feature button), receives rcall dial tone, and enters the extension of the parked DN (A's DN). Connection between user C and user B is established. If the parked DN is a primary DN at an MBKS set with an Answer Back feature button, its lamp will be extinguished. This indicates that there is no longer a call parked against the station set's primary DN.

- **Retrieve** - Retrieve is the process of answering a call which is Parked against a station set's DN (similar to retrieval of a call on analog Hard Hold).

Analog: When user A hangs up after parking a call, user A is free to place or receive calls. User A can retrieve a call parked against its own DN. User A originates at its own station set, receives dial tone, and dials a Retrieve access code. The call is re-established with user B.

ISDN: User A can Retrieve a call parked against user B's DN. User A originates on a call appearance for that DN, receives dial tone, enters a Retrieve access code (or presses a Retrieve feature button). Users A and B's connection is re-established. The lamp associated with the Retrieve feature button is extinguished. Note that without the Retrieve service, the users would have to go off-hook, receive dial tone, enter an answer back code and then dial the user's own DN.

- **Ring-back after Time-out** - Ring-back after Time-out allows parked calls (that have not disconnected) to be rung back at the parking station after a specified period of time. If a call remains parked longer than a predesignated timer limit, the terminal that parked the call will be rung back on the DN from which the call was parked. The following two timers could be used to signal ring-back of a parked call:

— Timer value entered on the PARK TIME or ATND PARK TIME field on the TGATTD form (5611 Record).

If a ring-back timer value has been entered on the TGATTD form and expires, an attempt will be made to ring back the terminal for thirty seconds on the DN from which the call was parked. After thirty seconds, if the call has not been answered, ringing will be stopped and an attempt will be made

to reroute the call to the attendant as defined in the terminal group (TGATTD form), if one exists. If an attendant does not exist in the terminal group, the call will be cleared. If the port is busy (Analog), a B channel is not available, or there are no idle call appearances for that DN on the terminal that parked the call (ISDN), a check will be made to see how many ring-back attempts have been made. If less than three ring-back attempts have been made, the ring-back timer will be reset to the original value from the TGATTD form and the next attempt to ring back the terminal will be made when the timer expires again. If three ring-back attempts have been made, the call will be rerouted to the attendant as defined in the terminal group, if one exists. If an attendant does not exist in the terminal group, the call will be cleared.

— Twenty minute timer.

The twenty minute timer will be used when a ring-back timer value does not exist on the TGATTD form. When this timer expires, an attempt will be made to ring back the terminal for thirty seconds, on the DN from which the call was parked. After thirty seconds, if the call has not been answered, ringing will be stopped and the call will be cleared. This call will not be rerouted to the attendant in the terminal group. If the port is busy (Analog), a B channel is not available, or there are no idle call appearances for that DN on the terminal that parked the call (ISDN), a ring-back timer will not be reset. An attempt will not be made to reroute the call to an attendant in the terminal group, and the call will be cleared.

- Call Park for Attendants - This allows Call Park features to be assigned to and used by 50B and ISAT (ISDN Attendant) attendant consoles.

Analog 50B Attendant Console: For analog 50B attendant consoles, the user scenarios are almost identical to that shown for a normal analog station. The only differences are:

- For Directed Call Park, the extension at which the call will be parked may also be specified by use of the attendant Direct Station Selection feature rather than dialing the extension digits.
- The attendant uses the Start key rather than a switch-hook flash.
- For a MUPH 50B attendant console, Basic Call Park and Retrieve are not allowed. Entry of "#" by a MUPH attendant is not allowed for the extension.

ISDN Attendant Console: For ISDN attendant consoles, the user scenarios for Call Park are similar to that for an ISDN MBKS terminal. Differences include that for Directed Call Park, a single call appearance is used, different buttons are used to originate calls, and the extension at which the call will be parked may also be specified by the use of the attendant Direct Station Selection feature rather than by dialing the extension digits.

2. FEATURE ASSIGNMENT

To enable this feature, SFID 124 on the SFSYS form (5713-1 Record) must have ACT set to "Y". In addition, Call Park features will have to be assigned to the line before use.

See Figure 1 for Call Park form flow.

NOTE: In order to both park and retrieve calls, two Call Park features need to be assigned to a line: one feature (Basic Call Park, Directed Call Park) to park calls and one feature (Retrieve, Answer Back) to retrieve calls.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFGGRP	5964	6	7A	12.5
IDPDCA	5601-1/2	4	2B	9.13
PUOFD	5605-1a/b	4	6A	12.13
SFSYS	5713-1	3	5AR	8.22
TGATTD	5611	4	12A	4.4

CFGGRP form (5964 Record) - This form is used to assign BRCS (Business and Residence Customer Service) feature actions to CPE (Customer Premises Equipment) user terminal buttons. The following enumerations were added for the field ACTION: "ANSBACK", "BPARK", "DPARK", and "RTRV".

IDPDCA form (5601-1/2 Record) - This form is used to define the dial codes associated with IDPs (Individualized Dialing Plans). The following enumerations were added for the field ACTION: "ANSBACK", "BPARK", "DPARK", and "RTRV".

PUOFD form (5605-1a/b Record) - This form is used to define a number of separate but related features by selecting various feature options for CPUO (Call Pickup Originating). The following enumerations were added for the field INITIATE: "ANSBACK", "BPARK", "DPARK", and "RTRV".

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. SFID 124 must have the field ACT set to "Y" to enable the feature.

TGATTD form (5611 Record) - This form is used to define information (such as attendant DN, Source Billing, and SDN DAS) on a Terminal Group basis. The field PARK TIME was added which specifies the answer back or retrieve timeout limit for ring back of a parked call for non-attendant lines in the terminal group. The field ATND PARK TIME was added which specifies the attendant answer back or retrieve timeout limit for ring back of a call parked against the terminal group attendant's DN or a DN with attendant class of service.

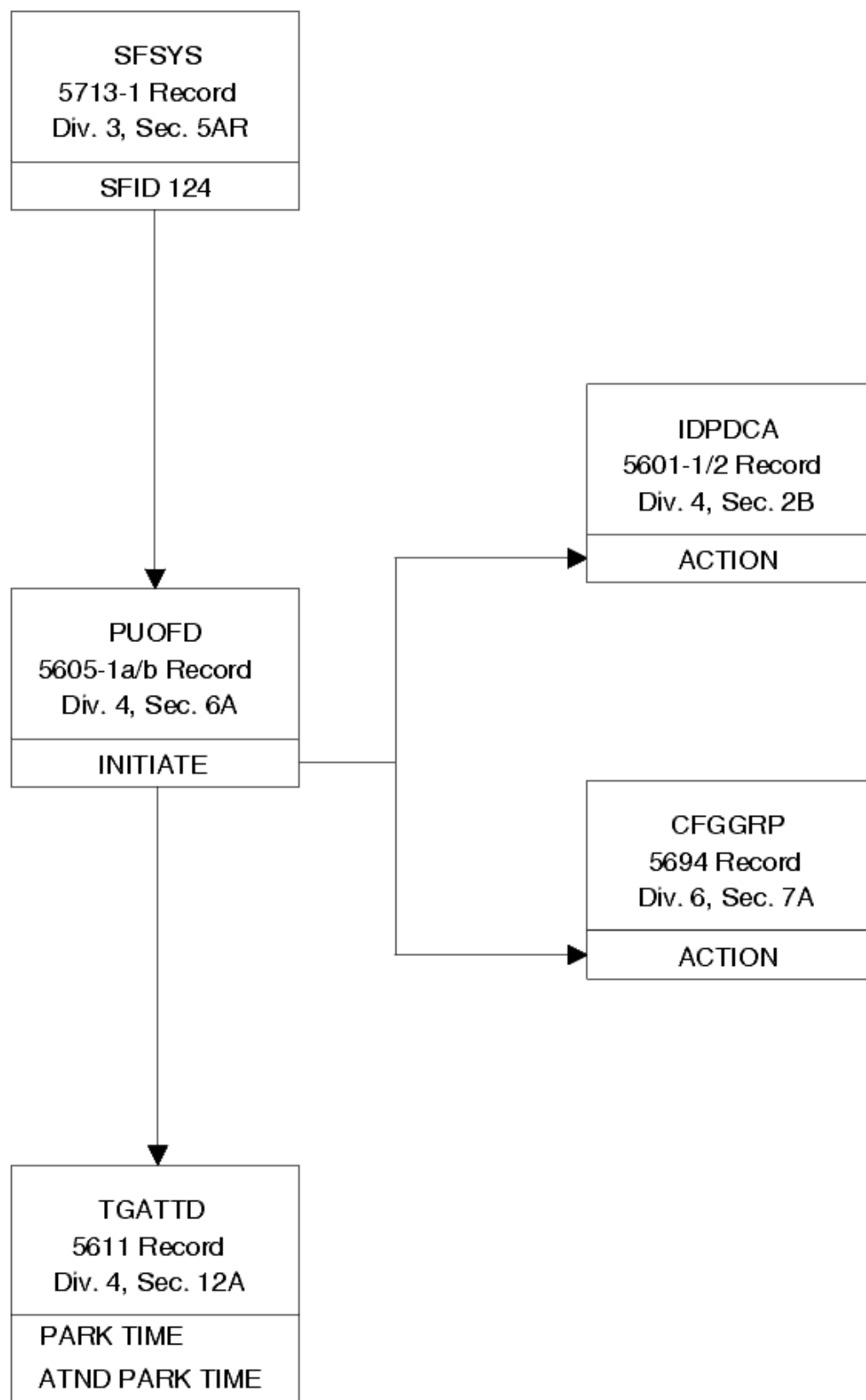


Figure 1 FORM FLOW FOR CALL PARK**SEC. 4A125: FRACTIONAL DS1 SWITCHING - NXDS0****1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-190-104 ISDN Feature Descriptions*.

SEC. 4A126: ADVANCED SERVICES PLATFORM (5E9(1) AND LATER)**1. FEATURE DESCRIPTION**

ASP (Advanced Services Platform), available with 5E6 and later Software Releases (for ASP available with 5E6 - 5E8 Software Releases, see Division 2, Section 4A51), provides a platform of service-independent capabilities at a 5ESS Switch which allow it to interact with an external network element (an SCP (Service Control Point)) via CCS7 TCAP (Common Channel Signaling, CCITT Version 7 Transaction Capabilities Application Part) messages to help determine appropriate call handling treatment.

The SCP contains a customer defined database with the information necessary to determine the appropriate call handling treatment. The SCP may be queried by an SSP (Service Switching Point) via CCS7 TCAP messages utilizing out of band signaling. When queried, the SCP performs screening and provide routing control and billing information.

For 5E9(1) and later, ASP is provisioned as a BRCS feature and it is no longer necessary to have a separate ASP dialing plan. In addition, several enhancements were added to make it compliant with industry-standard AIN (Advanced Intelligent Network) requirements.

In this feature section and some affected form sections there are references to AIN Release 0 and AIN Release 0.1. AIN Release 0 refers to the ASP releases for 5E6 - 5E8, requiring SFID 51 ACT and SFID 58 ACT to be marked as "Y" on the SFSYS form. AIN Release 0.1 refers to the ASP release for 5E9(1), requiring SFID 126 ACT to be marked as "Y" on the SFSYS form.

NOTE: The 5ESS Switch continues to support the R0 protocol.

The provisioning of ASP as a BRCS feature results from retrofit to 5E9(1), and is independent of purchase of the ASP secured feature available in 5E9(1) and later (that requiring SFID 126 ACT equals "Y").

The following describes the changes made to ASP by retrofit to 5E9(1):

1. Detection and validation of Subscribed ASP Triggers is now done using new BRCS provisioning;
 - OHI (Off Hook Immediate),
 - OHD (Off Hook Delayed) - Line, Trunk, PRI,
 - FCD (Feature Code Dialing), previously known as ASP ODP, and
 - CDP (Customized Dialing Plan Feature Code), previously known as ASP IDP.

Provisioning is done with the ASPFD, ASPLPA, ASPMPA, ASPTPA, and ASPDP forms (see Section 4).

1. Escape Code processing for OHD triggers and certain types of SIT triggers allows escape from OHD processing. Dialed codes not to be processed as an OHD call are specified in the digit analysis tables. An example of a digit string which may specify escape is 911.

The following describes the enhancements to ASP available by purchase of 5E9(1) ASP:

1. Trigger Activation and Deactivation by the SCP allows the following triggers to be activated or deactivated by the SCP:
 - Offhook Immediate,
 - Offhook Delay,
 - Feature Code Dialing,
 - Customized Dialing Plan, and
 - Terminating Attempt Triggers.
1. TATs (Terminating Attempt Triggers) allow the SSP to launch queries based on the DN the call is terminating to, before determining the physical port for that DN.

The TAT functionality enables terminating line services (e.g., enhanced call screening and call forwarding) to be administered more easily, since triggers are based on terminating line attributes.

TATs may also be used to play announcements. This capability allows services such as customized call screening and terminating call management.

TATs can be assigned to analog DNs and MLHG terminals via the new ASP BRCS provisioning.

2. The SCP has the capability to include display text (to be displayed at the called party's terminal) in the response message it sends to the SSP. This text is only displayed at the called party's terminal, and is not transmitted to the calling party.

The display capability allows the switch owner the ability to provide additional information to the called party, enabling the caller to better determine the priority and handling of the call. SCP-controlled display can be used to enhance or construct such call delivery based services as call Screening and Calling Name Delivery.

3. The SCP Monitor Feature allows the SCP to monitor the busy/idle status of analog lines assigned to a TN.

The Monitor capability allows the switch owner the ability to create network terminating call management services. These network terminating call management services allow call distribution to attendants that reside on SSPs.

For more information about 5E9(1) ASP, see *AT&T 235-190-126, Advanced Services Platform, Release 0.1B*.

2. ASP TRIGGERS

For 5E9(1) and later, the following descriptions assume

- All basic line/trunk, digit analysis and routing data is defined;
- The office is an SSP (ASP OFC equals "SSP" on OFCOPT);
- All ASP secured features (58, 51, and 126) are active;
- CCS7 protocol data via DSAPP is defined (APPLIC equals "ASP", "AINR0D1", or "NS800"); and
- "ORIGASP" refers to any ASP originating feature.

2.1 Trigger Terminology

For 5E9(1) and later, several triggers have changed in terminology. The following table compares changes in the trigger terminology between 5E6 - 5E8 ASP and 5E9(1) and later ASP.

Trigger Terminology	
Pre-5E9(1)	5E9(1)
Off-Hook Immediate (Dedicated Lines)	Off-Hook Immediate (OHI) (Dedicated Lines)
Off-Hook Delay (Dedicated Lines)	Off-Hook Delay (OHD) (Dedicated Lines)
Trunk Seizure Trigger (Dedicated Trunks)	(1) For UNRES EA = "N": Off-Hook Delay (Dedicated Trunks) (OHD) (2) For UNRES EA = "Y": Private EAMF Trunk Seizure Trigger
Channel Setup PRI	Off-Hook Delay (Dedicated Trunks) (OHD)
Shared Interoffice Trunk Triggers (Non-dedicated Trunks)	Shared Interoffice Trunk Triggers (Non-dedicated Trunks) (SIT)
ODP Feature/Prefix Code Trigger	Feature Code Dialing Trigger (FCD)
IDP Trigger	Custom Dialing Plan Trigger (CDP)
Dialed Number Trigger (DNT)	3/6/10-Digit / N11 Trigger (DNT)
—	Terminating Attempt Triggers (TAT)
Automatic Route Selection Trigger	Automatic Route Selection Trigger

2.2 Query Terminology

Although the AIN 0.1 protocol introduces several new query messages (as illustrated in the following table), for the purposes of this document, the query messages are referred to by the trigger name, since both protocols are being documented together. For example, an Origination_Attempted query will be called an OHI query, and an Info_Collected query sent when a SIT trigger is encountered will be called a SIT query.

Query Terminology	
Trigger	Query Message (AIN 0.1 Protocol) (Note 1)
OHI	Origination_Attempted
OHD (Lines, Trunks, PRIs)	Info_Collected
SIT	
Private EAMF	
FCD	
CDP	Info_Analyzed
3/6/10-Digit / N11 (DNT)	
TAT	Termination_Attempted
ARS	No Equivalent (AIN 0 protocol only)

NOTE: 1: In the AIN 0 protocol, no differentiation between triggers is made. All triggers result in the

same query message.

2.3 1BOff-hook Immediate Trigger (Direct Connect Lines) (OHI)

For 5E9(1) and later, the following is an example of provisioning for OHI triggers.

OHI Trigger (Lines only)		
Form	Field	Value
ASPF	FEATURE	ORIGASP
	CONTROL	ORIG
	OHI TRIG NBR	1-255
	OHI TRIG ACT	Y/N (Note 1)
NSTRIG	TRIG NBR	From ASPFD, ASPDP, ASPLPA, or ASPMPA
	APPLICATION	ASP
	ADM ST CD	ULK/LK
LCC	CLASS OF	INDIV
	SERVICE	
LINEFA, MLHLNFA	FEATURE	ORIGASP (Note 2)
	ACTIVE	Y/N
ASPLPA, ASPMPA	Generated per line data from ASPFD	

- **NOTE:** s:1. No other triggers can be defined on an ASP Originating feature in conjunction with OHI.
- 2. No other BRCS features can be assigned except an ASP Terminating feature.

Call Processing based on the above provisioning proceeds as follows:

1. An ASP Originating feature assigned and active is detected on the LINEFA or MLHLNFA forms.
2. An active OHI trigger on the ASPLPA or ASPMPA forms is detected.
3. A CLASS OF SERVICE on the LCC form of "INDIV" is verified.
4. OHI TRIG NBR accesses the NSTRIG form, and verifies that ADM ST CD equals "ULK".
5. A query is launched using the NSTRIG data.
6. If the ASP Originating feature is not active, the OHI trigger is not active, or ADM ST CD equals "LK", then processing continues as if the trigger was not detected.

2.4 Off-hook Delay Trigger (Dedicated Lines) (OHD)

For 5E9(1) and later, the following is an example of provisioning for OHD triggers.

OHD Trigger (Lines only)		
Form	Field	Value
ASPF	FEATURE	ORIGASP
	CONTROL	ORIG
	OHD TRIG NBR	1-255
	OHD TRIG ACT	Y/N
NSTRIG	TRIG NBR	From ASPFD, ASPLPA, ASPMPA (OHD)
	APPLICATION	ASP
	ADM ST CD	ULK/LK
NSTRIG	TRIG NBR	From digit analysis (DNT)
	APPLICATION	ASP
	ADM ST CD	ULK/LK
LCC	CLASS OF	INDIV, ATND
	SERVICE	
PDIT, LDIT, RDIT	ESC CODE	Y/N

IDDD	TRIG NBR	Blank, 1-255
	ESC CODE	Y/N
LINEFA, MLHLNFA	TRIG NBR	Blank, 1-255
	FEATURE	ORIGASP
ASPLPA, ASPMPA	ACTIVE	Y/N
	Generated per line data from ASPFD	

The call processing flow for this trigger is shown in Figure 5 .

2.5 Off-Hook Delay Trigger (Dedicated Trunks)

For 5E9(1) and later, the following is an example of provisioning for OHD triggers for PF trunks. This includes triggers previously called Trunk Seizure Triggers and Channel Setup PRI Triggers.

OHD Trigger (PF and PRI Trunks) - 5E9(1)		
Form	Field	Value
ASPFD	FEATURE	ORIGASP
	CONTROL	ORIG
	OHD TRIG NBR	1-255
	OHD TRIG ACT	Y/N
NSTRIG	TRIG NBR	From ASPFD, ASPTPA (OHD)
	APPLICATION	ASP
	ADM ST CD	ULK/LK
NSTRIG	TRIG NBR	From digit analysis (DNT)
	APPLICATION	ASP
	ADM ST CD	ULK/LK
TKGRP	TRKCLS	EDSL, EDSLHM, PF, PFLASH, PFITT
PDIT, LDIT, RDIT	UNRES EA	Y/N
	ESC CODE	Y/N
IDDD, INDIT	TRIG NBR	Blank, 1-255
	ESC CODE	Y/N
TKGRPFA	TRIG NBR	Blank, 1-255
	FEATURE	ORIGASP
ASPTPA	ACTIVE	Y/N
	Generated per trunk data from ASPFD	

The call processing flow for this trigger is shown in Figure 6 .

2.6 Private EAMF Trunk Seizure Trigger (Dedicated Trunks)

For 5E9(1) and later, the following is an example of provisioning for private EAMF Trunk Seizure Triggers (previously grouped with Trunk Seizure Triggers).

Private EAMF Trigger (PF Trunks) - 5E9(1)		
Form	Field	Value
ASPFD	FEATURE	ORIGASP
	CONTROL	ORIG
	OHD TRIG NBR	1-255
	OHD TRIG ACT	Y/N
NSTRIG	TRIG NBR	From ASPFD, ASPTPA (OHD)
	APPLICATION	ASP
	ADM ST CD	ULK/LK
TKGRP	TRKCLS	PF, PFITT, PFLASH
TKGRPFA	UNRES EA	Y
	FEATURE	ORIGASP
ASPTPA	ACTIVE	Y/N
	Generated per trunk data from ASPFD	

The call processing flow for this trigger is shown in Figure 6 .

2.7 Shared Interoffice Trunk Triggers (Non-Dedicated Trunks)

3/6/10-Digit / N11 triggers can be on SITs (see section Section 2.12).

For 5E9(1) and later, the following is an example of provisioning for SIT triggers.

SIT Trigger Dialed Number Trigger via SIT - 5E9(1)		
Form	Field	Value
OFCOPT	PSEUDO CARR	1-999
	ASP ANI	1-99
	INT OFC TRIG	1-255
	ESC CD CNTL	Y/N
NSTRIG	TRIG NBR	From INDIT (0ZZ)
	APPLICATION	ASP, EAOFC
NSTRIG	TRIG NBR	From TKGRP or OFCOPT
	APPLICATION	ASP
NSTRIG	TRIG NBR	From ODP (DNT)
	APPLICATION	ASP
INDIT	INC DIGS	0ZZ
	TYPE OF CI CALL	AVT
	TRIG NBR	Blank, 1-255
TKGRP	UNRES EA	Y/N
	TRIG NBR	Blank, 1-255
	DAS	1-99
PDIT, LDIT, RDIT	TRIG NBR	1-255
	ESC CODE	Y/N
IDDD	TRIG NBR	1-255
	ESC CODE	Y/N
CKTCODE	CKT CODE	0-15 (ISUP7 only)
ICF	CARRIER TYPE	PSEUDO

The call processing flow for this trigger is shown in Figure 7 .

SITs are designed to handle both SSP800 and ASP traffic. The following table summarizes the precedence of SSP800 and ASP over these types of trunks.

ASP/SSP800 Precedence Summary		
SIT Trigger	Dialed Digits	Switch Action
ACTIVE 0ZZ	DN	ASP SIT query
	(a DN not a DNT)	
	DN	Switch routing if CST purchased, else error treatment
	(specifies an OHD escape)	
	800	ASP SIT query
	800	SSP800 query (escape from SIT)
	(specifies an OHD escape)	
	DNT	ASP SIT query
INACTIVE 0ZZ	DNT(inactive)	
	DNT (escape)	ASP DNT query (escape from SIT)
	DNT (escape)(inact)	Switch routing if CST purchased, else error treatment
		Look first for ANI II match, then 800 dialed, then UNRES EA.
		Results in ASP SIT trigger for ANI II and UNRES EA, and
		SSP800 query for 800. Else error treatment.
ACTIVE ANI II	800	ASP SIT query
	All else	
INACTIVE ANI II	800	SSP800 query
	All else	Error treatment unless UNRES EA, then ASP SIT query.
ACTIVE UNRES EA	800	SSP800 query (800 takes precedence)
	All else	ASP SIT query
INACTIVE UNRES EA	800	SSP800 Query
	All else	Error Treatment

For the above table,

1. 0ZZ is a SIT trigger detected when the 0ZZ digits specify an ASP trigger;
2. ANI II is a SIT trigger detected when the outpulsed ANI II matches ASP ANI; and

3. UNRES EA is a SIT trigger detected when UNRES EA equals "Y".
4. No digit analysis is done on dialed digits on the ANI II or UNRES EA triggers (this implies that no escape processing can be done and the call can not be routed using these dialed digits if the trigger is inactive).

2. If the 0ZZ SIT trunk trigger is inactive, it is treated as if it was not encountered. That is, processing continues to look for the ANI II and UNRES EA cases, and digit analysis will not be done on the dialed digits.

3. The table assumes that ESC CD CNTL on the OFCOPT form equals "Y" (the Circuit-Switched Trunk secured feature must be purchased and SFID 6 ACT is "Y" on the SFSYS form). If "N", the escape would be ignored and the call would be treated like the non-escape case.

2.8 Feature Code Dialing Trigger (FCD) (Previously ODP)

For 5E9(1) and later, the following is an example of provisioning for FCD triggers.

FCD Trigger (Lines, PF Trunks) - 5E9(1)		
Form	Field	Value
ASPFD	FEATURE	ORIGASP
	CONTROL	ORIG
	FCD TRIG ACT	Y/N
NSTRIG	TRIG NBR	Associated with ASP ACTION defined on PDIT
	APPLICATION	ASP
	ADM ST CD	ULK/LK
LCC	CLASS OF	INDIV, ATND
	SERVICE	
TKGRP	TRKCLS	PF, PFLASH, PFITT
PDIT	ACTION	ASPDNC, ASPNORM, ASPVAR
	FEATURE	ORIGASP
	TRIG NBR	1-255
LINEFA, MLHLNFA	FEATURE	same as on PDIT (defined on ASPFD)
	ACTIVE	Y/N
TKGRPFA	FEATURE	same as on PDIT (defined on ASPFD)
	ACTIVE	Y/N
ASPLPA, ASPMPA	Generated per line data from ASPFD	
ASPTPA	Generated per trunk data from ASPFD	

The call processing flow for the FCD and CDP triggers proceeds as follows:

1. Access code digits are collected and analyzed, and an ASP action detected.
2. An ASP Originating feature matching the feature associated with the ASP ACTION on PDIT or IDPDCA assigned on LINEFA, MLHLNFA, or TKGRPFA is verified.
3. This ASP Originating feature is verified as active on LINEFA, MLHLNFA, or TKGRPFA.
4. The FCD/CDP trigger is verified active on ASPLPA, ASPMPA, or ASPTPA.
5. The Class of service for a line ("INDIV", "ATND") or trunk ("PF", "PFLASH", "PFITT") is verified.
6. Collection and analysis of called DN digits proceeds as follows according to the value of ACTION:

- If ACTION equals "ASPDNC", no called DN digits are collected or analyzed;
 - If ACTION equals "ASPNORM", called DN digits are collected and analyzed; or
 - If ACTION equals "ASPVAR", called DN digits are collected until inter-digit timing expires or "#" is entered; digit analysis is not done.
1. The TRIG NBR assigned to the ACTION on PDIT(FCD)/IDPDCA(CDP) accesses the NSTRIG form. The TRIG NBR on NSTRIG is verified as active (ADM ST CD equals "ULK"), and the FCD/CDP query is launched.
 2. If any of the following conditions are encountered, call is routed to error treatment:
 - The current ASP Originating feature is not active or does not exist on LINEFA, MLHLNFA, or TKGRPFA;
 - The FCD/CDP Trigger is not active on ASPLPA, ASPMPA, or ASPTPA, or
 - TRIG NBR is inactive on NSTRIG (ADM ST CD equals "LK").

2.9 Custom Dialing Plan (CDP) Triggers (Formerly IDP)

For 5E9(1) and later, the following is an example of provisioning for CDP triggers.

CDP (Customized Dialing Plan) Trigger - 5E9(1)		
Form	Field	Name
ASPDFD	FEATURE	ORIGASP
	CONTROL	ORIG
	CDP TRIG ACT	Y/N
NSTRIG	TRIG NBR	From IDPDCA
	APPLICATION	ASP
	ADM ST CD	ULK/LK
LCC	CLASS OF	INDIV, ATND
	SERVICE	
TKGRP	TRKCLS	PF, PFLASH, PFITT
IDPDCA	ACTION	ASPDNC, ASPNORM, ASPVAR
	FEATURE	ORIGASP or /ID*
	TRIG NBR	1-255
LINEFA, MLHLNFA	FEATURE	Associated with ASP ACTION defined on IDPDCA
	ACTIVE	Y/N
TKGRPFA	FEATURE	Associated with ASP ACTION defined on IDPDCA
	ACTIVE	Y/N
ASPLPA, ASPMPA	Generated per line data from ASPFD	
ASPTPA	Generated per trunk data from ASPFD	

The call processing flow for this trigger is the same as for FCD triggers (see Section 2.8).

Note that for the unrestricted CDP (FEATURE on IDPDCA equals "/ID*"), steps 3 and 4 are not done. The user has permission to dial an ASP access code by virtue of having any IDP feature.

NOTE: Beginning with 5E8, IDP features may be assigned to PRI trunks as part of the CENTREX PRI Enhancements feature (For more information on this feature, see Division 2, Section 4A105). However, IDP/CDP ASP triggers are not supported by this feature.

2.10 Feature Button Trigger

Release 0.1, available in 5E9(1) and later, does not support feature button access for ISDN.

- NOTE:** ASP R0 feature buttons are still supported on custom ISDN sets. However, the actions "OASPNORM" and "IASPNORM" are used for FCD (ODP) and CDP (IDP) access, respectively. "ASPUSE", "IDPASP" and other ASP actions valid in releases prior 5E9(1) are no longer valid in 5E9(1).

Available with 5E9(1) Software Update and later, the secured feature, ASP Interworking with NISDN and ISATs (Secured Feature ID 139), allows ASP features to be assigned to National ISDN lines and supports R0.1. However, feature buttons are not carried over to work on NISDN sets with R0.1.

2.11 Automatic Route Selection Trigger

For 5E9(1) and later, there is no change in provisioning or call processing for an ASP ARS Trigger, with the exception as noted earlier that NAPs are no longer supported.

2.12 3/6/10-digit /N11 Triggers (previously known as DNTs)

See Section 2.7 for the provisioning of a 5E9(1) 3/6/10-digit / N11 through an SIT, and Figure 7 for the call processing.

For 5E9(1) and later, the following is an example of provisioning for DNTs.

3/6/10-digit / N11 Trigger - Subscriber and SCP Originated - 5E9(1)		
Form	Field	Value
IDDD, LDIT, MLDIT, PDIT, RDIT NSTRIG	TRIG NBR	1 - 255
	TRIG NBR	from Digit Analysis
	APPLICATION	ASP
	ADM ST CD	Y/N
OFCOPT	MAX TRIG	1-6

The call processing flow for this trigger is shown by the following sequence:

1. The dialed or SCP returned digits are collected and analyzed.
2. A non-zero TRIG NBR is found in digit analysis.
3. If the TRIG NBR is subscriber originated, the TRIG NBR from digit analysis accesses NSTRIG.
4. If the TRIG NBR is SCP originated, the trigger count is verified to be less than or equal to MAX TRIG, and the TRIG NBR from digit analysis accesses NSTRIG.
5. If APPLICATION equals "ASP" and ADM ST CD equals "ULK", a 3/6/10-digit / N11 query is launched using NSTRIG data. If APPLICATION equals "ASP" and ADM ST CD equals "LK", Switch routing is used.

2.13 Terminating Attempt Triggers

The TAT (Terminating Attempt Trigger), initially available in 5E9(1) ASP, allows a directory number to be designated as an ASP trigger. The TAT is a subscribed trigger, since a terminating ASP feature must be assigned to the directory number provisioned as a TAT. But to an originator encountering a TAT, it is viewed as a non-subscribed trigger since the originator does not require the assignment of an originating ASP

feature. When an attempt is made to terminate a call to a directory number provisioned as a TAT, a query is launched instead of completing the call. When call processing attempts to complete a call and detects the assignment of the ASP terminating feature, call processing for the call is suspended and a query launched. The call is routed based upon the SCP's instructions.

In general, assigning Terminating Attempt trigger functionality requires the following:

- The TAT directory numbers must be local at the SSP office where they are being defined, and require line equipment assignments. The line equipment does not need associated CPE to function as a TAT.
- A terminating ASP feature is to be associated with the TAT directory number. The ASP terminating feature or line parameters, associated with the TAT, must identify a trigger number that utilizes 5E9(1) ASP protocol.
- Assignment of a TAT to analog-only facilities must include the following:
 - An analog directory number (Note: When the MDNL (Multiple Directory Numbers per Line) capability is associated with an analog directory number, a TAT is encountered when any of the DNs are dialed.)
 - The lead member of an analog MLHG;
 - Any no-hunt member of an MLHG.
- Directory numbers assigned as TATs can have the following originating and terminating service on the LCC form:
 - CLASS OF SERVICE equals
 - "10PTY",
 - "2PTY",
 - "4PFS",
 - "4PSS",
 - "4WINDIV",
 - "5PTY",
 - "8PSS",
 - "ATND",
 - "CALLBK",

"CHGCALL",

"COIN",

"HOTMOTL",

"HOTPBX",

"INDIV",

"MODEM",

"PBX",

"SATSTLN", or

"TWOPTY".

— TERMINATING TREATMENT equals:

"INDIV",

"INWATS",

"MLHG", or

"PARTY".

- An inactive TAT completes calls to the associated directory number without encountering the trigger. TATs can be deactivated by use of the TA TRIG ACT field on ASPLPA or ASPMPA, deactivating the feature on the LINEFA form, or the ADM ST CD field on the NSTRIG form (though this latter method would also remove the ASP functionality from all lines/trunks associated with the trigger number. This deactivation method could affect various types of ASP triggers (that is, OHI, OHD), since a defined NSTRIG trigger number can be removed).

For 5E9(1) and later, the following is an example of provisioning for a TAT trigger.

Terminating Attempt Trigger - 5E9(1)		
Form	Field	Value
ASPLPA	FEATURE	/ASPTerm
	CONTROL	TERM
NSTRIG	TRIG NBR	3
	APPLICATION	ASP

LINEFA	ALT GBL TITLE	blank
	SERV KEY	
	STP TT NBR	
	ADM ST CD	ULK
	AIN REL	R0D1
	TN	7138000
ASPLPA, ASPMPA	FEATURE	/ASPTERM
	A	Y
	P	U
	TN	7138000
	FEATURE	/ASPTERM
	TA TRIG NBR	3
	TA TRIG ACT	Y
	INTRA OFFICE FWD	blank
	INTER OFFICE FWD	

3. FEATURE ASSIGNMENT

3.1 Trigger Precedence

With the introduction of the escape processing from OHD triggers and the concept of inactive triggers, more than one trigger can be encountered on a call before the initial query is sent to the SCP. The following general rules apply to the precedence of these triggers (note that this is pre-query):

- No subsequent subscribed triggers may be encountered after OHI. Note that if the line is defined as a direct connect line, it is treated as such if the OHI is inactive.
- If a trigger is inactive, and requirements specify that the call should continue as though no trigger was detected, a subsequent trigger then takes precedence.
- DNTs are ignored if encountered after an active subscribed trigger unless they specify escape processing and the previously encountered trigger was OHD.
- FCD triggers take precedence over a previously encountered subscribed trigger only if: they specify normal digit collection, the digits collected specify escape treatment, and the previous trigger is OHD.

Figure 1 summarizes the precedence of the originating triggers.

3.2 Inactive Trigger Processing

ASP triggers may now be deactivated at three levels:

1. Individual ASP trigger within the ASP feature assigned to a line or trunk - The craft and the SCP can deactivate specific triggers within the feature on a per subscriber basis.
2. BRCS feature level - The craft can deactivate the ASP feature assigned to a line or trunk for a specific subscriber via LINEFA or MLHLNFA. This logically deactivates all ASP triggers defined for that subscriber within the ASP feature.
3. Trigger Table - The craft can deactivate any ASP trigger via NSTRIG. This deactivates all triggers which reference the specified trigger number. Note that this trigger number can be for a 3/6/10-digit / N11 (DNT) as well as any of the subscribed triggers.

Detection of an inactive trigger will in some cases result in the trigger being ignored and in others will result in error treatment. The following table summarizes the processing for each of the ASP triggers when the trigger

is inactive.

Processing of Inactive Triggers	
Trigger	Processing
OHI	Continue as though trigger not detected.
OHD (Line)	
OHD (Trunk)	
OHD (PRI)	
FCD	Error Treatment.
CDP	
SIT (OZZ)	Continue as though trigger not detected. Will look for ANI II, 800 digits, or UNRES EA, else error treatment. No further digit analysis done.
SIT (ANI II)	Error Treatment unless 800 dialed or UNRES EA encountered.
SIT (UNRES EA)	Error Treatment (the SIT trigger would not be hit if 800 dialed).
PRIVATE EAMF (OHD)	
DNT	Continue as though trigger not detected.
DNT on SIT	(Note, the EAOFC trigger can not be inactive) If DNT trigger inactive, continue as though trigger not detected if CST purchased. Can also hit 800 DEST TYPE.
TAT	Continue as though trigger not detected.

3.3 Retrofit to 5E9(1)

For 5E9(1) and later, there are several aspects to retrofit to 5E9(1).

1. The first is the new form ASPDP. This ODA-only view defines ASP parameter data on a feature basis. ASPDP recovers existing (5E8) default parameter ASP data into the new BRCS format. This form can change default parameter data (the data cannot be changed for preconstructed ASP features on ASPFD).
2. The second is the concept of a Predominant Trigger Number. In 5E8, trigger numbers were assigned in digit analysis. In 5E9(1), trigger numbers are assigned on a per terminal basis. Since multiple triggers can exist in digit analysis, and only one trigger can be assigned to a terminal, ODA must determine a predominant trigger. The predominant trigger is determined by the following factors:
 - The number of dialable codes having a non-zero TRIG NBR within the ASP dialing plan (ASP DAS on OFCOPT).
 - The Weighting factor for number of digits defined in the incoming digits. For example, if the thousands group 2201 is assigned a non-zero TRIG NBR in the ASP dialing plan, this represents 1000 dialable codes accessing ASP.
 - Only TRIG NBRs having an APPLICATION equals "ASP" on NSTRIG are involved.

The following tables describe the ASP data evolution from 5E8 to 5E9(1) for each trigger type. These evolutions can be defined as if/then relationships (if the first table of a pair is the provisioning for 5E8, the second table of the pair is the corresponding provisioning for 5E9(1) and later).

OHI Trigger (lines only) - 5E8		
Form	Field	Value
LINE, MLHLN	NODL	HOT
	HTN	Blank
	ASP ALW	Y
LCC	DAS	ASP DAS
OFCOPT	ASP OFC	SSP

OHI Trigger (lines only) - 5E9(1)		
Form	Field	Value
NSTRIG	TRIG NBR	254

	APPLICATION	ASP
	ALT GBL TITLE	Blank
	SERV KEY	ANI
	STP TT NBR	blank
	ADM ST CD	ULK
	AIN REL	R0
LINEFA, MLHLNFA	FEATURE	/ASPORIG
	ACTIVE	Y
ASPLPA, ASPMPA	FEATURE	/ASPORIG
	OHI TRIG NBR	254
	OHI TRIG ACT	Y
ASPDP	OHI TRIG NBR	254
	TRIG ACT	Y

OHD Trigger (lines, trunks) - 5E8

Form	Field	Value
LINE, MLHLN	ASP ALW	Y
LCC	DAS	ASP DAS
OFCOPT	ASP OFC	SSP

OHD Trigger (lines, trunks) - 5E9(1)

Form	Field	Value
NSTRIG	TRIG NBR	Predominant trigger
	APPLICATION	ASP
	ALT GBL TITLE	carried forward from 5E8 data
	SERV KEY	carried forward from 5E8 data
	STP TT NBR	blank
	ADM ST CD	ULK
	AIN REL	R0
LINEFA, MLHLNFA, TKGRPFA	FEATURE	/ASPORIG
	ACTIVE	Y
ASPLPA, ASPMPA, ASPTPA	FEATURE	/ASPORIG
	OHD TRIG NBR	Predominant trigger (ODA)
	OHD TRIG ACT	Y
	FCD ALLOWED	Y
	FCD TRIG ACT	Y
ASPDP	FEATURE	/ASPORIG
	OHD TRIG NBR	Predominant trigger (ODA)
	OHD TRIG ACT	Y
	FCD ALLOWED	Y
	FCD TRIG ACT	Y

FCD Trigger (lines, PF trunks) - 5E8

Form	Field	Value
LINE, MLHLN, TKGRP	ASP ALW	Y
LCC or TKGRP	DAS	NOT ASP DAS
OFCOPT	ASP OFC	SSP
PDIT	ACTION	ASPUSE

FCD Trigger (lines, PF trunks) - 5E9(1)

Form	Field	Value
NSTRIG	TRIG NBR	carried forward from 5E8 data
	APPLICATION	ASP
	ALT GBL TITLE	carried forward from 5E8 data
	SERV KEY	carried forward from 5E8 data
	STP TT NBR	blank
	ADM ST CD	ULK
	AIN REL	R0
PDIT	ACTION	ASPNORM
	FEATURE	/ASPORIG
	TRIG NBR	carried forward from 5E8 data
LINEFA, MLHLNFA	FEATURE	/ASPORIG
	ACTIVE	Y
TKGRPFA	FEATURE	/ASPORIG
	ACTIVE	Y
ASPLPA, ASPMPA	FCD ALLOWED	Y
	FCD TRIG ACT	Y
ASPTPA	FCD ALLOWED	Y

	FCD TRIG ACT	Y
CDP Trigger (lines, PF trunks) - 5E8		
Form	Field	Value
LINE, MLHLN, TKGRP	ASP ALW	Y
LCC or TKGRP	DAS	NOT ASP DAS
OFCOPT	ASP OFC	SSP
IDPDCA	ACTION	IDPASP
CDP Trigger (lines, PF trunks) - 5E9(1)		
Form	Field	Value
NSTRIG	TRIG NBR	from 5E8 data
	APPLICATION	ASP
	ALT GBL TITLE	from 5E8 data
	SERV KEY	from 5E8
	STP TT NBR	blank
	ADM ST CD	ULK
IDPDCA	AIN REL	R0
	ACTION	ASPNORM
	FEATURE	/ASPORIG
LINEFA, MLHLNFA	TRIG NBR	Predominant trigger (ODA)
	FEATURE	/ASPORIG
	ACTIVE	Y
TKGRPFA	FEATURE	/ASPORIG
	ACTIVE	Y
ASPLPA, ASPMPA	CDP ALLOWED	Y
	CDP TRIG ACT	Y
ASPTPA	CDP ALLOWED	Y
	CDP TRIG ACT	Y

There are also several new fields added to support 5E9(1) ASP. In addition, TRIG NBR from 5E8 is expanded from 1 - 127 to 1 - 255.

New Field Settings		
Form	Field	Value
OFCOPT	INT OFC TRIG	255
	ESC CD CNTL	N
	MAX TRIG	Blank
	RDRCT THRES	Blank
	SCP DAS	SCPL DAS
IDDD, INDIT, LDIT, RDIT, PDIT	ESC CODE	N

4. ASP 5E9(1) TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPD	5632-5	4	31E	12.64
ASPD	5632-1	4	31A	12.64
ASPLPA	5632-2	4	31B	1.64
ASPMPA	5632-3	4	31C	1.64
ASPTPA	5632-4	4	31D	5.64
CFGGRP	5964	6	7A	12.5
DSAPP	5537	3	5AK	8.17
DSLUSR	5908	5	1I	23.2, 23.8
IDDD	5307	3	3T	9.6
IDPDCA	5601-1, 2	4	2B	9.13
INDIT	5309	3	3V	9.5
LDIT	5300-3/5	3	3C	9.3
LINE	5109	3	1I	1.5, 1.6
MLDIT	5300-3	3	3C	9.15
MLHLN	5111	3	1K	1.6
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1
PDIT	5300-2	3	3B	9.2
RDIT	5300-7/8	3	3H	9.9

SHTN	5902	5	1C	23.20
TGSRFD	5607-1, 2	4	8A	12.21
TKGRP	5202	3	2A	5.1

4.1 Line Translations

LINE form (5109 Record) - The LINE form defines the office Equipment Number and features for each telephone number in a 5ESS Switch.

The field ASP ALW was removed.

MLHLN form (5111 Record) - The MLHLN form defines the individual Terminal Numbers assigned to a particular Multi-Line Hunt Group.

The field ASP ALW was removed.

4.2 Trunks Translations

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form.

The field TRIG NBR is the trigger number used when the ANI II digits or the UNRESEA field on TKGRP detect a shared interoffice trigger. If this field is blank, the trigger number assigned to the INT OFC TRIG field on OFCOPT is used.

Fields ASP ALW and ASP ORIG were removed.

4.3 Routing and Charging Translations

IDDD form (5307 Record) - The IDDD form is used for IDDD (International Direct Distance Dialing) Country Access Codes.

IDDD provides the capability for Direct Distance Dialing points outside the North American Network by the customer without the assistance of an operator.

The field ESC CODE is associated with digits dialed after an active OHD or 0ZZ SIT trigger is detected. If this field is set to "Y", call processing escapes from the detected trigger. Escape processing applies to the following triggers: OHD on lines, OHD on PF trunks, PRI channel setups, and SITs (0ZZ on INDIT) if SFID 6 ACT on SFSYS is "Y".

Upon escape from OHD processing, the call may encounter a DNT.

INDIT form (5309 Record) - The INDIT form defines the initial digit analysis and subsequent treatment of impulsed digits from all Incoming and Two-Way Trunks based upon the initial digits received.

The field ESC CODE was added (see description under IDDD).

The NATURE OF NBR field was removed.

LDIT form (5300-3/5 Record) - The LDIT form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

The field ESC CODE was added (see description under IDDD).

The NATURE OF NBR and NON fields were removed.

MLDIT form (5300-3 Record) - The MLDIT form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

The field ESC CODE was added (see description under IDDD).

The NATURE OF NBR field was removed.

NSTRIG form (5324 Record) - The NSTRIG form identifies a network service application, and was created primarily for the ASP network service, but can be used by other network services. The view contains alternate STP network addressing and information for the switch owner's selectable service key.

The field AIN REL has two enumerations to determine the query format:

- "R0" is AIN Release 0, requiring SFID ACTs 58 and 51 equals "Y" on the SFSYS form; and
- "R0D1" is AIN Release 0.1, requiring SFID ACT 126 equals "Y" on SFSYS.

The field STP TT NBR defines the STP Translation Type Number for this particular trigger. If blank, the TT assigned to the application on DSAPP is used. This field applies only to 5E9(1) triggers.

The field ADM ST CD defines the administrative state code: "LK" (locked), or "ULK" (unlocked), and provides craft control of ASP services for a specific trigger number.

The enumeration "EAASP" was removed from the APPLICATION field.

PDIT form (5300-2 Record) - The PDIT form defines the Prefix/Feature Digit Interpreter in a 5ESS Switch. It provides information defining feature and operator access, and prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). Digit analysis for all line originated calls in a 5ESS Switch starts in PDIT. At least the first digit of every valid dialable code must be represented in PDIT.

The field ESC CODE was added (see description under IDDD).

Upon escape from OHD processing, call processing may encounter a DNT trigger or FCD trigger.

Enumerations were added to the ACTION field to support FCD and CDP triggers. These triggers can be assigned to lines (CLASS OF SERVICE of "ATND" or "INDIV") and trunks (TRKCLS of "PF", "PFLASH", and "PFITT"). The new ACTIONS are:

- "ASPDNC" - No further digits are collected and an immediate query is sent to the SCP. A response is received and the call is routed;
- "ASPNORM" - Digit collection and digit analysis on the collected digits are performed. A query is then launched to the SCP, a response is received and the call is routed; and
- "ASPVAR" - Digits are collected until interdigit timing expires. A query is launched and a response is received from the SCP. The call is routed.

The enumeration "ASPUSE" was removed from the ACTION field. The NATURE OF NBR field was removed.

RDIT form (5300-7/8 Record) - The RDIT form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains

whether or not the remaining digit string is a selective dialing request.

The field ESC CODE was added (see description under IDDD).

The NATURE OF NBR and NON fields were removed.

4.4 Miscellaneous Translations

DSAPP form (5537 Record) - The DSAPP form specifies the Direct Signaling Application Type, Transaction Type and the Subsystem Number used by the direct signaling trunks which use the CCS7 signaling protocols.

The APPLIC field enumeration of "AINR0D1" defines the CCS7 protocol. The SFSYS SFID ACT 126 must be "Y" before this value can be assigned.

OFCOPT form (5509 Record) - The OFCOPT form supplies various miscellaneous office options and parameters.

The field ACG FNL TRMT specifies the final AIN handling treatment for calls blocked due to ACG (Automatic Call Gapping) controls. Enumerations are "RT", reorder tone, or "VA", voice announcement of no circuit available.

The field INT OFC TRIG is the Shared Interoffice Trigger Number, used when ANI II or UNRES EA detects a shared interoffice trigger and TRIG NBR on TKGRP is blank.

The field ESC CD CNTL, if set to "Y", allows escape codes to be used on dialed digits following the detection of an 0ZZ shared interoffice trigger on INDIT. To change this parameter to "Y" the office must purchase the ASP secured feature SFID 126 and SFID 006.

The field MAX TRIG specifies the maximum number of times an ASP call can serially trigger. If the ASP SFID 126 is set to "Y", the values are 1 to 6. Otherwise, the value is fixed at 3.

The field RDRCT THRES is the Forward Call Redirection Threshold, and limits how many originating and terminating redirection parameters a given call may receive. To assign a non-zero value, the ASP SFID 126 must be activated.

The field SCP DAS is used as the DAS for translating routing numbers returned from the SCP database, replacing SCPL DAS and SCPT DAS.

For the ASP OFC field, enumerations "BILLNAP" and "NOBILLNAP" are no longer supported, since 5E9(1) ASP does not support NAP offices.

The fields ASP DAS, SCPL DAS, and SCPT DAS were removed.

4.5 BRCS Features Translations

The field assignments for ASPDP, ASPFD, ASPLPA, ASPMPA, and ASPTPA are shown in Figure 3.

ASPD form (5632-5 Record) - For 5E9(1) and later, ASPDP defines ASP parameter data on a feature basis. It recovers existing (5E8) default parameter ASP data into the new BRCS format. This form can change default parameter data, but the data cannot be changed for preconstructed ASP features on the ASPFD form.

ASPFD form (5632-1 Record) - For 5E9(1) and later, ASPFD defines the various combinations of options available with the ASP feature.

ASPLPA form (5632-2 Record) - For 5E9(1) and later, ASPLPA defines ASP Line Parameters, and is used when an ASPFD constructed feature is assigned to a non-Multi-Line Hunt line and the desired parameters are different from the default parameters on the ASPFD form.

ASPMPA form (5632-3 Record) - For 5E9(1) and later, ASPMPA defines ASP Multi-Line Hunt line parameters, and is used when an ASP constructed feature is assigned to a Multi-Line Hunt line, and the desired parameters are different from the default parameters on the ASPFD form.

ASPTPA form (5632-4 Record) - For 5E9(1) and later, ASPTPA assigns ASP feature parameters to trunks if the default parameters of the ASPFD form are inappropriate or unspecified.

IDPDCA form (5601-1/2 Record) - The IDPDCA form defines the dialed codes associated with IDPs.

The field TRIG NBR is used for CDP triggers.

Enumerations were added to the ACTION field to support FCD and CDP triggers (see description under PDIT).

TGSRFD form (5607-1/2 Record) - The TGSRFD form defines the TGSR (Terminal Group and Station Restriction) Feature Definition. Terminal Group and Station Restriction provides a means of grouping two or more terminals to provide station screening.

The TERMINATING RESTRICTIONS and TERMINATING DEFAULTS of "ASPF" and "ASPS" were removed.

- **NOTE:** Beginning with 5E8, IDP features may be assigned to PRI trunks as part of the CENTREX PRI Enhancements feature (For more information on this feature, see Division 2, Section 4A105). However, IDP/CDP ASP triggers are not supported by this feature.

4.6 ISDN/Packet Switching Translations

DSLUSR form (5908 Record) - The DSLUSR form defines the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form.

The field ASP ALW was removed.

SHTN form (5902 Record) - The SHTN form assigns a Primary or Secondary TN or MLHG/TERM to ISDN Terminals. A telephone number which appears on more than one terminal is called a Shared TN or MLHG/TERM. Shared TNs or MLHG/TERMs are divided into Primary and Secondary TNs or MLHG/TERMs.

The field ASP ALW was removed.

4.7 ISDN BRCS Translations

CFGGRP form (5964 Record) - The CFGGRP form assigns BRCS feature actions to CPE user terminal buttons.

The ACTION enumerations "ASPUSE" and "IDPASP" were removed.

4.8 Announcement Translations

ANNAPL form (5529 Record) - A new APPLICATION of "PVN" has been added for use in building ASP announcements.

ANNHD form (5531 Record) - A new APPLICATION of "PVN" has been added for use in building ASP announcement header phrase lists.

ANNTTR form (5533 Record) - A new APPLICATION of "PVN" has been added for use in building ASP announcement trailer phrase lists.

FIXRT form (5301-1 Record) - A new FIXED ROUTE TYPE of "NSANNC" has been added to specify the route index to the Digital Service Unit Model 2 - Recorded Announcement Function containing the ASP announcements.

PHRASE form (5534 Record) - A new APPLICATION of "PVN" has been added for use in building phrases to be used in ASP announcements.

RTIDX form (5303 Record) - This defines the route index found on the FIXRT which points to the DSU2-RAF.

SSPANN form (5535 Record) - An SSPANN form must be entered for every announcement code that could be returned by the SCP. Two new fields, CUST HDRID and CUST TRLID, were added to specify customized header and trailer IDs to be played when failure announcement code is received from an SCP. The existing ANNC RTI field was made optional when a CUST HDRID is entered. One new field, SM, was added for commonality with the Recent Change view and cannot have data entered into it on the ODA form.

TKGRP form (5202 Record) - Defines the trunk group that points to the DSU2-RAF for ASP announcements. Set TRK DIR to "RAF", TRKCLS to "RAFDTA" and SVC GRP to "ASP".

TRUNK form (5204 Record) - Defines trunk members that access DSU2-RAF channels that have been programmed for ASP announcements. See Division 3, Section 2C and 2Q for details on making these assignments.

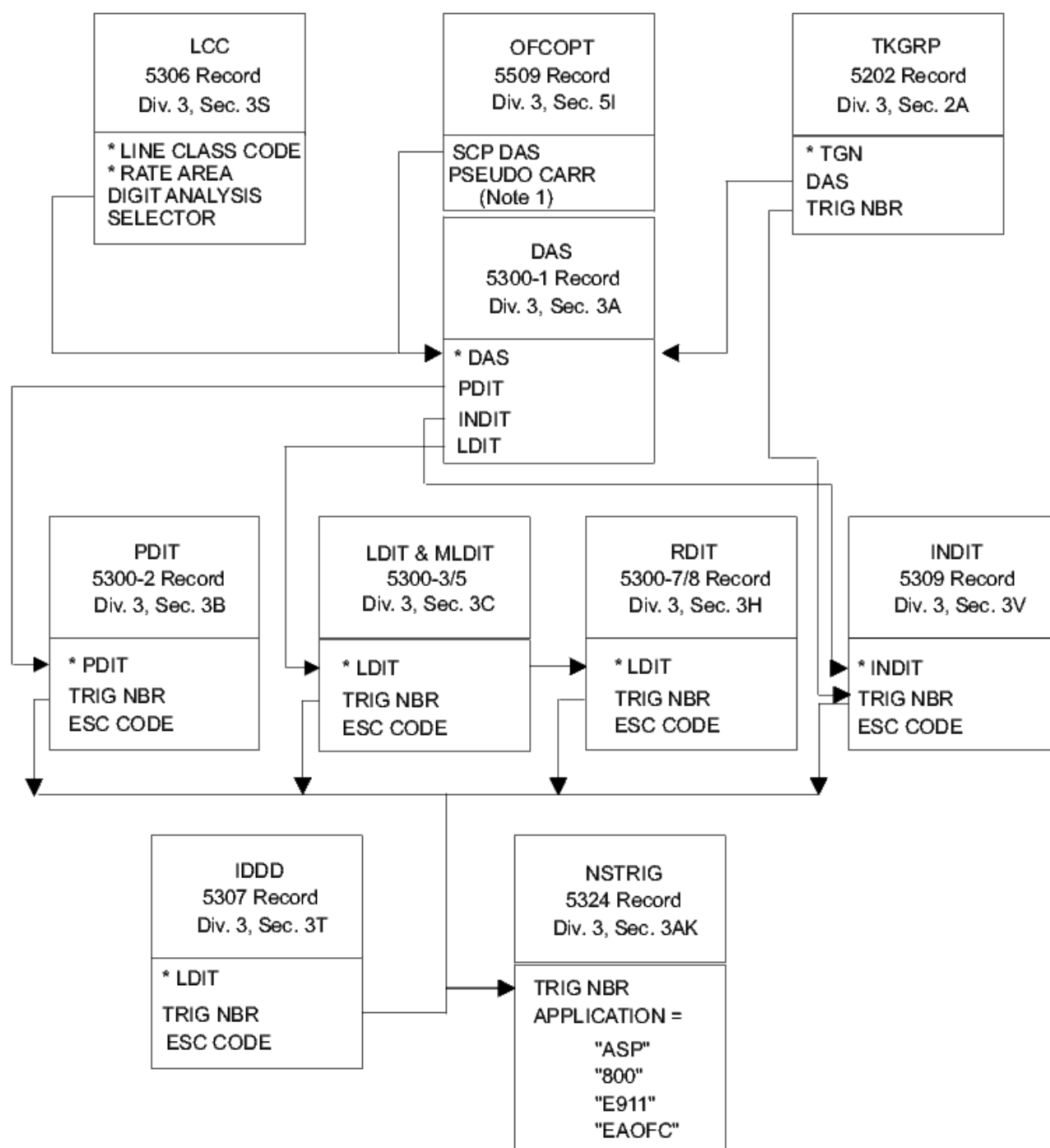
Active OHD	Active CDP or FCD	Dialed Digits	Switch Action
Yes	No	DN	OHD query
Yes	No	DNT	OHD query
Yes	No	DNT (inact)	OHD query
Yes	No	DNe	switch routing (escaped OHD query)
Yes	No	DNTe	DNT query (escaped OHD query)
Yes	No	DNTe (inact)	switch routing (escaped OHD query)
Yes	No	*ASP + anything	Error
Yes	Yes	DN	OHD query
Yes	Yes	DNT	OHD query
Yes	Yes	DNT (inact)	OHD query
Yes	Yes	DNe	switch routing (escaped OHD query)
Yes	Yes	DNTe	DNT query (escaped OHD query)
Yes	Yes	DNTe (inact)	switch routing (escaped OHD query)
Yes	Yes	*ASP + DN	OHD query
Yes	Yes	*ASP + DNT	OHD query
Yes	Yes	*ASP + DNT (inact)	OHD query
Yes	Yes	*ASP + DNe	Access code query (escaped OHD query)
Yes	Yes	*ASP + DNTe	Access code query (escaped OHD query)
Yes	Yes	*ASP + DNT (inact)	Access code query (escaped

			OHD query)
Yes	Yes	*ASP + none	OHD query
Yes	Yes	*ASP + variable	OHD query
No	Yes or No	any DN, inactive DNT	switch routing
No	Yes or No	DNT	DNT query
No	Yes	*ASP + correct subsequent digits	Access code query
No	No	*ASP + anything	Error

Figure 1 ORIGINATING TRIGGER PRECEDENCE SUMMARY 5E9(1) AND LATER SOFTWARE RELEASES

Field	Description	Value(s)	Forms
FEATURE	The ASP feature Name	1 — 8 characters	ASPF, ASPLPA, ASPMPA, ASPDP
CONTROL	The ASP feature type control	"ORIG", Feature is applied to the originator. "TERM", Feature is applied to the terminator	ASPF
OHI TRIG NBR	The trigger number for off-hook immediate triggers	1 — 255	ASPF, ASPLPA, ASPMPA, ASPDP
OHI TRIG ACT	Is the off-hook immediate trigger active?	Y, N	ASPF, ASPLPA, ASPMPA, ASPTPA, ASPDP
OHD TRIG NBR	The off-hook delay trigger number	1 — 255	ASPF, ASPLPA, ASPMPA, ASPDP
OHD TRIG ACT	Is the off-hook delay trigger active?	Y, N	ASPF, ASPLPA, ASPMPA, ASPTPA, ASPDP
CDP ALLOWED	Is the customized dialing plan trigger allowed?	Y, N	ASPF, ASPLPA, ASPMPA, ASPTPA, ASPDP
CDP TRIG ACT	Is the customized dialing plan trigger active?	Y, N	ASPF, ASPLPA, ASPMPA, ASPTPA, ASPDP
FCD ALLOWED	Is the feature code dialing trigger allowed?	Y, N	ASPF, ASPLPA, ASPMPA, ASPTPA, ASPDP
FCD TRIG ACT	Is the feature code dialing trigger active?	Y, N	ASPF, ASPLPA, ASPMPA, ASPTPA, ASPDP
TA TRIG NBR	The terminating attempt trigger number	1 — 255	ASPF, ASPLPA, ASPMPA, ASPDP
TA TRIG ACT	Is the terminating attempt trigger active?	Y, N	ASPF, ASPLPA, ASPMPA, ASPDP
INTRA OFFICE FWD	The number of intra office calls that can be forwarded	1 — 99	ASPF, ASPLPA, ASPMPA, ASPDP
INTER OFFICE FWD	The number of inter office calls that can be forwarded	1 — 99	ASPF, ASPLPA, ASPMPA, ASPDP

Figure 2 ASP BRCS FORMS - FIELD ASSIGNMENTS 5E9(1) AND LATER SOFTWARE RELEASES



Note 1: Collected 0ZZ-XXX or TNS parameter (for the INDIT case)

Figure 3 ASP DIALING PLAN AT SSP FORM FLOW 5E9(1) AND LATER SOFTWARE RELEASES

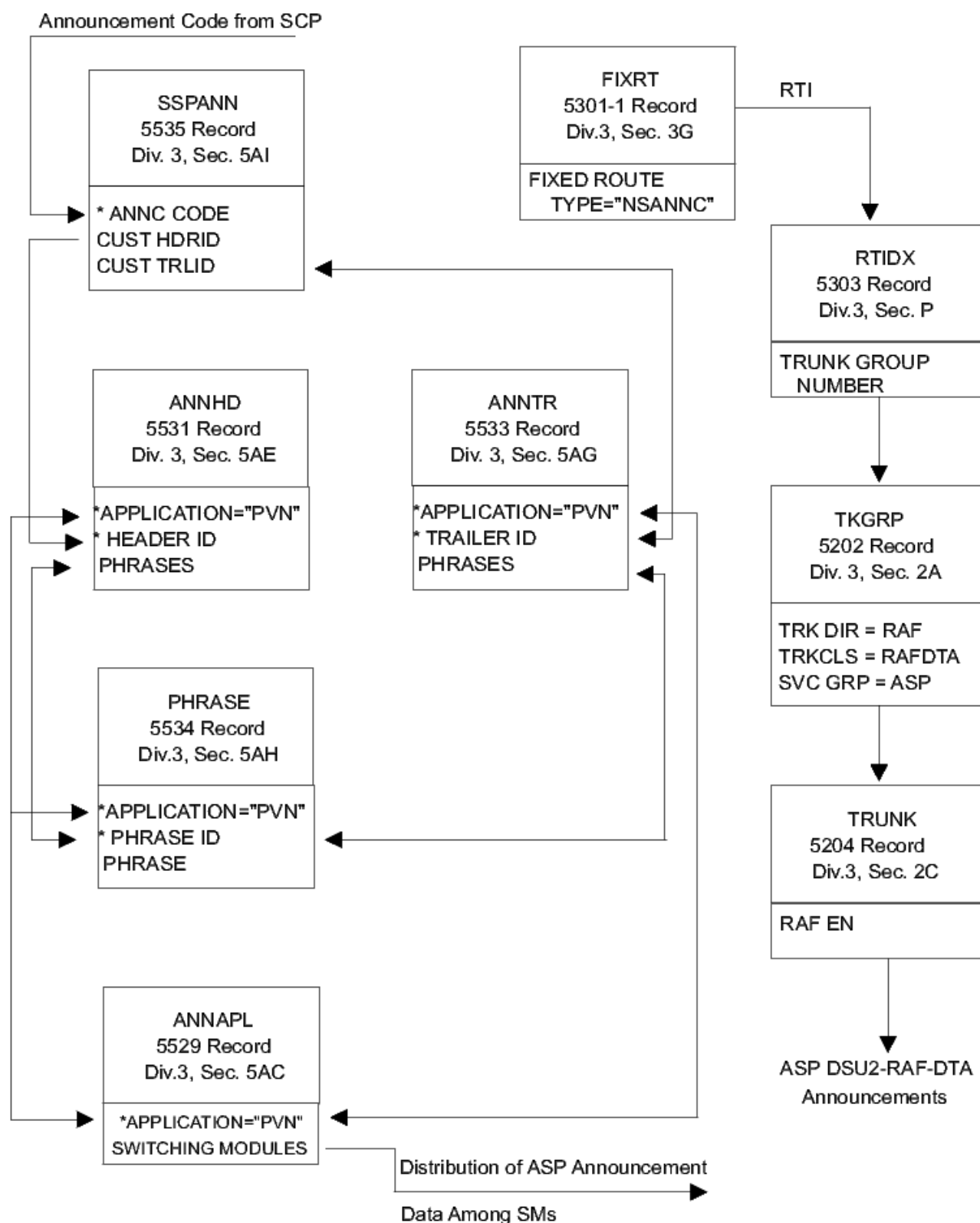
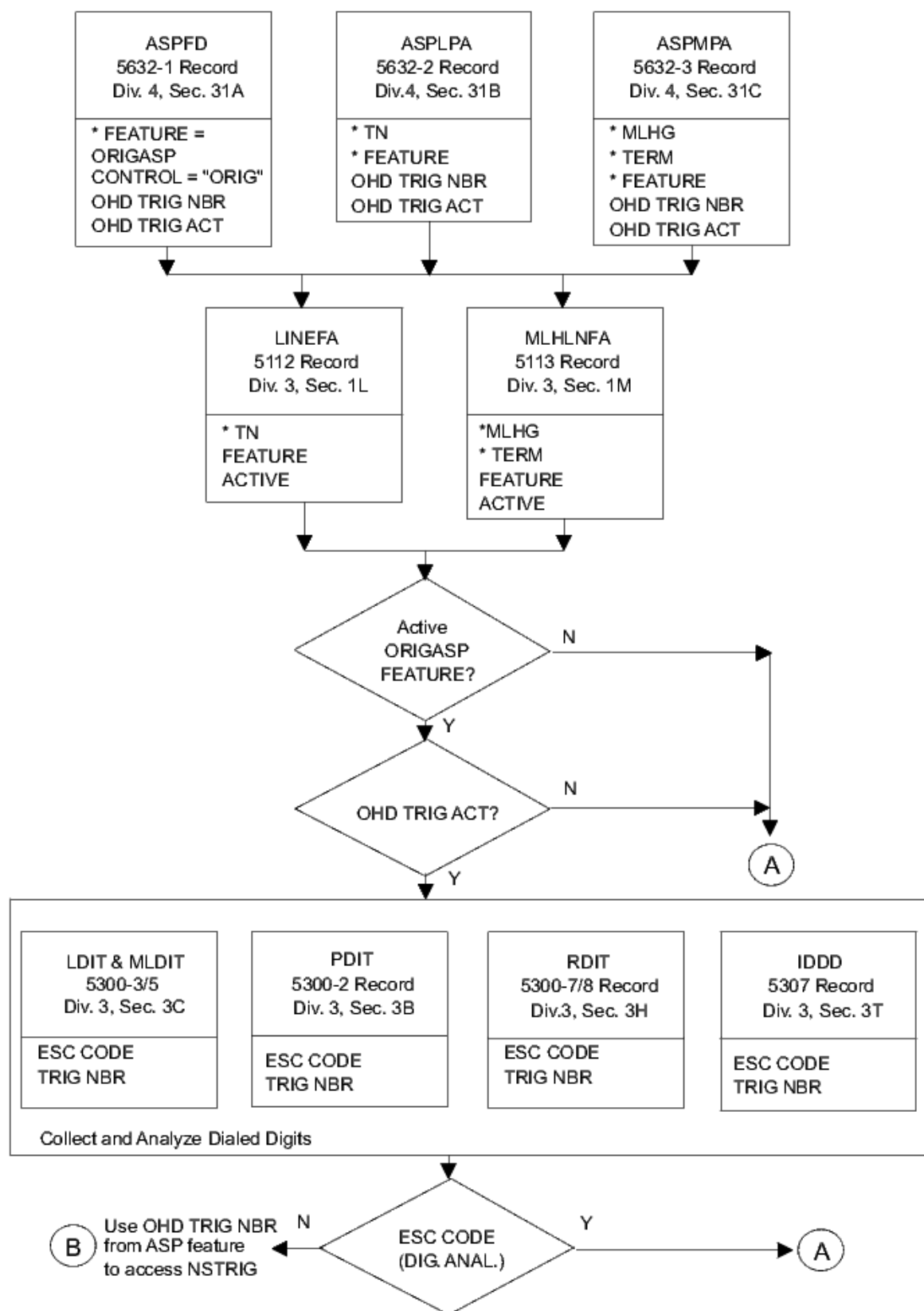


Figure 4 ASP ANNOUNCEMENT FORM FLOW 5E8 AND LATER SOFTWARE RELEASES



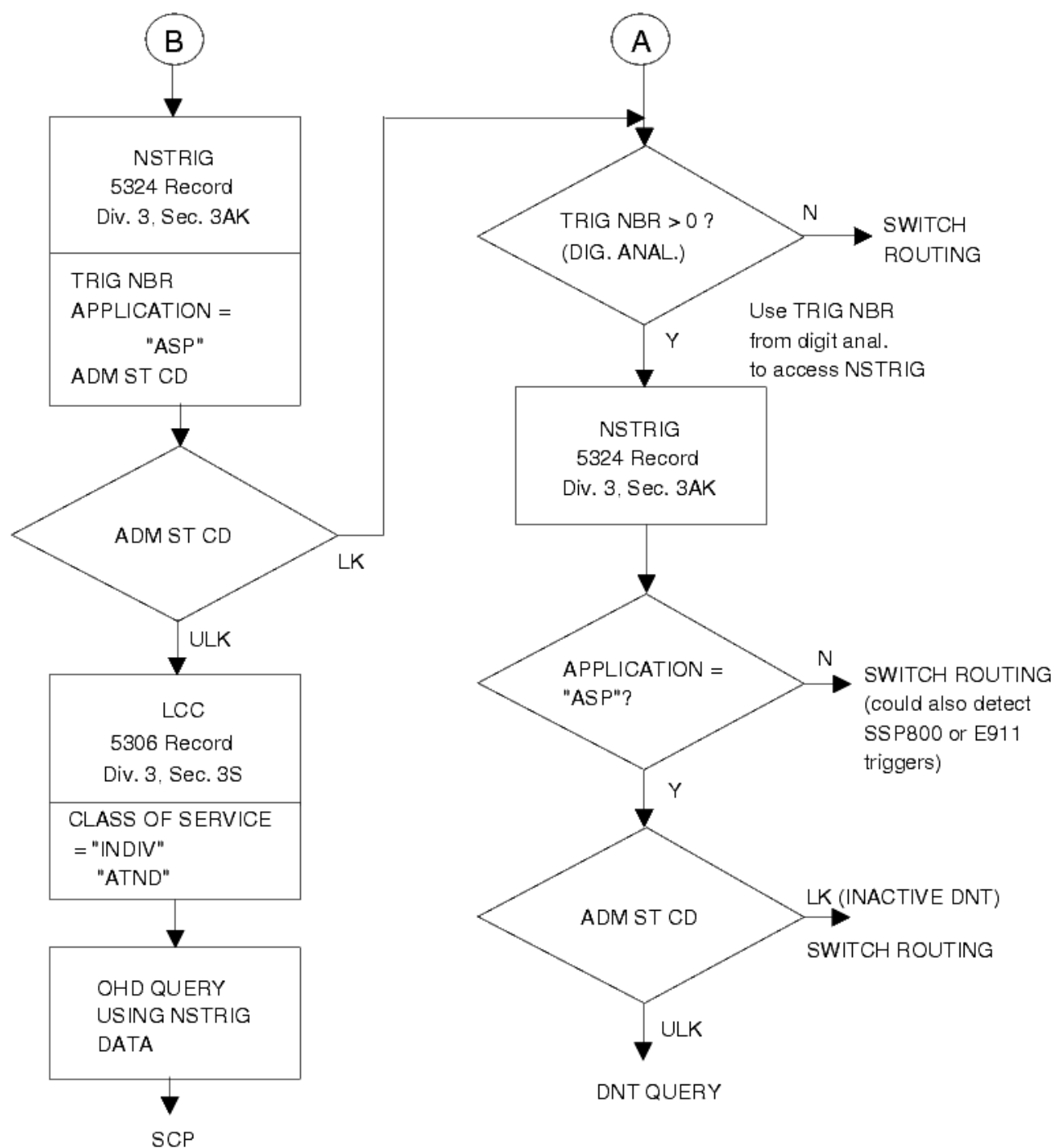
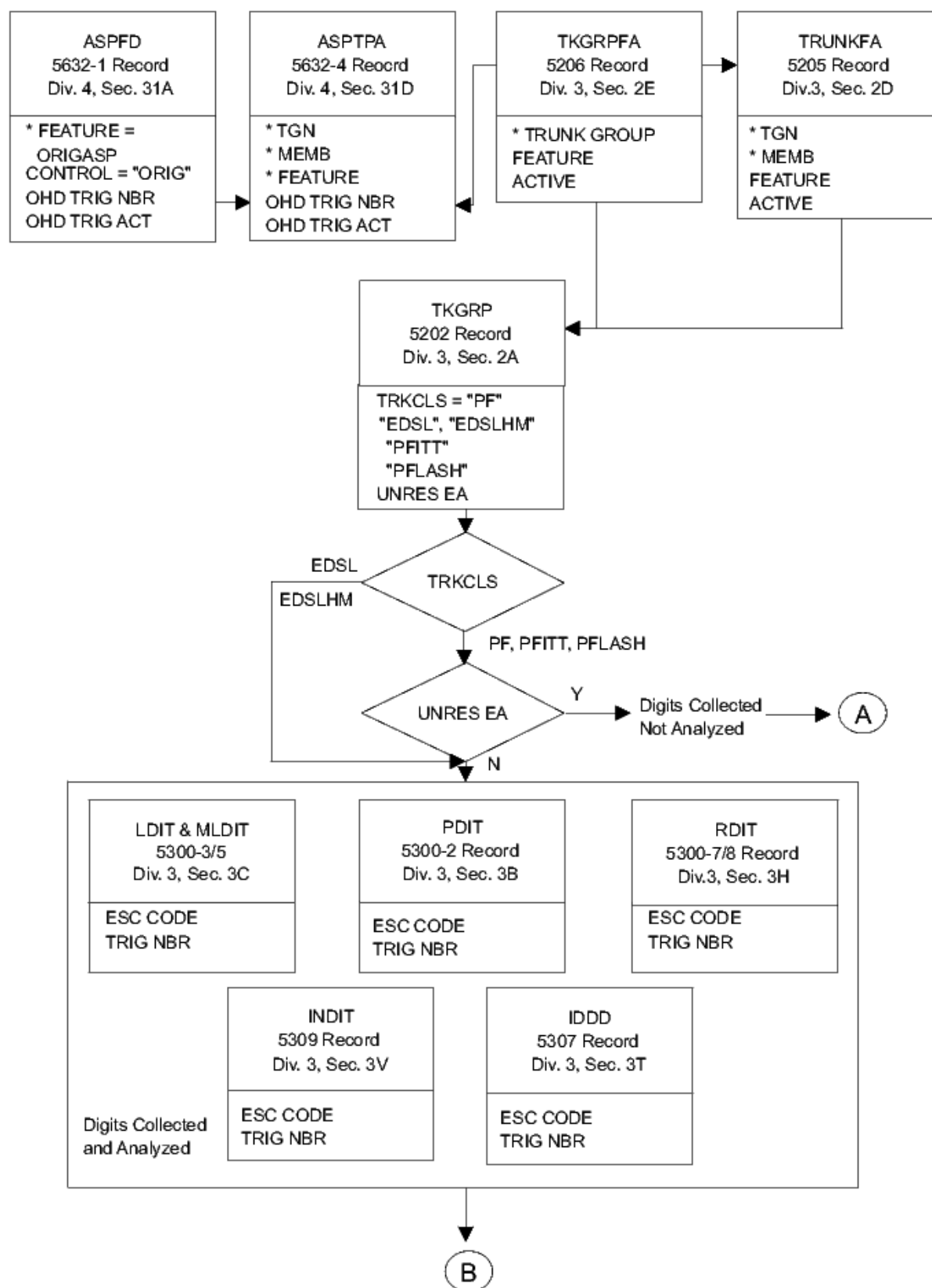


Figure 5 CALL PROCESSING OHD TRIGGER (LINES) 5E9(1) AND LATER SOFTWARE RELEASES



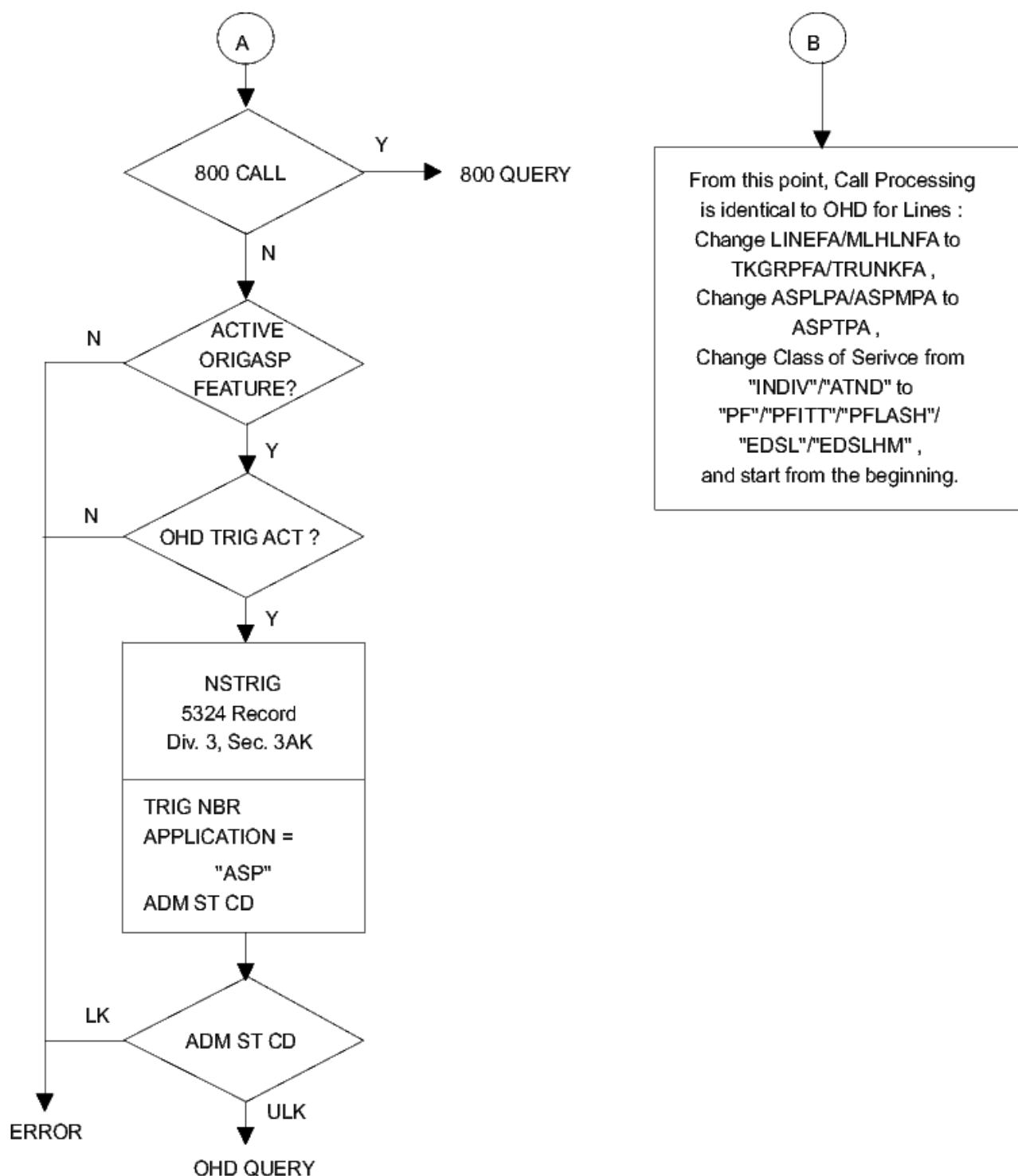
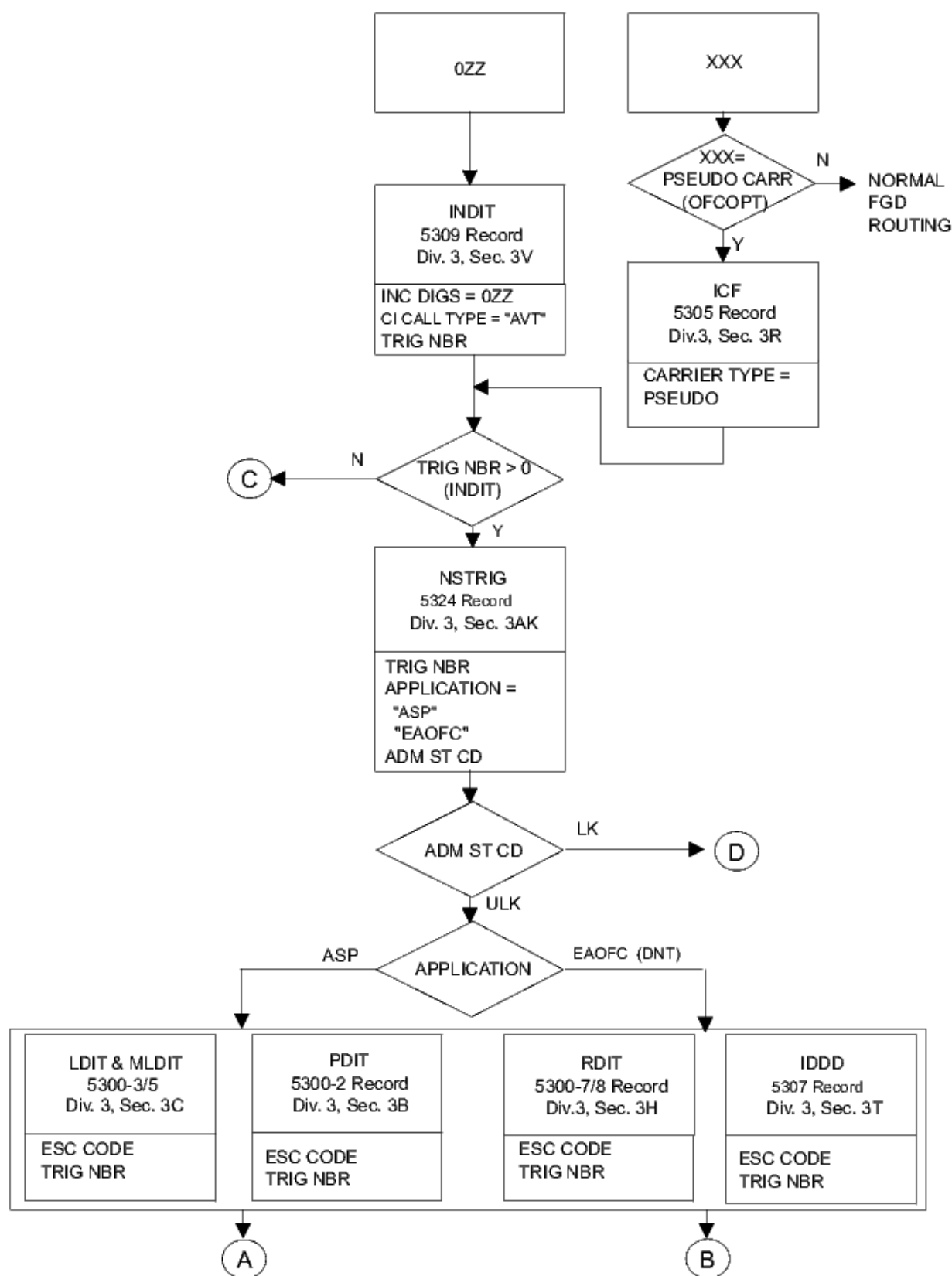
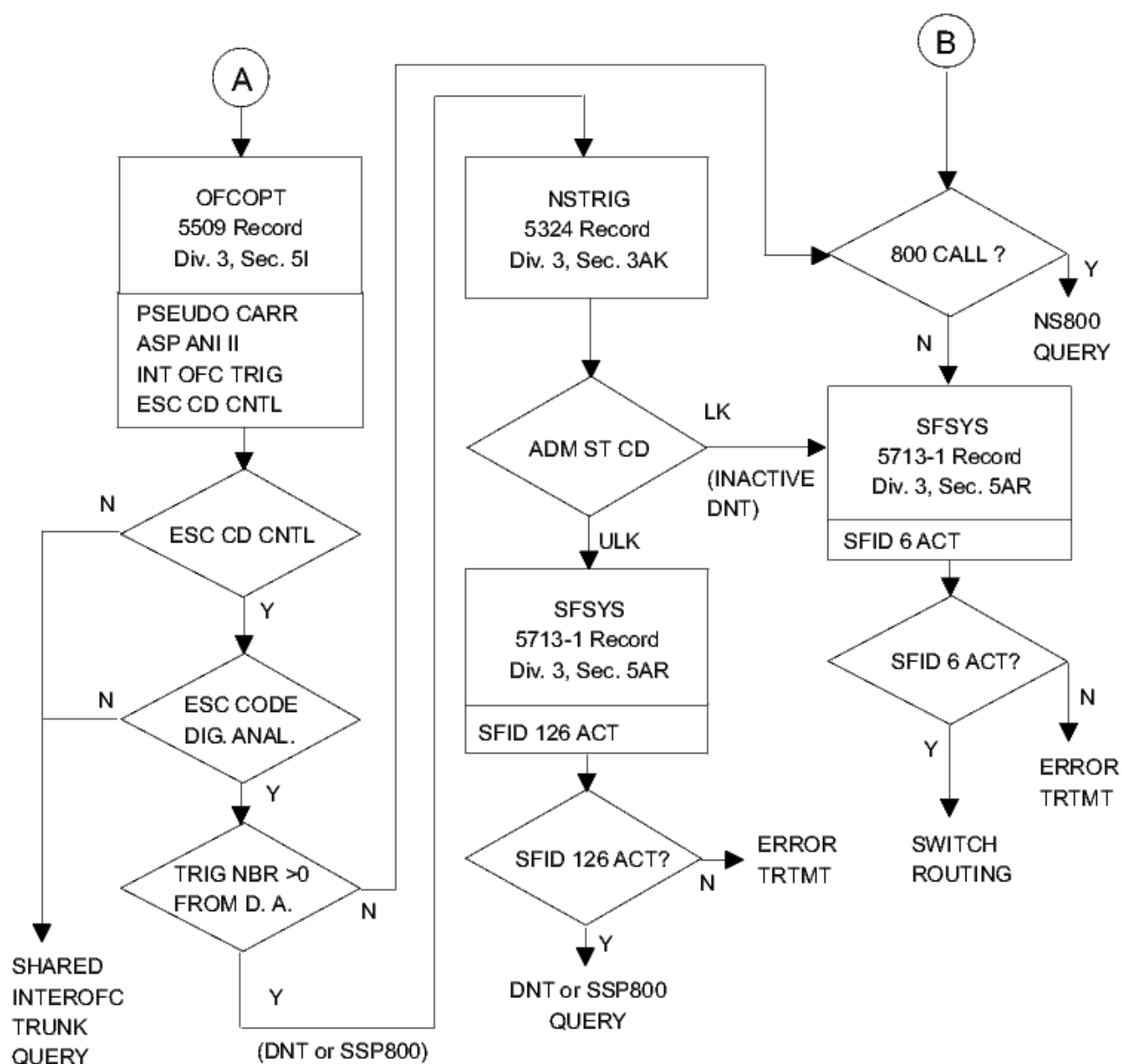


Figure 6 CALL PROCESSING OHD, CHANNEL SETUP PRI, AND PRIVATE EAMTF TRIGGERS (TRUNKS) 5E9(1) AND LATER SOFTWARE RELEASES





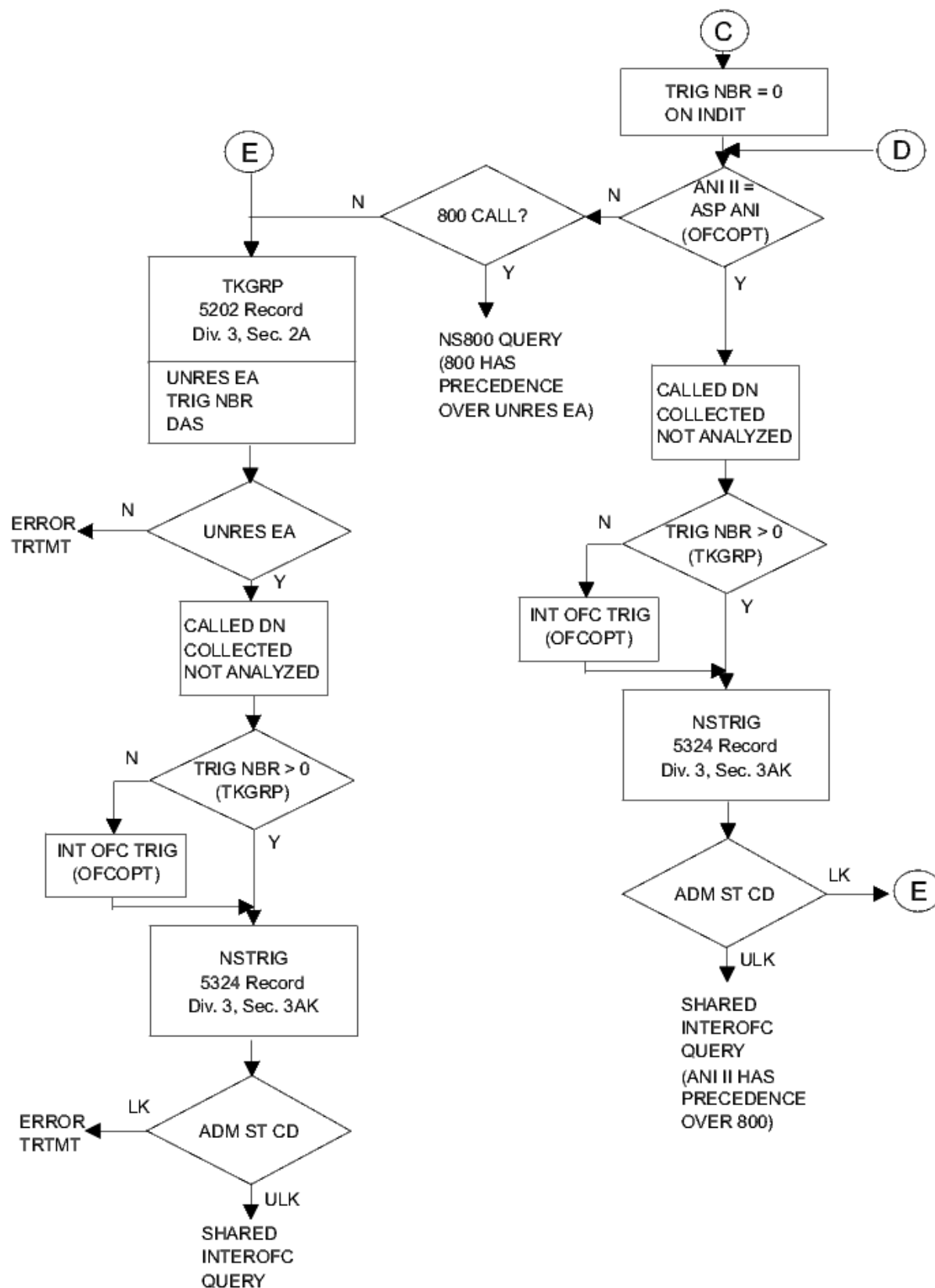


Figure 7 CALL PROCESSING SIT TRIGGER AND DNTS ON SITS 5E9(1) AND LATER SOFTWARE RELEASES

SEC. 4A127: AMA TRACE (AMATRC) ENHANCEMENTS

1. FEATURE DESCRIPTION

AMATRC Enhancements is a secured feature using SFID (Secured Feature ID) 127 and must be purchased before being activated. The feature number for this feature is 99-5E-1077.

Available with 5E9(1) and later, this feature provides a number of enhancements to the AMATRC feature. These enhancements include the following:

- The ability to activate multiple DNs (Directory Numbers) in AMATRC — currently a maximum of one DN can be active.
- An input message (that is, audit) which queries the 5ESS-2000 switch for a listing of all DNs AMATRC is currently tracing.
- The DN should be compared to the AMA record's Terminating DN, Originating DN, or both.
- Tracing the Originating and/or Terminating DNs for Packet-Switched AMA records.
- The input of a hexadecimal representation of the AMA record preceding the formatted AMA record.
- The ability to direct AMATRC output to a switch-based log file.

The end-user of this feature will be 5ESS-2000 switch owner personnel. It will be invoked with a number of input/output messages from a 5ESS-2000 switch terminal. See the Input/Output Manual for details on the ALW:AMATRC command.

2. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. This feature is a secured feature and is activated by setting the ACT field for SFID 127 to "Y" on the SFSYS form (5713-1 Record). This feature has an RTU (Right to Use) fee and is restricted until the purchaser has made the necessary financial arrangements with the Lucent Technologies Account Representative.

SEC. 4A128: AMA CAPABILITIES FOR TYPE 2A CELLULAR INTERCONNECTIONS

1. BACKGROUND

CMCs (Cellular Mobile Carriers) provide mobile telephone service via radio links from call sites to mobile telephone switching offices. In order for these mobile customers to be able to send and receive telephone calls from land-based telephone customers and customers of other CMCs, it is necessary to provide an interface between CMCs and land-based switching systems. This can be done by using existing features in EA (Equal Access) switching systems. Calls from a CMC switch are billed at the CMC switch when the

land-based switches cannot generate AMA (Automatic Message Accounting) records for tandem and terminating calls.

2. FEATURE DESCRIPTION

Available with 5E9(1) and later, the AMA Capabilities for Type 2A Cellular Interconnections Secured Feature has feature number 99-5E-1081 and uses SFID (Secured Feature ID) 128. This feature provides the ability to generate a new CMC AMA record for each CMC trunk group and for each direction when a call is completed between the 5ESS Switch AT (Access Tandem) for Type 2A Cellular Interconnections and mobile customers. A Type 2A interconnection provides a connection to a telephone company's AT. It also provides connections to and from co-located lines, ICs (Inter-LATA Carriers), and other CMCs having terminations within the LATA. A maximum of 60 CMC IDs is supported. Originating carrier access records for FGB (Feature Group B) and FGD (Feature Group D) connections are made at the AT.

SFID 128 provides the OTC the ability to make AMA billing records for calls to and from a CMC in a tandem switch provided the tandem switch is directly connected to the CMC. The AMA records consist of normal end office and AT records which are normally generated for calls from and to a line, as well as new records for the CMC portion of the call. These new records are much like the existing FGD originating and terminating LATA records, and allow verification of records rendered by the CMC.

For the Type 2A feature (SFID 128), CMC trunks use in-band MF (Multi-Frequency) signaling, that is, CCS7 signaling between the CMC and the AT is not supported. Available as a 5E9(1) and later Software Update, the CMC Type 2A/2B Cellular Interconnections via CCS feature (SFID 160) implements CCS7 signaling between the CMC and the AT, as well as MF signaling for Type 2B interconnections. That is, SFID 160 supports both Type 2A/2B with CCS7 and Type 2B with MF, while SFID 128 supports Type 2A only with MF only. The Type 2B Interconnection feature provides a connection to a OTC's EO (End Office), providing connections only to and from terminals served by that EO (including lines, private trunks, and other CMCs having terminations within the switch itself). See Division 2, Section 4A160).

3. AMA RECORDING

On a per trunk basis the land telephone company is able to specify whether CMC AMA records are to be made on calls to CMCs. When CMC AMA records for calls to CMCs are specified to be generated, a CMC AMA record is made on all calls on which a trunk to the CMC has been seized and the CMC returned a wink and on all calls from a CMC on which a seizure has been detected on a trunk from the CMC.

Referring to Figure 1, the connection A and B is between cellular end users on two different CMC switches connected to the 5ESS Switch access tandem by Type 2A connections. Two CMC AMA records are made for this connection, one for each CMC.

The connection A and C is between a cellular end user and a line served by the 5ESS Switch. For a call in either direction between A and C, the 5ESS Switch makes a CMC AMA record. For a call from C to A, the 5ESS Switch tandem may in addition make an AMA record charged to user C. This record is totally independent of the CMC record.

The connection A and D is between a cellular end user and a subscriber D served by another switch in the LATA. For calls between A and D in either direction, the 5ESS Switch tandem makes a CMC AMA record. For a call from D to A, the EO (End Office) may, in addition, make an AMA record charged to end user D. This record is totally independent of the CMC record made at the tandem switch.

The connection A and IC/INC is between an IC (Interexchange Carrier) and cellular end user A. For a call between A and the IC in either direction, a new CMC AMA record is made. If the IC is of type FGA (Feature Group A), FGB (Feature Group B), or FGD (Feature Group D), then a carrier access record is made by the

5ESS Switch access tandem in addition to the CMC record.

- For calls from the IC to cellular user A, the 5ESS Switch access tandem currently makes terminating carrier access records, and these records will continue to be made in addition to the CMC record. The creation of a CMC record at the AT is a new capability provided by this feature.
- For calls from cellular user A to a directly connected FGA IC, the 5ESS Switch tandem currently makes an originating carrier access record. This record will continue to be made in addition to the new CMC record.
- For calls from cellular user A to an FGB or FGD IC, originating carrier access records are made in addition to the new CMC record. Originating carrier access records for FGB and FGD are currently made at the end office, not at the access tandem. This feature provides the capability for these records to be made at the 5ESS Switch tandem.

The 5ESS Switch currently treats calls to and from an FGC carrier the same as calls to another switch in the LATA. No change is made for FGC calls, and no originating or terminating carrier access records are made for FGC calls. However, a CMC record is made for FGC calls at the access tandem.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
AMACT	5506	3	5F	10.12
OFCOPT	5509	3	5I	8.1/8.15
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1
	5056	3	2A	10.16

AMACT form (5506 Record) - This form is used to define AMA (Automatic Message Accounting) Call Types. The enumerations "CMCTT" and "CMCOT" were added for the AMA CALL TYPE field. "CMCOT" specifies an AMA call type originating to a CMC. "CMCTT" specifies an AMA call type terminating from a CMC.

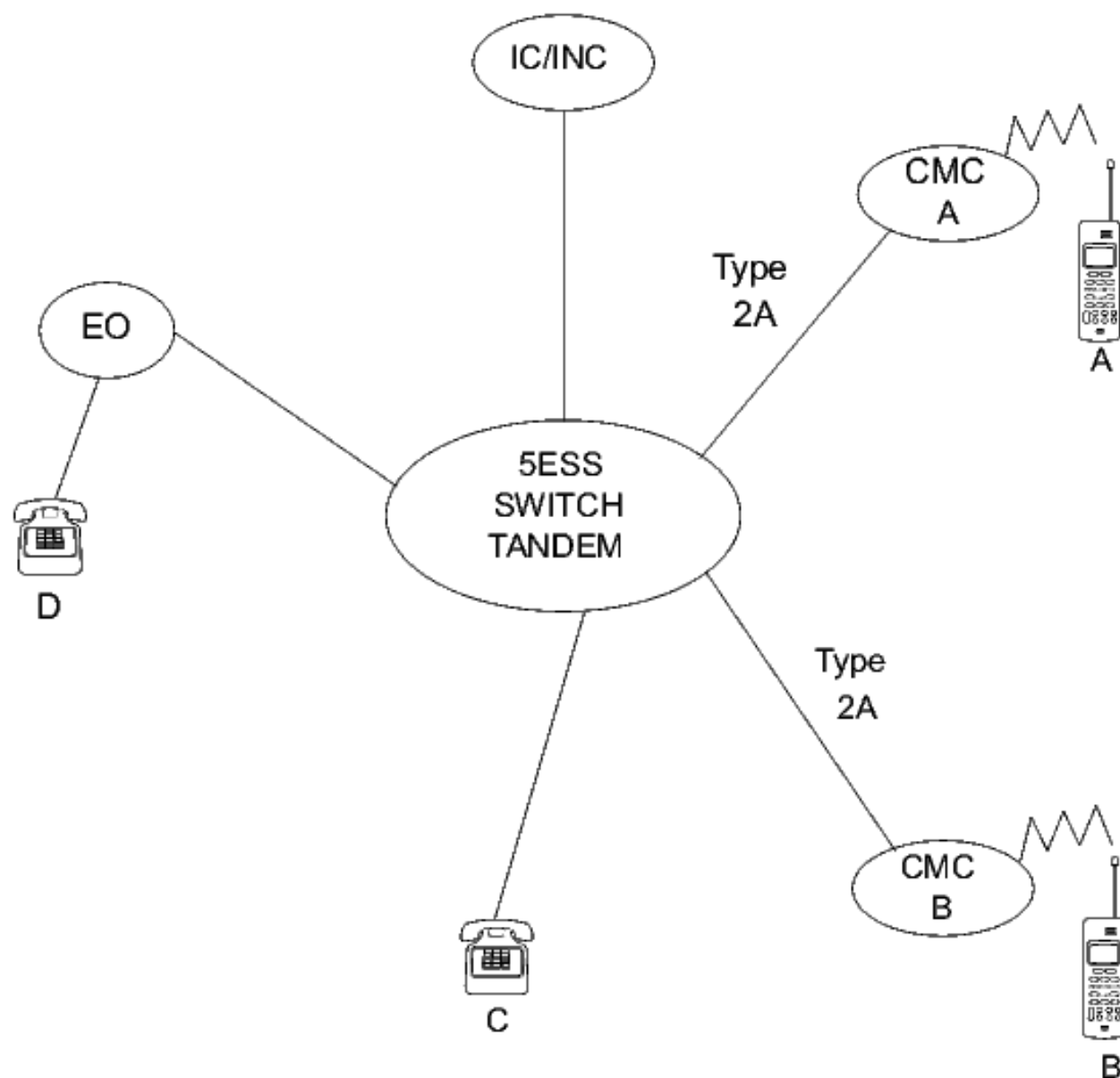
OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. The field CMC WINK CONNECT was added. CMC WINK CONNECT specifies whether the initial wink received from the FGD carrier is used as the connect time for calls from a CMC to an FGD carrier. When CMC WINK CONNECT is "Y", the connect time is when the initial wink is received from the FGD carrier. The default "N" for this field specifies that the connect time is when a seizure is detected on an incoming trunk from the CMC. This field must be "N" unless this feature has been purchased and SFID 128 has the ACT field set to "Y" on the SFSYS form.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The fields ORIG CMC and TERM CMC were added. ORIG CMC specifies the billing type of AMA records for originating Cellular Mobile Carrier calls. TERM CMC specifies the billing type of AMA records for terminating Cellular Mobile Carrier calls. These fields may not be entered unless this feature has been purchased and SFID 128 has the ACT field set on the SFSYS form.

View 10.16 (5056 Record) - This Recent Change View contains two fields, CMC ID and CMC BILL. CMC ID is indicated on the TKGRP form as a 10.16 view field. CMC ID is a 2-digit number which identifies the CMC. CMC BILL assigns a 10-digit billing number to the CMC ID. The CMC BILL field corresponds to the BILLING DN field on the TKGRP form.

SFSYS form (5713-1 Record) - This form is used by the SEE (Lucent Technologies System Equipment Engineer) to enable the feature for the operating company. SFID 128 must have the field ACT set to "Y" to

enable the feature.



See Paragraph 3. AMA RECORDING for AMA Record scenario.

Figure 1 CELLAULAR INTERCONNECTIONS

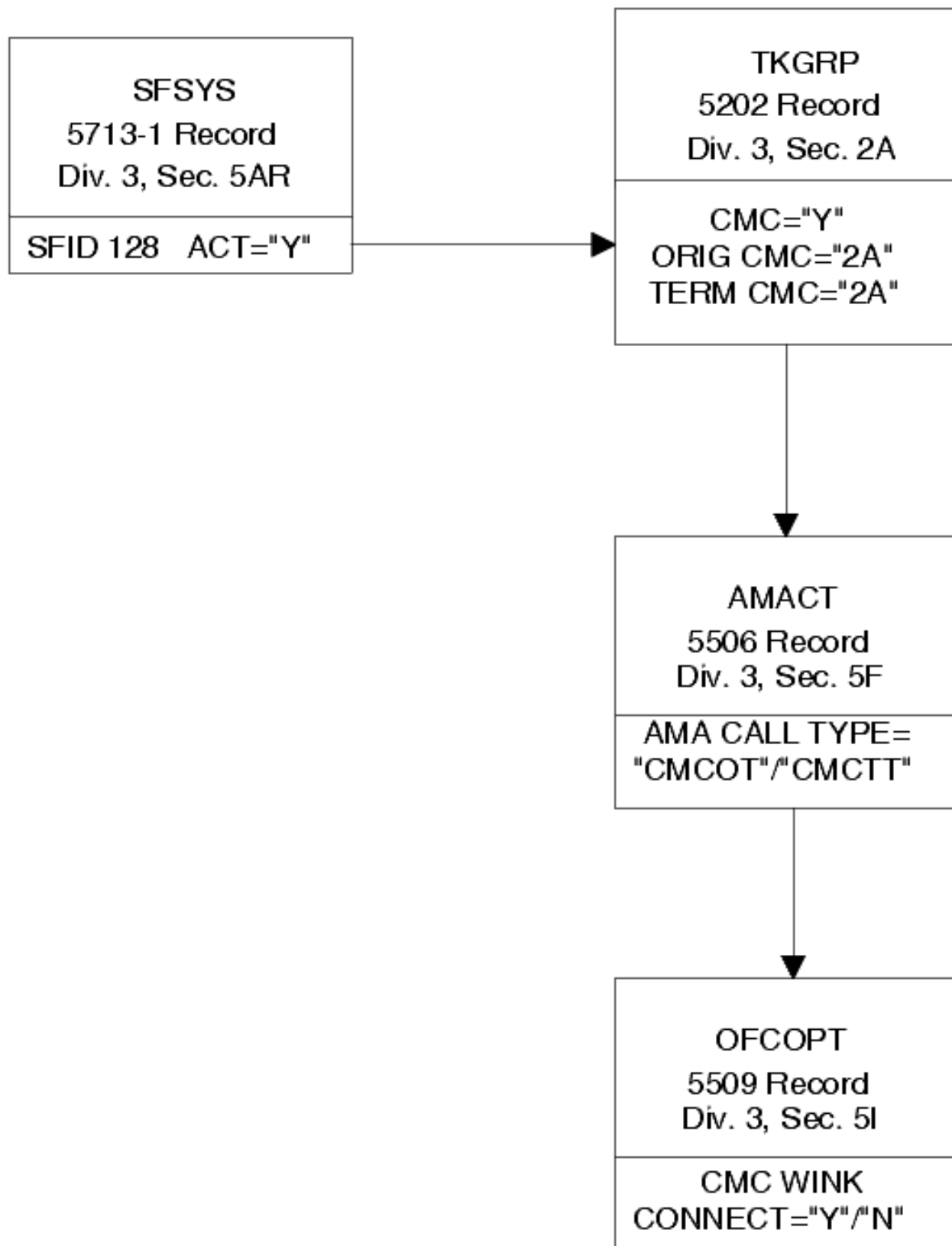


Figure 2 FORM FLOW FOR AMA CAPABILITIES FOR TYPE 2A CELLULAR INTERCONNECTIONS**SEC. 4A129: SOFTWARE UPDATE PROCESS AUTOMATION****1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-190-104 ISDN Feature Descriptions*.

SEC. 4A130: DCS (DIGITAL CELLULAR SWITCH)**1. FEATURE DESCRIPTION**

For 5E9(1) and later, a wireless service provider can use a 5ESS Switch as a DCS (Digital Cellular Switch) in a cellular network. It replaces or coexists with Definity G2 DCSs in the APX-1000 system, offering higher call capacity with improved performance and better reliability. Configured with a CNI (Common Network Interface) ring, the 5ESS Switch communicates with the ECP (Executive Cellular Processor) through CCS7 messaging.

1.1 Secured Feature ID

The DCS feature is secured. Before the feature can be provisioned, the ACT field for SFID 130 must be set to "Y" on the SFSYS form.

For more information about this secured feature, see Division 2, Section 8A on DCS.

SEC. 4A131: E-LINK ACCESS AND ALTERNATE A-LINK SET ROUTING**1. FEATURE DESCRIPTION**

The feature number for the E-Link Access and Alternate A-Link Set Routing feature is 99-5E-1216. It is a secured feature (SFID 131) which is available in 5E9(1) and later Software Releases. This feature provides the 5ESS-2000 Switch in a LEC (Local Exchange Carrier) SS7 (Signaling System 7) network with the capability to connect signaling links between SEPs (Signaling End Points) and non-home STPs (Signal Transfer Points). At the SEP, E-link sets are used for alternate routing access when A-link set routing fails and vice versa; when E-link set routing fails, A-link sets provide alternate access.

The ELINK feature is a component of the CNI (Common Network Interface) feature which allows signaling to be transmitted between switches.

For more information about this secured feature and CNI Implementation, see Division 9, Section 1A.

2. TRANSLATION REQUIREMENTS

There are no ODA translation requirements for the ELINK feature. This feature is supported by RC/V only. Refer to *3.4 ELINK Translation Requirements*, Division 9, Section 1A for details of the RC/V translation requirements.

SEC. 4A132: FULL POINT CODE ROUTING**1. FEATURE DESCRIPTION**

The feature number for the FPCR (Full Point Code Routing) feature is 99-5E-1200. It is a secured feature (SFID 132) which is available in 5E9(1) and later Software Releases.

The FPCR feature provides the 5ESS-2000 Switch, in a LEC (Local Exchange Carrier) network, with the capability to directly route traffic on a specific combined link set to another STP (Signal Transfer Point) pair based upon the DPC (Destination Point Code).

FPCR is allowed over combined link sets and direct link sets. A direct link set may or may not be part of a combined link set. Also, a link set may or may not be an inter-network link set. When one member of a cluster is routed to using FPCR, all members of that cluster must be routed to by way of FPCR.

The FPCR feature is a component of the CNI (Common Network Interface) which allows signaling to be transmitted between switches.

For more information about this secured feature and CNI Implementation, refer to Division 9, Section 1A.

2. TRANSLATION REQUIREMENTS

There are no ODA translation requirements for the FPCR feature. This feature is supported by RC/V only. Refer to *3.8 FPCR Translation Requirements*, Division 9, Section 1A for details of the RC/V translation requirements.

SEC. 4A133: CALLING IDENTITY DELIVERY ON CALL WAITING

1. FEATURE DESCRIPTION

The CIDCW (Calling Identity Delivery on Call Waiting) is a secured feature using SFID (Secured Feature ID) 133 and is dependent on the Switch-to-CPE (Customer Premise Equipment) Analog Off-Hook FSK (Frequency Shift Key) Data Interface secured feature using SFID 140. Both features must be purchased and activated in order to implement CIDCW. The AT&T feature number for the CIDCW feature is 99-5E-1106.

Available with 5E9(1) and later, this feature allows a subscriber, while off-hook on an existing call, to receive information (in the form of Caller ID) about a calling party on a waiting call. For CIDCW to be active, the subscriber must have Call Waiting Terminating and ICLID-CND (Individual Calling Line Identification)-(Calling Number Delivery) or CNAM (Analog Calling Name Delivery) features assigned to the line.

NOTE: This feature will not add any new preconstructed features. The existing Call Waiting Terminating and ICLID-CND or CNAM preconstructed features will be used.

When CIDCW is active on a subscriber's line and the subscriber is engaged in a telephone conversation, then for calls which seek to terminate to the CIDCW subscriber:

- the calling party will receive call waiting tone
- the CIDCW subscriber will receive CAS (CPE alerting signal) after the call waiting tone for the new "waiting" call
- the voice path to the other party will be temporarily muted so the party does not hear the call waiting tone and the CPE alerting tone intended for the CIDCW subscriber
- the caller ID data will be displayed to the CIDCW subscriber's CPE
- if the CIDCW subscriber already has a call in the waiting or held state, CIDCW treatment will not apply to the subsequent call; the call will receive busy treatment, and the CIDCW subscriber will not be alerted to

that call.

CIDCW differs from the traditional Call Waiting in the alerting procedure. The alerting signal for the CIDCW feature is not the same as for traditional call waiting. For CIDCW, the alerting sequence is composed of two parts:

- the SAS (Subscriber Alerting Signal) which is identical to the current call waiting tone that the subscriber is accustomed to (e.g. normal 440 Hz or distinctive tone).
- the CAS (CPE Alerting Signal) which is a very short signal designed to alert a special purpose CPE that a data transmission will follow. Once the CPE responds with ACKNOWLEDGMENT, the Caller ID information is transmitted in FSK encoded ASCII format.

Once the customer receives the Caller ID data, he or she may decide whether to ignore the waiting call, interrupt the current call and flash to answer the waiting call, or end the current conversation in order to be connected to the new caller. These options are the same as for the existing call waiting feature. However, the subscriber now has the ability to identify the waiting caller, thus helping the subscriber to make a better informed decision as to which of these options to take.

Typical End-User Scenario

Scenario Participants:

Subscriber A, with /CWT and /LIRCNP features.

Party B and Party C can be POTS lines.

CPE Type:

Because CIDCW is a terminating feature, the only CPE that is important to identify is the CPE associated with Subscriber A. Subscriber A's CPE must be CIDCW-compatible which is capable of recognizing and responding to a CAS tone. If Subscriber A is not equipped with the right CPE or does not have any CPE, the CIDCW signaling treatment will be given, but no Caller ID information will be displayed.

The software for CIDCW must be loaded and enabled on the switch for this scenario to operate. Additionally, the subscriber must be assigned the CIDCW capability.

Call Scenario

- Subscriber A's line is initially idle.
- Party B dials Subscriber A's telephone number and receives audible ringing.
- Subscriber A's telephone rings and Party B's Caller ID information is displayed before Subscriber A's telephone rings the second time.
- Subscriber A views Party B's information and answers the call.
- Subscriber A and Party B are engaged in conversation when Party C dials Subscriber A's telephone number and receives audible ringing.
- The talking path between Party B and Subscriber A is muted and Subscriber A hears call waiting tone followed by a very short duration high frequency tone which alerts Subscriber A's CPE.

- Party C continues to hear audible ringing.
- Subscriber A hears nothing because Subscriber A's CPE has muted the voice path to receive incoming Caller ID data from the switch.
- Subscriber A now views his/her CPE display which shows Party C's Caller ID information and is reconnected to Party B.
- Subscriber A can now make an informed choice whether or not to converse with Party C via established call waiting methods (flash, hang-up, ignore).

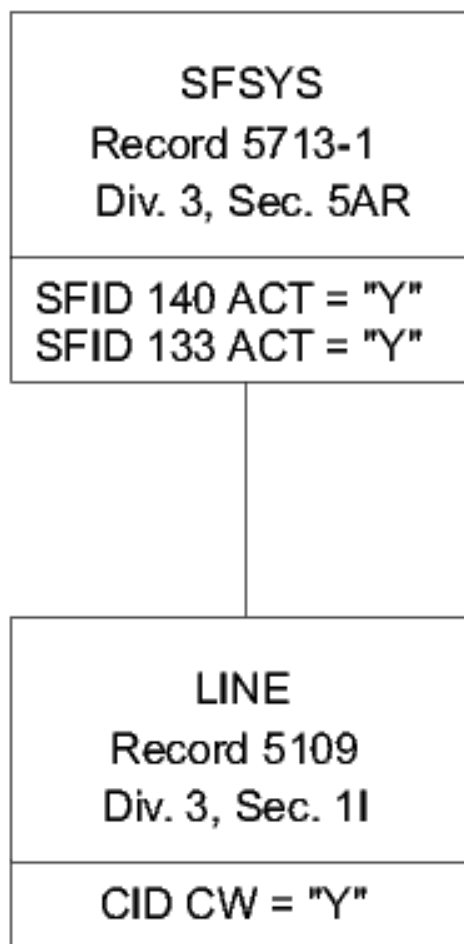
2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
LINE	5109	3	11	1.1
SFSYS	5713-1	3	5AR	8.22

LINE form (5109 Record) - This form is used to define a line. The new field CID CW was added. Prior to setting the CID CW field to "Y" to activate the feature on a given line, the ACT field for SFID 133 must be set to "Y" on the SFSYS form. For the CID CW field to be activated, the subscriber must have Call Waiting Terminating and ICLID-CND or CNAM features assigned to the line. CIDCW assignment is not allowed on an MLHG line and only supports the following Service Classes: INDIV, 4WINDIV, ATTENDANT and PBX.

SFSYS form (5713-1 Record) - This form is used to enable a secured feature for the operating company. The ACT field for SFID (Secured Feature ID) 133 must be set to "Y" to enable the CIDCW feature. Before the CIDCW SFID 133 can be activated, the CIDCW subscriber must also purchase the secured feature Switch-to-CPE Analog Off-Hook FSK Data Interface (SFID 140).



Note: Call Waiting Terminating and ICLID-CND or CNAM features must be assigned to the line.

Figure 1 FORM FLOW FOR CIDCW

SEC. 4A134: AUTOMATIC TRUNK TEST SCHEDULER, NON-AUTOPLEX SWITCH

1. FEATURE DESCRIPTION

The Automatic Trunk Test Scheduler, Non-Autoplex Switch feature is a secured feature using SFID 134 and must be purchased before being activated. The feature number for this feature is 99-5E-4245. This feature is available with the 5E9(1) and later software releases.

The ATTS (Automatic Trunk Test Schedule) feature provides a means of scheduling automatic execution of

specific types of operational trunk/trunk group tests. The results of the test are logged on the AM disk and can be retrieved at a later time. The scheduling of the tests is accomplished by creating and maintaining a set of tests (sessions) in a schedule of tests created using the input forms. The ATTS can be accessed from normal maintenance channels such as the TLWS (Trunk and Line Work Station). A maximum of 20 schedules can run concurrently. Entries in each schedule correspond to scheduled tests (sessions). Each schedule is operated independently with the schedule data base accessible to multiple users, simultaneously. This feature is the non-Autoplex version of ATTS. For more information see the Autoplex version of the ATTS feature in Division 2, Section 8A.

SEC. 4A135: ADVANCED SERVICES PLATFORM DISTINCTIVE RINGING

1. FEATURE DESCRIPTION

The ASP (Advanced Service Platform) Distinctive Ringing feature is a secured feature using SFID (Secured Feature ID) 135 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-2205.

Available with 5E9(1) and later, the ASP Distinctive Ringing secured feature provides the capability for the SCP (Service Control Point), utilizing AIN (Advanced Intelligent Network) Release 0.1 protocol, to send a distinctive ringing pattern to the SSP (Service Switching Point) to be applied when ringing the called party's terminal. This secured feature is available for all analog lines, NI (National ISDN), and Custom ISDN terminals.

1.1 Alerting Patterns

The ASP Distinctive Ringing secured feature provides two components of alerting.

- Distinctive Ringing - The SCP can indicate one of three ringing patterns.

Distinctive Ringing Patterns			
Value	Name	Treatment	Switch Pattern
64	Alerting On Pattern 0 Normal	Normal Ringing 2 sec on, 4 sec off	A
65	Alerting On Pattern 1 Distinctive Intergroup	800ms on, 400ms off 800ms on, 4 sec off	B
66	Alerting On Pattern 2 Distinctive Special	400ms on, 200ms off 400ms on, 200ms off 800ms on, 4 sec off	C

- Distinctive Call Waiting Tones - For subscribers with call waiting, the SCP can indicate one of three call waiting tones to be given to the called party.

Distinctive Call Waiting Tones		
Value	Name	Treatment
64	Alerting On Pattern 0	One-Beep Call Waiting Tone 300 ms tone
65	Alerting On Pattern 1	Two-Beep Call Waiting Tone 100 ms tone, 100 ms silence 100 ms tone
66	Alerting On Pattern 2	Three-Beep Call Waiting Tone 100 ms tone, 100 ms silence 100 ms tone, 100 ms silence

100 ms tone

A switch-based distinctive ringing feature does not need to be assigned to the terminating line (called party) to receive ASP Distinctive Ringing. Only stations that subscribe to switch-based call waiting can receive ASP distinctive call waiting tones. ASP Distinctive Ringing and Distinctive Call Waiting Tones take precedence over all alerting patterns assigned to the terminating party on the switch.

The ASP Distinctive ringing pattern only applies to lines in the serving SSP. The pattern is not transported inter-switch.

The SCP can return distinctive ringing patterns in the following response messages utilizing the existing fields in the TCAP (Transaction Capabilities Application Part) message as a result of the ASP query.

Query Message	Response Message	Message Parameter
Info Analyzed	Analyze Route	Passive Leg Treatment
Info Collected	Analyze Route	Passive Leg Treatment
Origination Attempt	Analyze Route	Passive Leg Treatment
Termination Attempt	Forward Call	Passive Leg Treatment
Termination Attempt	Authorize Termination	Controlling Leg Treatment

If the SCP returns a distinctive ringing pattern in a response message that is not supported, normal alerting treatment is returned to the called party.

For a more detailed discussion of the ASP feature, please refer to Division 2, Section 4A126 and the AT&T Document AT&T 235-190-126, *5ESS Switch Advanced Services Platform, Release 0.1B*.

NOTE: In order to provide distinctive ringing as a result of a National ISDN or ISDN Attendant origination, the ASP Interworking with National ISDN and ISAT secured feature must be purchased. This secured feature provides National ISDN, including EKTS (Electronic Key Telephone System), and ISATs (ISDN Attendants) with the exclusion of OHD (Off-Hook Delay) triggers, the ability to have ASP AIN Release 0.1 subscribed triggers. NI terminals may also subscribe to Termination Attempt triggers. This feature is a secured feature and is activated by setting the ACT field for SFID 139 to "Y" on the SFSYS form (5713-1 Record). For more information, see Division 2, Section 4A139.

2. FEATURE INTERACTIONS

This feature applies to all calls and call types that receive call routing instructions via ASP SCP queries. The following ASP and switch-based features interact with this feature as specified below:

- **ASP Serial Triggering** - If ASP Serial Triggering is encountered, the alerting pattern provided in the last valid ASP response message from the SCP is used to specify the alerting treatment to the terminating line. Previous alerting patterns provided by the SCP are ignored.
- **Call Forwarding** - The ASP distinctive ringing pattern is ignored if the ASP call encounters Call Forwarding. Normal alerting treatment based on the switch-based forwarding feature and switch-based alerting is provided.
- **Call Waiting** - One of the following switch-based Call Waiting features must be assigned to the line to provide ASP distinctive call waiting tones:
 - CWIO (Call Waiting Incoming Only)

- CWO (Call Waiting Originating)
- DCW (Dial Call Waiting)
- CWT (Call Waiting Terminating)

- LASS (Local Area Signaling Services) SDA (Selective Distinctive Alert) - ASP Distinctive Ringing takes precedence over switch-based LASS SDA.
- Executive Ringing Cutoff - Executive Ringing Cutoff takes precedence over ASP Distinctive Ringing. ASP Distinctive Ringing patterns are ignored.
- Abbreviated and Delayed Ringing - NI EKTS and Custom MBKS (Multibutton Key System) with ISDN Abbreviated and Delayed Ringing supports ASP Distinctive Ringing for the abbreviated and delayed ringing.
- Series Completion - ASP Distinctive Ringing is propagated to subsequent members of the Series Completion group.
- MLHG (MultiLine Hunt Group) - ASP Distinctive Ringing applies to the hunted MLHG members when ASP routed calls with distinctive ringing patterns are routed to the lead member DN (Directory Number) of the MLHG. ASP Distinctive Ringing applies after de-queuing from non-ISAT MLHG.
- MFRI (Multi Frequency Ringing Interface) - ASP calls routed to MFRI lines ignore the ASP distinctive ringing pattern.
- LTSB (Line Time Slot Bridging) - ASP Distinctive Ringing is provided for lines with LTSB. For both the case where the two LTSB lines are provisioned, one with 1-TN (1 Telephone Number) and the other with 2-TN, ASP Distinctive Ringing applies.
- MultiParty - ASP Distinctive Ringing does not apply on MultiParty lines.
- SHDN (Shared DN) - Calls routed to an NI or Custom ISDN SHDN group receive ASP Distinctive Ringing including the lead analog member.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

This feature is a secured feature and is activated by setting the SFID 135 ACT field to "Y" on the SFSYS form (5713-1 Record). Before activating this feature, the base 5E9(1) ASP Release 0.1B feature must be activated by setting the SFID 126 ACT field to "Y" on the SFSYS form.

4. GLOSSARY

AIN	Advanced Intelligent Network
ASP	Advanced Services Platform
CWIO	Call Waiting Incoming Only
CWO	Call Waiting Originating

CWT	Call Waiting Terminating
DCW	Dial Call Waiting
DN	Directory Number
DNT	Dialed Number Trigger
EKTS	Electronic Key Telephone Service
ISAT	ISDN Attendant
LASS	Local Area Signaling Services
LTSB	Line Time Slot Bridging
MBKS	Multibutton Key System
MFRI	Multi-Frequency Ringing Interface
MLHG	MultiLine Hunt Group
NI	National ISDN
OHD	Off-Hook Delay
SCP	Service Control Point
SDA	Selective Distinctive Alert
SHDN	Shared DN
SSP	Service Switching Point
TCAP	Transaction Capabilities Application Part
TN	Telephone Number

SEC. 4A136: ASP DEFAULT ROUTING FOR TERMINATION ATTEMPT TRIGGERS

1. FEATURE DESCRIPTION

Prior to this ASP (Advanced Services Platform) Special Feature, when encountering a Release 0.1 TAT (Termination Attempt Trigger), a query was sent to the SCP (Service Control Point) database. If a failure (See the failures supported by ASP Default Routing for TATs listed below) or the expiration of the T1 timer occurred, the call would not terminate. The call would be given REORDER or sent to an announcement.

This feature is a secured feature, which is controlled by secured feature ID 136 and is available for 5E9(1) and later. The feature number for ASP Default Routing For Termination Attempt Triggers Capability is 99-5E-2204.

Default Routing for TATs, a new ASP call processing special feature, allows for continuation of calls that encounter a TAT when the query to the SCP database fails (see the failures supported by ASP Default Routing for TATs listed below). These calls terminate to the DN (directory number) assigned the TAT. When

default routing feature is used to route the call to the port assigned to the TAT DN, other switch-based terminating features assigned to the port will operate as normal. For calls delivered to the port as a result of TAT default routing, the normal POTS billing is followed.

The requirements for this Advanced Services Special Feature are built on the 5ESS Switch ASP Release 0.1B requirements. For a more detailed explanation of Termination Attempt Triggers refer to Division 2, Section 4A126 and the 5ESS Switch Advanced Services Platform, Release 0.1B Feature Document (235-190-126). For a more detailed explanation of the TCAP (Transaction Capabilities Application Part), please refer to the 5ESS Switch Advanced Services Platform, Release 0.1B Feature Document (235-190-126).

1.1 TAT Failures

The various types of TAT failures, which invoke ASP Default Routing occur as follows:

- Whenever the TAT query ASP Response timer (T1) expires (Timer Range 1-5) defined on the OFCOPT form. This timer is started when any query is launched and is stopped when a response to the query is received from the SCP. Examples of T1 timeout conditions are given below:
 - SCP database does not send a response to the TERMINATION ATTEMPT query message.
 - SCP database sends a response to the TERMINATION ATTEMPT query message after expiration of the T1 timer.
- Whenever the TAT query attempt is blocked by ACG (Automatic Call Gapping) (Refer to the ASP ACG section of 235-190-126.).
- Whenever the TAT query attempt is blocked due to switch hardware/software failures, e.g. (CNI (Common Network Interface) Ring or SS7 links are down).
- Whenever an invalid response to the TERMINATION ATTEMPT query message is received by the SSP (Service Switching Point) from the SCP database. Examples of invalid responses are listed below:
 - Unexpected Message - Message received is not allowed in response to the query.
 - Unexpected Message - Message received contains multiple components which are not allowed in the response message.
 - Unexpected Message Sequence - Invalid order of parameters in the message within the same TCAP package.
- Whenever the SCP sends an application or protocol error message to SSP, such as receiving a garbled TERMINATION ATTEMPT query message.

When a TAT response message is recognized to be an AUTH TERM, DISCONNECT, SEND TO RESOURCE, or FORWARD CALL, the appropriate current response message processing is followed. These response processing treatments are not changed by this special feature.

With respect to SEND_TO_RESOURCE responses:

ASP default routing will not be encountered if the resources requested by a SEND_TO_RESOURCE

operation are not available (e.g., when a call processing database read cannot be performed).

ASP default routing will not be encountered when an unexpected message is received after a SEND_TO_RESOURCE session is initiated (following the TAT).

ASP default routing will not be encountered after a RESOURCE_CLEAR is sent to the SCP following the initial SEND_TO_RESOURCE.

ASP default routing will be encountered if the SEND_TO_RESOURCE message requesting a play and collect session also includes the disconnect flag (i.e., Fatal Erroneous Data Value application error in TAT query response).

In particular, if a TAT query results in a SEND_TO_RESOURCE request from the SCP, and the SEND_TO_RESOURCE TCAP message is received and recognized and does not contain any fatal protocol or application errors, ASP default routing no longer applies to the call unless a subsequent TAT is encountered.

ASP default routing is available for TAT queries and is not encountered once it is determined that a valid response message is received. In addition, if the call originator abandons the call during ASP TAT processing, the call will be cleared.

2. FEATURE ASSIGNMENT

Provisioning the Default Routing for Terminating Attempt Triggers requires the the following:

- Activate the Secured Feature ID 126 on the SFSYS form.(5713-1 Record)
- Activate the Secured Feature ID 136 on the SFSYS form.
- On the ASPFD form (5632-1 Record) or the ASPDP form (5632-5 Record) set the DFLT ROUTE field to "Y".
- If the ASPFD form (5632-1 Record) or the ASPDP form (5632-5 Record) is not defined, or a line needs different TAT parameters than defined by the ASP feature: on the ASPMPA form (5632-3 Record) for Multi-line Hunt Groups or the ASPLPA form (5632-2 Record) for non-Multi-line Hunt lines set the DFLT ROUTE field to "Y".

See Figure 1 for feature assignment form flow for ASP Default Routing For Terminating Attempt Triggers.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPDP	5632-5	4	31E	12.64
ASPFD	5632-1	4	31A	12.64
ASPLPA	5632-2	4	31B	1.64
ASPMPA	5632-3	4	31C	1.64
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This feature is a secured feature and must be purchased before being activated by setting the ACT field for SFID 136 to "Y" on the SFSYS form (5713-1 Record). Before activating this feature, the base 5E9(1) ASP Release 0.1B feature must also be purchased and activated by setting the ACT field to "Y" for SFID 126 on the SFSYS form.

ASDP form (5632-5 Record) - The 5632-5 Record is available with the 5E9(1) Software Release, and defines ASP parameter data on a feature basis. It converts existing (5E8) default parameter ASP data into the new BRCS format. This form can change default parameter data, but the data cannot be changed for preconstructed ASP features on the ASPFD form (5632-1 Record).

A new field, TA DFLT ROUTE, was added to the ASPDP form in the Terminating Triggers section. The initial value of this field is "N". The default value of the DFLT ROUTE parameter for a given ASP terminating feature is specified on this form. When the feature is initially assigned to a line, the value of DFLT ROUTE field is copied from this form to the line.

The TA DFLT ROUTE field is used to indicate whether ASP Default Routing is active or inactive.

A "Y" indicates this call is routed to the port on which the TAT is assigned. This routing occurs only if an error occurred while communicating with the SCP and the transaction has not been closed. An "N" indicates that the standard error treatment of reorder or announcement is given when an error condition is encountered.

ASPFD form (5632-1 Record) - The ASPFD defines various combinations of options available with the ASP feature.

A new field, TA DFLT ROUTE, was added to the ASPFD form in the Terminating Triggers section. The default value of the DFLT ROUTE parameter for a given ASP terminating feature is specified on this form. When the feature is initially assigned to a line, the value of DFLT ROUTE field is copied from this form to the line.

The TA DFLT ROUTE field is used to indicate whether ASP Default Routing is active or inactive. An entry of "Y" indicates this call is routed to the port on which the TAT is assigned. This routing occurs only if an error occurred while communicating with the SCP and the transaction has not been closed. An "N" indicates that standard error treatment of reorder or announcement is given when an error condition is encountered.

ASPLPA form (5632-2 Record) - The ASPLPA form defines ASP Line Parameters. The Line Parameter Form is used when an ASPFD constructed feature is assigned to a non-Multi-Line Hunt line and the desired parameters are different from the default parameters on the ASPFD form (5632-1 Record).

The new field, TA DFLT ROUTE is used to indicate whether ASP Default Routing is active or inactive.

An entry of "Y" indicates that this call is routed to the port on which the TAT is assigned. This routing occurs only if an error occurred while communicating with the SCP and the transaction has not been closed. An "N" indicates the standard error treatment of reorder or announcement is given when an error condition is encountered.

ASMPA form (5632-3 Record) - The ASMPA form defines ASP Multi-Line Hunt line parameters. The Line (MLHG/Term) Parameter Form is used when an ASP constructed feature is assigned to a Multi-Line Hunt line, and the desired parameters are different from the default parameters on the ASPFD form (5632-1 Record).

A new field, TA DFLT ROUTE, was also added to the ASMPA form in the Terminating Triggers section.

The TA DFLT ROUTE field is used to indicate whether ASP Default Routing is active or inactive.

An entry of "Y" indicates this call is routed to the port on which the TAT is assigned. This routing occurs only if an error occurred while communicating with the SCP and the transaction has not been closed. An "N" indicates that the standard error treatment of reorder or announcement is given when an error condition is encountered.

4. GLOSSARY

ASP - Advanced Services Platform

BRCS Business And Residence Custom Services

CNI Common Network Interface

DN - Directory Number

SCP - Service Control Point

SSP Service Switching Point

TAT Termination Attempt Trigger

TCAP - Transaction Capabilities Application Part

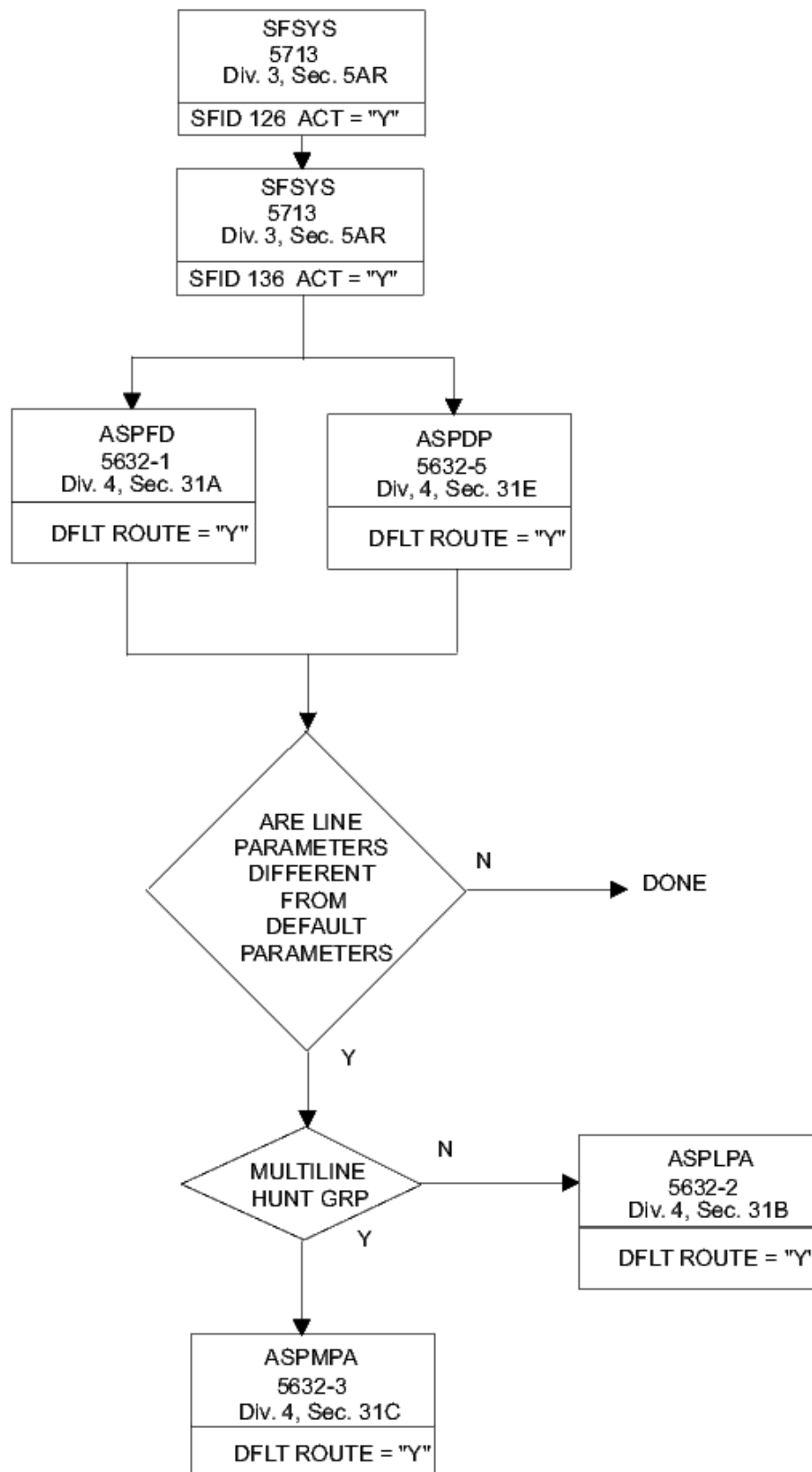


Figure 1 FORM FLOW FOR ASP DEFAULT ROUTING FOR TERMINATION ATTEMPT TRIGGERS**SEC. 4A137: ADVANCED SERVICES PLATFORM OFF-HOOK DELAY INTERWORKING****1. BACKGROUND**

A trigger is an event where the SSP (Service Switching Point) switch determines that ASP (Advanced Services Platform) treatment is needed for a call, based on some characteristic of the call, such as originating line or the dialed digits.

An Off-Hook Delay trigger is a subscribed originating trigger that queries the SCP (Service Control Point) database after all dialed/signaled digits have been collected and validated from the originating line/trunk. If the dialed/signaled digits have been defined as an escape code, an OHD query is not launched; rather, normal call processing treatment is applied where a 3/6/10/N11 trigger may be detected.

Prior to these secured features, ASP Release 0.1B as implemented for 5E9(1) prohibits assignment of BRCS and LASS features and an OHD (Off-Hook Delay) trigger to the same line.

2. ADVANCED SERVICES PLATFORM BRCS OFF-HOOK DELAY INTERWORKING**2.1 Feature Description**

The ASP (Advanced Service Platform) BRCS (Business and Residential Customer Services) OHD Interworking is a secured feature using SFID (Secured Feature ID) 137 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-2203.

Available with 5E9(1) and later, this feature allows the interaction between OHD triggers and a subset of BRCS features for National ISDN stations, National ISDN with EKTS stations, and analog stations.

The ASP National ISDN Interworking and ASP ISAT Interworking special features provide the ability to assign subscribed triggers (including the OHD trigger) to National ISDN stations, National ISDN with EKTS stations, and to assign subscriber triggers (excluding OHD) to Custom ISDN ISATs. This feature is also a secured feature using SFID 139 and must be purchased before being activated.

The BRCS features which interwork with the OHD trigger are:

- 3-Way Calling
- 6-Way Calling
- Call Hold (also called Soft Hold)
- Call Transfer
- CF (Call Forwarding) including CFV (Call Forwarding Variable)
- CFVFB (CFV Feature Button)
- CFBL (CF Busy Line)
- CFBLFB (CF Busy Line Feature Button)
- CFDA (CF Don't Answer)

- CFDAFB (CF Don't Answer Feature Button)
- Remote Access to Call Forwarding
- Call Waiting Feature including Call Wait Terminating
- Cancel Call Waiting

2.2 Translation Requirements

There are no new forms or new fields added for this feature.

SFSYS form (5713-1 Record) - This feature is a secured feature and must be purchased before being activated by setting the ACT field for SFID 137 to "Y" on the SFSYS form (5713-1 Record). Before activating this feature, the base 5E9.1 ASP Release 0.1B feature (for information on this feature, see Division 2, Section 4A126) must also be purchased and activated by setting the ACT field to "Y" for SFID 126 on the SFSYS form.

In order for OHD and BRCS features to coexist on NI (National ISDN) stations, the following features must be purchased and implemented via the SFSYS form:

- the base 5E9.1 ASP Release 0.1B feature must be activated by setting the ACT field to "Y" for SFID 126
- the ASP BRCS OHD Interworking feature must be activated by setting the ACT field to "Y" for SFID 137
- the ASP Interworking with NI and ISAT feature must be activated by setting the ACT field to "Y" for SFID 139.

ASFPD form (5632-1 Record) - No new fields or enumerations were added. With this feature active, other BRCS features may be assigned to a line or Multi-Line Hunt Group for Standard BRI users.

3. ADVANCED SERVICES PLATFORM LASS OFF-HOOK DELAY INTERWORKING

3.1 Feature Description

The ASP (Advanced Service Platform) LASS (Local Area Signaling Services) OHD (Off-Hook Delay) Interworking is a secured feature using SFID (Secured Feature ID) 137 and must be purchased before being activated. SFID 137 is the same feature lock for the BRCS/OHD Interworking Secured Feature released earlier. In addition, the base 5E9.1 ASP Release 0.1B Feature (see Division 2, Section 4A126) must be purchased and the ACT field for SFID 126 set to "Y" on the SFSYS form (Record 5713-1) in order for this feature to be enabled. Both this feature and the ASP Interworking with NI (National ISDN) and ISAT feature (SFID 139) (see Division 2, Section 4A139) must be activated in order for OHD and LASS features to be assigned together on NI stations. The AT&T feature number for this feature is 99-5E-2347.

Prior to this feature, ASP Release 0.1B prohibited assigning LASS features and an ASP OHD trigger to the same line. Available with 5E9(1) and later, the ASP OHD LASS Interworking feature provides the ability for selected LASS features and an ASP OHD trigger to be assigned to the same line, and for the selected LASS features to interwork with an ASP call which has encountered the OHD trigger. This feature is incremental in nature to ASP Release 0.1B as provided in 5E9(1). It also expands enhancement to the ASP National ISDN Interworking Secured feature which provides the ability to assign an OHD trigger to an NI station, and an NI with EKTS station.

The LASS/OHD feature allows the following LASS features on terminals which also have an ASP OHD trigger assigned:

- CNAM (Analog Calling Name Delivery)
- AC (Automatic Callback) (including 2-level AC)
- COT (Customer Originated Trace) (including 2-level COT)
- AR (Automatic Recall)
- ICLID (Individual Calling Line Identification) for Analog and National ISDN, e.g., including
 - CND (Calling Number Delivery)
 - NP (Directory Number Privacy)
 - ACP (All-Call Privacy)and
 - PCP (Per-Call Privacy).
- SCA (Selective Call Acceptance)
- SCF (Selective Call Forwarding)
- SCR (Selective Call Rejection)
- SDA (Selective Distinctive Alert)
- CAR (Computer Access Restriction)
- UCR (Unidentified Call Rejection)

The BCLID (Bulk Calling Line Identification) feature is not included in the set of LASS features which can coexist and interwork with an ASP OHD trigger.

This feature applies to the following terminal types with an ASP OHD trigger with the specified protocol assigned:

LASS/OHD and Terminal Types with ASP OHD Triggers	
Terminal Type	Protocol
Analog lines	R0, R0.1
National ISDN lines	R0.1
National ISDN with EKTS lines	R0.1

LASS feature activation/deactivation codes or feature buttons for the interworking LASS features may be received from an ASP OHD subscriber line. The LASS feature associated with the dialed code (or feature button) is subject to normal invocation criteria: assigned, active, applicable call state.

LASS features which do not place calls (like ICLID or SCR) do not encounter the OHD trigger. Operation of such LASS features are not impacted by the assignment of an OHD trigger to the line.

LASS features which attempt to place a call (AR, AC, SCF, SCA, and CAR) will encounter the OHD trigger when the call is attempted within the context of the invoked feature. The full range of ASP response processing is now available. No additional limitation on the type of SCP reply, or the routing options specified in a Routing message are imposed. SCA, SCF, and CAR operation are compatible with existing restrictions imposed upon ASP CFV (Call Forwarding Variable) interactions.

The switch ignores an inactive OHD trigger encountered on a feature call and continues processing the call as if there were no OHD trigger. When LASS routes a call, if the digits are an escape code (that is, an address or address pattern defined in digit analysis to specify escape), the OHD trigger is ignored. Requests for TN (Termination Notification) within the context of a LASS feature interaction on an OHD line are honored. ASP OHD billing will be done, if applicable.

There are no changes to existing feature interactions between LASS and 3/6/10 Digit - N11 Triggers (3/6/10/N11) or TATs (Terminating Attempt Triggers). When a LASS feature places a call, and a subsequent trigger (3/6/10/N11 or TAT) is encountered after the OHD trigger, serial triggering will occur. Existing feature interactions between LASS features and triggers which can be encountered without an OHD trigger apply if such a subsequent trigger is encountered following the OHD trigger.

- **WARNING:** 1: Involvement of AIN (Advanced Intelligent Network) Switch capabilities on the call prior to delivery to the terminating station may have resulted in a CPA different than that of the actual Call originator. The CPA is the CPN (Calling Party Number) and associated indicators such as privacy and uniqueness. In addition, the SCP may modify the Called Party Address. Called or Calling Party Addresses that have been modified by the SCP have an impact on LASS. See the individual feature descriptions below for more details on the impact. Some of these limitations exist even without the LASS/OHD feature.

3.2 Feature Interactions

An ASP OHD trigger and any of the LASS features cannot be assigned to a Custom ISDN line.

3.2.1 Automatic Callback including 2-level Activation of AC

AC Automatic Callback) is the LASS feature that returns the last incoming call and camps on that call if that party is busy.

Assignment of an OHD trigger to a valid line with access to an AC feature affects the operation of the AC feature as follows: When a line with access to AC and OHD activates an AC feature, the RDLS (Retrieve Distant Line Status) operation is performed using the entry in the ILHB (Incoming Line History Block) without encountering the OHD trigger. If LASS determines that the entry in the ILHB is not a valid destination, LTD (Long-Term Denial) error treatment is given. If the destination is valid, then when it is determined that the station is idle, AC places the call and the OHD trigger is encountered. The call is completed according to SCP instructions.

When AC places a call which encounters an active OHD trigger, and then sends a Query; error detection and processing from that point on is handled by ASP. ASP error treatment is given consistent with the error detected.

If ASP completes a call to a Final Announcement as specified by the SCP instructions, AC considers the call successfully completed. AC billing and measurements for completion of the call applies.

When the user invokes AC, if the DN in the ILHB is an active trigger in the user's dialing plan, LTD is returned to the user.

NOTE: OHD triggers are associated with the terminal, not the DN. So this statement does not apply to OHD triggers.

AC Choking (the process of enforcing call limits established to control the number of 911 calls accepted from any one source or area) is performed based on the DN in the ILHB.

WARNING: 1: In order for AC to operate as expected, the SCP cannot allow this call to be redirected to a DN different from the DN in the ILHB. If the SCP changes the called party number, then the RDLS, performed on the contents of the ILHB, will have received the status of and, if busy, camped onto a DN different from the one to which it finally routed.

WARNING: 2: The ILHB stores the CPA (Calling Party Address) currently associated with the call. If ASP triggers are involved in the incoming call, the ILHB contains any CPA supplied by an SCP which may not be the CPA of the originator. Knowledge of any CPN previously associated with the call is lost. If the number in the ILHB is not a valid NANP (National Numbering Plan) address, the AC capability is not able to determine the status of this number and returns LTD to the user.

3.2.2 Automatic Recall

AR (Automatic Recall) is the LASS feature that returns the last outgoing call and camps on if that party is busy.

Assignment of an OHD trigger on a valid line with access to an AR feature affects the operation of the AR feature as follows:

- The OLHB (Outgoing Line History Block) is updated as normal with the dialed called party address when a call is placed, and is subject to existing LASS requirements pertaining to destination validation. If the number dialed results in the SCP which returns something that is invalid for AR or should not update the OLHB, the OLHB reflects this, even though the DN is not overwritten with the returned digits. For example, triggering to 911 does not update the OLHB; triggering to SSP800 updates the OLHB to invalid.
- When a line with AR and OHD activates the AR feature, the RDLS operation is performed using the DN in the OLHB without encountering the OHD trigger. If LASS determines that the entry in the OLHB is not a valid destination, LTD treatment is given. If the destination is valid, then AR places the call when it is determined that the station is idle, and the OHD trigger is encountered. The call is completed according to SCP instructions.
- When AR places a call, encounters an active OHD trigger, and then sends a Query, error detection and processing from that point is handled by ASP. ASP error treatment consistent with the error detected is given.
- If ASP completes a call to a Final Announcement as specified by the SCP instructions, AR considers the call successfully completed. AR billing and measurements for completion of the call applies.
- When the user invokes AR, if the DN in the OLHB is an active trigger in the user's dialing plan, LTD is returned to the user.

NOTE: OHD triggers are associated with the terminal, not the DN. So this statement does not apply to OHD triggers.

Access code triggers also cause LTD to be returned to the user.

AR Choking is performed based on the DN in the OLHB.

- ▲ **WARNING:** 1: In order for AR to operate as expected, the SCP must not cause this call to be redirected to a DN different from the number in the OLHB. If the SCP changes the called party number, then the RDLS, performed on the contents of the OLHB, receives the status of and, if busy, camps onto a DN different from the one to which it was finally routed.
- ▲ **WARNING:** 2: The Routing Number returned by the SCP is not used to update the OLHB. If the number in the OLHB is not a valid NANP address, AR is not able to determine the status of this number and returns LTD to the user.

3.2.3 Customer Originated Trace including 2-level Activation of COT

The COT (Customer Originated Trace) and 2-level COT features operate as usual as the COT capability when invoked on a line with access to the COT feature and with an OHD trigger assigned. The OHD trigger assigned is not encountered during COT processing nor does it have an impact on the operation of COT.

- ▲ **WARNING:** 1: COT uses the last CPA information for the trace. The involvement of the AIN Switch capabilities on the call prior to the invocation of COT may have resulted in a CPA different than that of the actual Call originator. COT operates on the information currently associated with the call and has no knowledge of any previous CPA information.

3.2.4 Analog Calling Name Delivery

The CNAM feature operates as the CNAM capability when it is invoked on a line with access to a CNAM feature and an OHD trigger assigned. The OHD trigger is not encountered during CNAM processing nor does it have an impact on CNAM operation. The Calling Party Name is delivered or not, depending on privacy, and presentation indicators received with the calling party name.

- ▲ **WARNING:** 1: Note that involvement of AIN Switch capabilities on the call prior to the invocation of CNAM may have resulted in a Calling Party Address and/or Name different than that of the actual Call originator. CNAM operates on the information currently associated with the call and has no knowledge of any previous CPN or Name information.

3.2.5 Individual Calling Line Identification, Calling Number Delivery, Directory Number Privacy, All-Call Privacy, and Per-Call Privacy

The ICLID (Individual Calling Line Identification) features operate as previously when invoked on a line with access to ICLID features and with an OHD trigger assigned. The OHD trigger is not encountered during ICLID processing nor does it have an impact on ICLID operation.

- ▲ **WARNING:** 1: Note that involvement of AIN Switch capabilities on the call prior to the invocation of ICLID may have resulted in a Calling Party Address different than that of the actual Call originator. ICLID operates on the information currently associated with the call and has no knowledge of any previous CPN.

Privacy features invoked by the user are reflected in the Calling Party address parameter of the R0.1 Query, if the OHD trigger indicates R0.1 protocol. R0 protocol does not allow privacy indications in the OHD Query. This privacy is maintained in the Calling Party address information on the switch.

3.2.6 Unidentified Call Rejection

The UCR (Unidentified Call Rejection) feature operates as previously when invoked on a line with access to the UCR feature and with an OHD trigger assigned. The OHD trigger is not encountered during UCR processing nor does it have an impact on UCR operation.

- **WARNING:** 1:Note that previous involvement of AIN Switch capabilities may have associated an SCP-supplied CPN value with the call. The SCP is able to specify the privacy and presentation indicators when supplying a CPN value. The UCR feature operates based on SCP-supplied information when an SCP-supplied privacy indicator is associated with the call.

3.2.7 Screen List Editing and Call Screening

Originating:

The SLE capability operates as the SLE capability when invoked on a valid line with access to a LASS Selective feature and with an OHD trigger assigned. The OHD trigger is not encountered during nor does it have an impact on validation of the screening list entries or the RTN (Remote Telephone Number) for SCA, SCF, and CAR.

Terminating:

SCA, CAR, and SCF can, when a call is screened, forward that call to the RTN. If the user has an ASP OHD trigger then the OHD query processing would be encountered on the forwarding number.

Without the LASS/OHD feature, screening is not allowed even though the screening list can be built via RC (for GA LSF features) for ASP OHD users. The call will not screen; incoming calls will terminate as if there is no screening list.

- **WARNING:** 1:If the AIN Switch capabilities have associated an SCP-supplied number with the called or calling party, a customer may attempt to place an entry on the screening list which will cause call processing behavior which is not expected by the user. For example:
 - The user may attempt to place the number in the ILHB which is not a valid address in the user's dialing plan on the list. SLE does not place this number on the list.
 - The user may put an entry on the list which does not affect the delivery of the incoming call as intended. The user could put the NANP number of another party on the list, but the number delivered when a call is received from that other party could be modified by the SCP. The result, since the number on the list and the number actually delivered when the call attempts to terminate are different, would be that the call would fail screening and would not be given the expected screening treatment.

3.2.8 Selective Call Acceptance/Computer Access Restriction

Originating:

The SCA (Selective Call Acceptance) and CAR (Computer Access Restriction) features operates as SCA and CAR capabilities when invoked on a valid line with an access to an SCA or CAR feature and an OHD trigger assigned. The OHD trigger is not encountered during an SCA or CAR SLE session.

Terminating:

If the Calling Party Number associated with a call placed to an SCA/CAR user is not on the accepted list and the call is routed to the RTN, the OHD trigger is encountered for the redirected call if the trigger is active and the RTN does not specify escape.

3.2.9 Selective Call Forwarding

Originating:

The SCF (Selective Call Forwarding) feature operates as the SCF capability when invoked on a valid line with access to an SCF feature and with an OHD trigger assigned. The OHD trigger is not encountered during an SCF SLE session.

Terminating:

If the Calling Party Number associated with a call placed to an SCF user is on the forwarding list, the OHD trigger is encountered for the forwarded call if the trigger is active and the forward-to number does not specify escape.

3.2.10 Selective Call Rejection

Originating:

The SCR (Selective Call Rejection) feature operates as the SCR capability when invoked on a valid line with access to an SCR feature and with an OHD trigger assigned. The OHD trigger is not encountered during an SCR SLE session.

Terminating:

The OHD trigger is not encountered while providing rejection treatment.

3.2.11 Selective Distinctive Alert

Originating:

The SDA (Selective Distinctive Alert) feature operates as the SDA capability when invoked on a valid line with access to an SDA feature and with an OHD trigger assigned. The OHD trigger is not encountered during an SDA SLE session.

Terminating:

The OHD trigger is not encountered while providing alerting treatment.

- **WARNING:** 1: Previous involvement of AIN Switch capabilities may have associated an SCP-supplied distinctive alerting value with the call. For ASP 0.1B protocol, the SCP-specified alerting pattern is applied instead of what SDA would supply.

3.2.12 Account Codes

ACCT, AR and AC, and ASP OHD are not allowed to interact.

3.2.13 Network Management

ACG (Automatic Call Gapping) may be encountered when LASS places the call and encounters the OHD Query processing. ACG error treatment is applied.

3.3 Feature Assignment

The following shows how the LASS features, both GA (Generally Available) and Subscription, interact with ASP OHD users and the provisioning required. If access is denied, then standard BRCS error treatment for an

unassigned feature is returned to the ASP OHD user attempting use of a LASS feature.

3.3.1 Subscription LASS features

RC (Recent Change) and ODA (Office Data Administration) allow any of the LASS features to be assigned on the same terminal with an ASP OHD trigger assigned (regardless of the active/inactive state of the feature or the trigger) if:

- the appropriate features have been unlocked.
- the terminal type is allowed.
- for AC and AR only: an ACCT (Account Codes) feature is not assigned to the terminal.

3.3.2 Generally Available LASS features

RC/ODA has no impact on GA (Generally) LASS feature usage for ASP OHD users.

Call Processing enforces the following rules for ASP OHD users:

- when an ASP OHD trigger is assigned, use of all of the LASS Selective Features are allowed if:
 - the appropriate features have been unlocked.
 - the terminal type is allowed.
- when an ASP OHD trigger is assigned, use of AC/AR is allowed if:
 - the appropriate features have been unlocked.
 - the terminal type is allowed.
 - the user does not have an ACCT feature assigned.
- use of COT, and ICLID (privacy features):
 - there are no restrictions on the use of the rest of the LASS GA features on terminals assigned an ASP OHD trigger.

3.3.3 Unidentified Call Rejection and All-Call Privacy

There are no restrictions on the use of UCR (Unidentified Call Rejection) or ACP (All-Call Privacy) on terminals assigned an ASP OHD trigger.

3.3.4 Advanced Intelligent Network and Local Area Signaling Services

There are no new views or fields on views for this feature. The only impact is that feature assignment of LASS features are not blocked for ASP OHD subscribers. Normal Line and DSL Assignment Views are used. All other restrictions related to assignment of features applicable to both LASS and ASP OHD triggers continue to apply.

The active/inactive status of the OHD trigger is not considered in deciding whether or not to allow a LASS feature to be assigned. It is important to understand some of the ramifications of the interactions between AIN and LASS features. All of the LASS features are affected if either the called or calling party address is modified anywhere in the call. This is true even without the LASS/OHD feature. Examples of possible impacts are described below:

- **Calling Party Number Overwrite**

R0.1 allows the service logic in the SCP to change the CPA (the Calling Party Number and associated indicators such as privacy and uniqueness) associated with a call. Once the SCP has supplied a new CPA, all knowledge of the previous CPA value is lost. This may impact users of LASS features that deliver the CPN or Name or any of the LASS Selective features that screen on the CPN. These terminating features operate based on the CPA supplied by the SCP, and not on the true CPA associated with the originator of the call.

Users with LASS Selective features are unable to selectively block or accept calls when the call's CPN has been changed by service logic, if they will have entered the expected caller's true CPN on their screening list.

Another example is an attempt to use the AC feature which may prove unsuccessful if service logic has changed the CPN. If the SCP-supplied CPN is a valid NANP address, but is different from the true CPN of the caller, the AC attempt places a call to some other station than expected. If the SCP-supplied CPN is a Virtual DN, not a valid NANP address, the busy/idle status check which precedes the call may lead to unexpected behavior in other network elements (see discussion of Virtual Telephone Numbers).

- **Virtual Telephone Numbers**

With AIN, the number which the caller dials and the actual routing number as determined by SCP service logic may be different. The OHD trigger requires that the number dialed by the caller be defined in the caller's dialing plan, but there is no requirement that the number be a valid NANP address. An example of a problem with this is the AR feature interaction. The OLHB associated with a call originator stores the last dialed number. It does not store the routing number supplied by the SCP. Thus if the dialed number is a virtual number, not a valid NANP number, an attempt to activate AR based on the last dialed number may lead to unexpected results. In particular, the switch may not have sufficient information to determine where to check the distant line status, and return LTD error treatment to the user. The user may be confused by this if the previous call completed to the expected terminating party. If the switch determines that the OLHB DN is interswitch, it sends an RDLS query into the network containing the virtual number dialed. Other network elements may determine that the number is not associated with an actual terminating station, and invoke error procedures.

- **Redirected Calls**

AIN service logic may cause calls to be routed to a destination other than the one originally dialed. The AR OLHB stores the dialed digits rather than the SCP-supplied routing number.

Because of this, an attempt to activate AR may lead to unexpected results. The RDLS check is performed on the station corresponding to the dialed digits, rather than the station to which the service

logic will complete the call. When the OLHB station is idle, the AR call will occur. At this point the OHD trigger is encountered, and service logic may cause the call to be redirected elsewhere. The actual terminating station may be busy, despite the OLHB station being idle.

3.4 Translation Requirements

There are no new forms or new fields added for this feature.

SFSYS form (5713-1 Record) - This feature is a secured feature and must be purchased before being activated by setting the ACT field for SFID 137 to "Y" on the SFSYS form (5713-1 Record). Before activating this feature, the base 5E9.1 ASP Release 0.1B feature (for information on this feature, see Division 2, Section 4A126) must also be purchased and activated by setting the ACT field to "Y" for SFID 126 on the SFSYS form.

In order for OHD and LASS features to coexist on NI stations, the following features must be purchased and implemented via the SFSYS form:

- the base 5E9.1 ASP Release 0.1B feature must be activated by setting the ACT field to "Y" for SFID 126
- the ASP BRCS OHD Interworking feature must be activated by setting the ACT field to "Y" for SFID 137
- the ASP Interworking with NI and ISAT feature must be activated by setting the ACT field to "Y" for SFID 139.

4. GLOSSARY

AC	Automatic Callback
ACCT	Account Codes
ACP	All-Call Privacy
AIN	Advanced Intelligent Network
AR	Automatic Recall
ASP	Advanced Services Platform
BCLID	Bulk Calling Line Identification
BRCS	Business and Residential
CAR	Computer Access Restriction
CF	Call Forwarding
CFBL	CF Busy Line
CFBLFB	CF Busy Line Feature Button
CFDA	Call Forwarding Don't Answer
CF Don't Answer	Call Forwarding Don't Answer

CFDAFB	CF Don't Answer Feature Button
CFV	Call Forwarding Variable
CFVFB	CFV Feature Button
CNAM	Analog Calling Name Delivery
CND	Calling Number Delivery
COT	Customer Originated Trace
CPA	Calling Party Address
DNP	Directory Number Privacy
ICLID	Individual Calling Line Identification
ILHB	Incoming Line History Block
LASS	Local Area Signaling Services
LTD	Long-Term Denial
NI	National ISDN
ODA	Office Data Administration
OHD	Off-hook Delay
OLHB	Outgoing Line History Block
PCP	Per-Call Privacy
RC	Recent Change
RDLS	Retrieve Distant Line Status
SCA	Selective Call Acceptance
SCF	Selective Call Forwarding
SCP	Service Control Point
SCR	Selective Call Rejection
SDA	Selective Distinctive Alert
SLE	Screen List Editing
SSP	Service Switching Point
TN	Termination Notification
UCR	Unidentified Call Rejection

SEC. 4A138: VECTOR PROMPT ENHANCEMENT

1. BACKGROUND

Prior to the Vector Prompt Enhancement feature, a user could enter touch-tone input during the prompt step, but that data would not be delivered to the agent. If the agent needed to perform any retrieval action based on the customer input, he/she would ask the customer for that data again.

Often it is costly for customers to modify their existing data applications to accept data messages from a switch interface. As an alternative, data can be delivered to the telephone set of the CSR (Customer Service Representative) handling the call. From the telephone set display, the CSR can manually key the information into the data retrieval system. If an ISDN (Integrated Services Digital Network) telephone device is used, the displayed information can be used for automatic data retrieval.

The Vector Prompt Enhancement feature was developed to assist in this automatic data retrieval process.

2. FEATURE DESCRIPTION

The Vector Prompt Enhancement Feature is being deployed on the 5ESS Switch in a Software Update for the 5E9(1) and 5E9(2) Software Releases and in the Beginning Managed Introduction of 5E10 Software Release.

This feature is a secured feature, which is controlled by SFID (Secured Feature ID) 138 and is dependent on SFID 41, the EPIC (Enhanced Prompting for Incoming Calls) feature and SFID 123, the ACD/BRCS (Automatic Call Distribution/Business and Residential Custom Services) Agent Login feature. The feature number for Vector Prompt Enhancement is 99-5E-2285.

This document uses PINNACLE ACD as an example since it is the biggest user of this feature. It should be noted that this feature is not limited to just PINNACLE ACD.

The Vector Prompt Enhancement feature is provided on a per-switch basis to business customers using the PINNACLE ACD system. This feature provides a new capability for ACD/BRCS customers who use the Call Vectoring and EPIC features. When a user makes a call to an ACD/BRCS position, some additional information from that user may be needed in servicing the call. If a user is instructed to enter touch-tone data during the prompt step of a call vector, the Vector Prompt Enhancement feature provides the ability to display that data on the telephone set of the agent answering the call.

Sophisticated call handling applications require the use of an ISDN call center service provided by the 5ESS Switch subsystem, PINNACLE ACD. These call handling applications often involve a parallel application for data entry or for information retrieval processes. To provide maximum efficiency of a call center operation, it is desirable to automate and link these processes as much as possible.

When a user enters touch-tone input during the prompt step of a call vector, the Vector Prompt Enhancement feature displays the data on the telephone set of the answering PINNACLE ACD subscriber. The Vector Prompt Enhancement feature will deliver up to 15 characters of the customer entered data for display on the ACD agent's telephone. If the telephone cannot display all 15 digits, the consequences are dependent on how that particular telephone handles it.

The subscriber to a PINNACLE ACD system is normally a business that utilizes the system's vector prompting features. The business has customers who when calling must input touch-tone responses to a set of menu commands before contact is established with a CSR (for example, a caller can be prompted to enter an account number using the touch-tone keypad on the telephone handset).

The Vector Prompt Enhancement feature displays important information about the caller on a CSR's ISDN

telephone set during call alerting, while the call is being handled. The CSR can then act on this displayed information; for example, an insurance company representative can input a customer policy number (as displayed on the ISDN telephone set) into a data base and have policy holder information at hand while responding to the customer call.

Subscribers (CSRs) to the PINNACLE ACD service who log in to receive calls from the incoming call queue are eligible to receive Vector Prompt Enhancement displays. When calls which are allowed Vector Prompt Enhancement treatment are delivered to CSRs logged in on PINNACLE ACD, the collected digits appear on the telephone display. This feature does not interact with any other features on the switch outside the set of PINNACLE ACD features. The telephone display must be in Normal Mode to display any information sent by features. If it is in Miscellaneous Mode, as in the case of invoking the Directory feature, the display is not overwritten. An example of when the display will be overwritten is when both the Calling Name and Vector Prompt features are used. The collected digits will overwrite the calling name field of the display. If the CSR engages the telephone display for another purpose (such as electronic directory service), the digits will not be displayed until the display is released and made available for update by the switch.

PINNACLE ACD call center administrators (switch personnel) are responsible for activating the feature for each customer. MIS (Management Information System) is an adjunct system that administers ACD resources and interacts with Recent Change using modifiable data base definitions to provide management control of the PINNACLE ACD system.

In the Management Information System, call vectors including EPIC prompt steps, are defined by the call center administrator. MIS provides a user-friendly interface with pop-up choice lists to assist in these administrative tasks and includes the ability to select the subscriber telephone display as the delivery destination for the collected data.

Using PINNACLE ACD MIS administration procedures, switch personnel can:

- administer, activate and deactivate call vectors,
- administer the vector prompt enhancement selection on individual EPIC prompts,
- administer EPIC prompts and announcements.

The Vector Prompt Enhancement feature exists only for BRI (Basic Rate Interface) in the 5E9(1) and later Software Releases that include PINNACLE ACD.

This feature is not supported for

- Analog systems,
- National ISDN,
- OSPS (Operator Services Position System) / ACD positions.

2.1 Call Scenarios

TYPICAL END-USER SCENARIO - Normal Operation between cable company call center with PINNACLE ACD and customer dialing from an analog telephone set (with touch-tone service) at home.

The customer calls the call center using a 1-800 number to check on whether or not a Pay-Per-View concert will be activated for the customer's cable television service.

The call is placed into the Customer Service call vector and queue based on the dialed number.

The call vector contains an EPIC prompt step, which plays an announcement to the customer and asks for the subscriber number.

The calling customer enters the DTMF (Dual Tone Multifrequency) digits: "122344".

The call vector collects the digits and plays another announcement thanking the customer and asking him/her to wait for an available agent.

The PINNACLE ACD selects the call from the head of the Customer service queue for delivery to an agent's telephone set. The longest waiting agent is selected to receive the call.

The call is delivered to the telephone set of that agent. The telephone set has a display and when the call is delivered, the following is shown on the telephone display:

CUST SRVC 122344 Inl

NOTE: The digits "122344" will be displayed in the Calling Name Field. Absolute placement of the message will depend on the type and size of the agent's display unit.

The agent is then able to use the customer's subscriber number to access the customer service records. The agent doesn't have to ask the customer for that information, thus saving time on the call.

TYPICAL END-USER SCENARIO - Abnormal Operation between the cable company call center with PINNACLE ACD and customer dialing from an analog telephone set (without touch-tone service) at home.

Same as above, except for when the call is delivered to the telephone set of an agent. The telephone set display will show the following:

CUST SRVC NO DATA SENT Inl

Since no data was sent, the agent knows that the calling customer was unable to enter a subscriber number into the system. The agent will then need to ask the customer for that information.

3. FEATURE ASSIGNMENT

This is a secured feature and is activated by setting the ACT field for SFID 138 on the SFSYS form (5713-1 Record) to "Y". In addition, since this feature is dependent on two other secured features the ACT fields for SFID 123 (ACD/BRCS Level 3) and SFID 41 (EPIC) must be set to "Y" respectively, on the SFSYS form (5713-1 Record).

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
CVECT	5460	3	4BH	21.41

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 138, 123 and 41 to "Y".

CVECT form (5460 Record) - This form is used to define Call Vectoring steps that determine how an incoming call is to be treated while waiting for a CACD (Commercial Automatic Call Distributor) agent. The

CMD CD field should be set to "PROMPT" and the field CARG1 must be set to "1".

SEC. 4A139: ASP INTERWORKING WITH NATIONAL ISDN AND CUSTOM ISDN ATTENDANT

1. BACKGROUND

A 3/6/10-digit or N11 trigger is a non-subscribed (office) trigger that is recognized whenever the telephone company designated digit string, that is defined in the ODP (Office Dialing Plan), is encountered by a line or trunk. This trigger, when encountered, suspends call processing after completion of digit analysis and attempts to query the SCP (Service Control Point) for further processing instructions.

Prior to this feature, NISDN (National ISDN) could not access ASP originating features. NISDN did have the ability to access both AIN (Advanced Intelligent Network) Release 0 and AIN Release 0.1 3/6/10/N11 triggers. Custom ISATs (ISDN Attendants) were not able to access ASP originating, ASP terminating, or 3/6/10/N11 triggers.

2. FEATURE DESCRIPTION

The ASP Interworking with NISDN and Custom ISAT (ISDN Attendant) is a secured feature using SFID (Secured Feature ID) 139 and must be purchased before being activated. The Lucent Technologies feature number for ASP Interworking with NISDN is 99-5E-2206. The Lucent Technologies feature number for ASP Interworking with Custom ISAT is 99-5E-2372.

99-5E-2206 for 5E9(1) and later:

Available with 5E9(1) and later, this feature provides National ISDN customers, including EKTS (Electronic Key-Telephone Service) users, and ISDN Attendants (with the exclusion of Off-Hook Delay (OHD) triggers) the ability to have ASP AIN Release 0.1 subscribed triggers.

99-5E-2846 for 5E9(1):

For 5E9(1), this feature gives ISATs access to 3/6/10 and N11 triggers. ASP AIN Release 0 is not supported on ISATs.

99-5E-2846 for 5E9(2) and later:

For 5E9(2) and later, ASP Interworking with Custom ISDN (feature number 99-5E-2846) expands the current release 0.1 Advance Service Platform Interworkings to include CISDN (Custom ISDN terminals and features).

NOTE: With the introduction of ASP Interworking with Custom ISDN, the secured feature ID 139 name does not change. It is still called: ASP Interworking with National ISDN and ISAT.

Prior to 5E9(2), the ASP Release 0.1 call processing software interacts with Custom ISDN services by allowing CISDN originated calls to encounter Termination Attempt Triggers and office wide triggers like 3/6/10 and N11. However, release 0.1 ASP subscribed triggers were not currently available for CISDN and the Termination Attempt Trigger could not be assigned to a CISDN terminal. CISDN could have release 0.0 triggers assigned but NOT release 0.1 triggers.

This feature expands the interactions between ASP and CISDN by allowing CISDN terminals to have access to additional ASP capabilities in release 0.1. Also, this feature will provide necessary feature interactions between the switched-based CISDN features and the ASP release 0.1 trigger operations.

This feature applies for the 5ESS-2000 switch implementation of CISDN BRI (Basic Rate Interface) and AIN

0.1. The interactions between ASP and CISDN defined by this feature consists primarily of the following:

Allows the subscribed Originating ASP Release 0.1 Triggers to be assigned to DNs on CISDN BRI terminals. The ASP originating triggers include the following:

- Customized Dialing Plan (CDP) Triggers on Custom ISDN BRI terminals utilizing immediate, normal, or variable digit collection mechanism.
- Feature Code Dialing (FCD) Trigger on Custom ISDN BRI terminals utilizing immediate, normal, or variable digit collection mechanism. This trigger is also called the PODP FC (Public Office Dialing Plan Feature Code) trigger.
 - Allowing the subscribed Terminating ASP Triggers to be assigned to DNs on CISDN terminals. The ASP terminating trigger is the Termination Attempt Trigger.
 - Allowing ASP interactions of the previous mentioned triggers with CISDN switched-based features. In other words, everything on CISDN in terms of feature interactions with ASP should work the same as they do for analog.

The following capabilities are supported from Custom ISDN terminals:

- Allows ASP interactions with Custom ISDN switch based features.
- ASP capabilities are supported on Custom ISDN terminals. Any Call appearance on a Custom ISDN terminal will inherit the ASP originating feature assigned to the primary DN of the terminal. For ASP terminating features, the feature is supported only on the DN assigned the ASP terminating feature.
- ASP capabilities to interwork with the Shared DNs
- The SCP has the ability to activate/deactivate assigned triggers on Custom ISDN BRI terminals. For Shared DN this is limited to Originating triggers only.
- TATs on MLHGs (Multiline Hunt Groups)

The table in Figure 1 defines which originating line and trunk types can access the different 5E9(1) ASP triggers by AIN Release 0 and Release 0.1 protocols when the 5E9(1) ASP feature (SFID126) and NISDN/ISAT Interworking feature (SFID 139) are purchased.

For a more detailed discussion of ASP triggers, see 235-190-126, *5ESS Switch Advanced Services Platform, Release 0.1B*.

For a more detailed discussion of National ISDN, see 235-190-110, *5ESS Switch National ISDN*.

For a more detailed discussion of ISDN Attendants, see 533-700-200 and 533-700-210, *5ESS Switch Integrated Services Digital Network - Attendant Console Administration*.

2.1 Trigger Activation/Deactivation

For a more detailed discussion of trigger activation and deactivation refer to Division 2, Sections 4A51 and 4A126 in the TG-5 and 235-190-126, *5ESS Switch Advanced Services Platform, Release 0.1B*. The following applies to ASP AIN Release 0.1 triggers.

2.1.1 NISDN

Trigger Activation/Deactivation for ASP Originating subscribed triggers applies to all call appearances on the NISDN terminal where the originating feature is assigned to the Primary DN. A request to update the status of a trigger to a non-shared Secondary-Only DN updates the status of the Primary DN. An update request to Shared Secondary-Only DN is denied with "unavailable resource" reported to the SCP (Service Control Point). Trigger Activation or Deactivation to a Shared Secondary DN only affects the status of the trigger where the DN is Primary.

For ASP Terminating Subscribed Triggers, Trigger Activation/Deactivation is only applicable to the Primary DN where the ASP Terminating Feature is assigned. Trigger Activation and Deactivation to Shared DNs, Secondary-Only DNs, or Shared Secondary-Only DNs will be denied with "unavailable resource" reported to the SCP.

TATs (Terminating Attempt Triggers) can be assigned to any member of an MLHG but can only be detected from a no-hunt DN. In addition, if a TAT is assigned to Member 1, calls to the Main DN of the MLHG will encounter the TAT trigger. A Trigger Activation/Deactivation request to the no-hunt DN is allowed. A request to update the status of the Individual DN will fail and "unavailable resource" is reported to the SCP. A Trigger Activation/Deactivation request for NISDN terminals for UCD, Circular, or Regular MLHG to the Main DN or Member 1 DN is supported.

2.1.2 Custom ISAT Attendant

5E9(1):

Trigger Activation and Deactivation on ISATs is applicable to the member DNs that have the ASP originating feature assigned. A request to update the status of a sub-TNS will be denied with "unavailable resource" reported to the SCP.

Trigger Activation/Deactivation to TATs assigned to ISATs are the same as described above for NISDN.

5E9(2) and later:

Please refer to Section 3.9.2 of the 235-190-126 document for a detailed discussion of Trigger Activation and Deactivation.

Trigger Activation/Deactivation for ASP Originating subscribed triggers applies to all call appearances on the Custom ISDN terminal where the originating feature is assigned to the Primary DN. A request to update the status of a trigger to a non-shared Secondary-Only DN updates the status of the Primary DN. An update request to Shared Secondary-Only DN is denied with "unavailable resource" reported to the Service Control Point (SCP). Trigger Activation or Deactivation to a Shared Secondary DN only affects the status of the trigger where the DN is Primary.

For ASP Terminating Subscribed Triggers, Trigger Activation/Deactivation is only applicable to the Primary DN where the ASP Terminating Feature is assigned. Trigger Activation and Deactivation to Shared DNs, Secondary-Only DNs, or Shared Secondary-Only DNs will be denied with "unavailable resource" reported to the SCP.

TATs can be assigned to any member of an MLHG but can only be detected from a no-hunt DN. In addition, if a TAT is assigned to Member 1, calls to the Main DN of the MLHG will encounter the TAT trigger. A Trigger Activation/Deactivation request to the no-hunt DN is allowed. A request to update the status of the Individual DN will fail and "unavailable resource" is reported to the SCP. A Trigger Activation/Deactivation request for Custom ISDN terminals for UCD, Circular, or Regular MLHG to the Main DN or Member 1 DN is supported.

Feature Interactions

Feature Interactions for Custom ISDN are the same as analog, as applicable, as described in the 235-190-126 ASP feature document. Any changes to existing functionality is highlighted below.

CSV (Call Forwarding Modular Feature):

The CDP or FCD access code and digits may be included as a part of the forward to DN. Calls to the base station that forwards will encounter the ASP CDP or FCD trigger.

If a courtesy call is required in a Call Forward CORC (Customer Originated Recent Change) procedure, a CDP or FCD trigger is encountered prior to the courtesy call. If a courtesy call is not required, no query is sent.

A Custom ISDN originator may subscribe to a Release 0.1 ASP originating feature, with the exclusion of OHD, and the following Call Forwarding features.

- CFV (Call Forward Variable)
- CFVFB (Call Forward Variable Feature Button)
- CFBL (Call Forward Busy Line)
- CFDA (Call Forward Don't Answer)
- CFDAFB (Call Forward Don't Answer Feature Button)
- CFBLFB (Call Forward Busy Line Feature Button)

CSV (Call Waiting Modular Feature):

Call Waiting is not applicable to Custom ISDN.

Calling Party Number Presentation:

ASP Calling Party Number Overwrite displays a "private" number format (XXXXXXXXXX) when SCP does not return a 10 digit National Number. Custom ISDN will only format 10 digit National Numbers as NPA NXX-XXXX.

CUSTOM ISDN:

ASP originating features are terminal features and apply to all originations from any DN on the terminal.

ASP terminating features are DN features and apply to only DNs that have the feature assigned. TATs can not be assigned to Secondary-Only DNs.

A DN that has an ASP terminating feature assigned can have multiple call appearances. The ASP terminating feature applies to all appearances of the DN.

- Shared Call Appearance of a Directory Number
 - A Custom ISDN terminal can have multiple DNs which may each have a TAT assigned. The TAT trigger encountered is destined for a particular DN with the TAT assigned. A TAT can be associated with a DN that has call appearances that are shared by members of a Shared DN group. The triggering occurs before the call is offered to the group members.

- Bridged Call
 - A Shared DN subscriber can bridge onto an ASP call after the call has routed providing that Bridged Call Exclusion is not active on the call. A Shared DN user can bridge into an active call to another member of the group. Bridging into a call during an ASP announcement is not supported.
- Delayed and Abbreviated Ringing
 - A TAT assigned to a DN on an Shared DN does not have any affect on Delayed or Abbreviated Ringing assigned to the DN.
- Custom ISDN Hold
 - ASP calls originated using FCD or CDP triggers can be placed on HOLD and retrieved from HOLD. Calls that are made to Custom ISDN lines and encounter a TAT trigger can be placed on HOLD and retrieved from HOLD.
- Music On Hold
 - Music is provided to ASP calls held that encounter an ASP trigger
- Multiway
 - Any attempt to Conference or Transfer requests received during Digit Collection after a FCD or CDP trigger is encountered are ignored.
- Conference Calling
 - A Conference Invocation attempt for a call reference associated with a call that has encountered an ASP trigger is allowed.
 - A call connected to an ASP announcement, in the digit collection state, or in the process of ASP routing can not be placed on soft hold.
- Transfer
 - A transfer invocation attempt is allowed for a call reference associated with a call that encountered an ASP trigger.
 - A call connected to an ASP announcement, in the digit collection state, or in the process of ASP routing can not be placed on soft hold.
- Drop
 - A call that has encountered an ASP trigger may be dropped. A drop request received during ASP digit collection after a FCD or CDP trigger has been dialed is honored.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

SFSYS form (5713-1 Record) _ This feature is a secured feature and must be purchased. The feature is activated by setting the ACT field for SFID 139 to "Y" on the SFSYS form (5713-1 Record). Before activating this feature, the base 5E9.1 ASP Release 0.1B feature must be purchased and activated by setting the ACT field to "Y" for SFID 126 on the SFSYS form.

ASPF form (5632-1 Record) - No new fields or enumerations were added. With this feature, lines or Multi-Line Hunt Groups may additionally have a CLASS OF SERVICE of "ISDN" and "ISATND" and access ASP AIN Release 0.1 subscribed triggers.

4. GLOSSARY

AIN	Advanced Intelligent Network
ASP	Advanced Services Platform
BRI	Basic Rate Interface
CDP	Custom Dialing Plan
CFBL	Call Forward Busy Line
CFBLFB	Call Forward Busy Line Feature Button
CFDA	Call Forward Don't Answer
CFDAFB	Call Forward Don't Answer Feature Button
CFV	Call Forward Variable
CFVFB	Call Forward Variable Feature Button
CISDN	Custom ISDN
CORC	Customer Originated Recent Change
CSV	Call Forwarding Modular Feature
EKTS	Electronic Key-Telephone Service
FCD	Feature Code Dialing
	ISDN Attendant
NISDN	National ISDN
ODP	Office Dialing Plan
PODP FC	Public Offering Dialing Plan Feature Code
SCP	Service Control Point

TAT Terminating Attempt Trigger

ACCESS TO RELEASE 0/ 0.1 PROTOCOL TRIGGERS BY TYPE OF ORIGINATOR									
ASP TRIGGER	TYPE OF ORIGINATOR								
TYPE	CUSTOM ISDN		ISAT	NATIONAL ISDN	NATIONAL ISDN	ANALOG		PF TRUN KS	PRI
	0	0.1	0.1	0	0.1	0	0.1	0 & 0.1	0 & 0.1
CDP Access Code Unrestrict ed	Y	Y	Y	N	Y	Y	Y	Y	N
CDP Access Code Restricted	Y	Y	Y	N	Y	Y	Y	Y	N
Off-Hook Immediat e	N	N	N	N	N	Y	Y	N	N
Off-Hook Delay	Y	N	N	N	Y	Y	Y	Y	Y
3/6/10	Y	Y	Y	Y	Y	Y	Y	Y	Y
N11	Y	Y	Y	Y	Y	Y	Y	Y	Y
Feature Code Dialing	Y	Y	Y	N	Y	Y	Y	N	N
ARS	Y	N	N	Y	N	Y	N	N	N
PRI	NA	NA	NA	NA	NA	NA	NA	NA	Y
BRI Feature Button	Y	N	N	N	N	NA	NA	NA	NA
Termination Attempt	NA	Y	Y	NA	Y	N	Y	N	N

Figure 1 ACCESS TO RELEASE 0/0.1 PROTOCOL TRIGGERS BY TYPE OF ORIGINATOR

SEC. 4A140: SWITCH-TO-CPE ANALOG OFF-HOOK FSK DATA INTERFACE

1. FEATURE DESCRIPTION

Switch-to-CPE (Customer Premises Equipment) Analog Off-Hook FSK (Frequency Shift Key) Data Interface is a secured feature using SFID (Secured Feature ID) 140 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-1580.

Available with 5E9(1) and later, this feature provides the signaling requirements for the switch transmission to CPE for analog FSK data interface. This feature is used as a signaling platform for various features that send data to a subscriber when that subscriber is off-hook. For example, the secured feature Caller Identity Delivery on Call Waiting delivers caller information via this signaling platform to compatible CPE.

This feature is a switch capability and is not assignable on a per-subscriber basis. The features developed to make use of this capability may be administered on a per-subscriber basis.

This feature requires a special CPE capable of recognizing the CAS (CPE Alerting Signal) tone, returning an

acknowledgement to the switch and acting upon the subsequent data transmitted from the switch. The successful transport will carry the data transmitted from the switch and will result in information accepted, formatted and/or displayed by the CPE. An unsuccessful transport will result in the information not being accepted, formatted and/or displayed by the CPE.

2. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. This feature is a secured feature and is activated by setting the ACT field for SFID 140 to "Y" on the SFSYS form (5713-1 Record). This feature has an RTU (Right to Use) fee and is restricted until the purchaser has made the necessary financial arrangements with the AT&T Account Team.

SEC. 4A141: DUAL ESA FOR E911 ENHANCEMENTS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A142: FLEXIBLE ANI ENHANCEMENT

1. BACKGROUND

ANI (Automatic Number Identification) causes the local switch to outpulse the identity of the originating station on a CAMA (Centralized Automatic Message Accounting), TSPS (Traffic Service Position System), E911, Operator Services System, IC (InterLATA Carrier), or INC (International Carrier) trunk. ANI information digits are 1- or 2-digit codes that precede the 7- or 10-digit DN (Directory Number) of the calling party. One digit ANI information digits are used when a call is routed on a CAMA, E911, or TSPS trunk. Two digit ANI information digits (also called II digits, or ANI pairs) are used for equal access, when routing a call to an InterLATA or International Carrier, or to an Operator Services System.

The purpose of the ANI information digits is to provide information about the calling party DN, which is then used for billing and/or routing purposes.

The Flexible ANI Enhancement feature allows the switch owner to assign ANI information digits based on screen indexes and to supply the ANI pairs to ICs that want to do their own billing. Flexible assignment applies only to 2-digit ANI information digits.

2. FEATURE DESCRIPTION

Available with 5E9(1) and later, the Flexible ANI Enhancement feature has feature number 99-5E-1337. It is a Secured Feature using SFID (Secured Feature ID) 142 and must be purchased to be activated. It is dependent on the Flexible ANI base feature (SFID 038), which must also be purchased and activated.

The Flexible ANI Enhancement feature provides the ability to send ANI II digits, associated with a screen index, on a per carrier basis. In particular, it allows the switch owner to:

- assign ANI II digits to a screen index, and
- control whether the ANI II digits will be sent to a carrier.

When more than one ANI pair applies to a call, only one pair is assigned according to the following precedence (highest to lowest):

- InterLATA Restricted ANI pairs (08, 68, 78)
- Hardcoded feature ANI pairs, e.g. SSP800, ASP
- Service-related Flexible ANI pairs associated with simulated facilities, e.g. OUTWATS, SDN
- Service-related Flexible ANI pairs associated with dedicated access facilities, e.g. dedicated access OUTWATS
- Screen Index-related ANI pairs (Flexible ANI Enhanced feature)
- Class of Service Flexible ANI pairs (Flexible ANI base feature)
- Hardcoded Class of Service ANI pairs, ANI6, or ANI7, e.g. multiparty, coin.

This feature supports both line and trunk originations.

3. FEATURE ASSIGNMENT

To enable this feature, SFID 142 on the SFSYS form (5713-1 Record) must have ACT set to "Y"; and SFID 038 (the Flexible ANI base feature) must have ACT set to "Y".

In addition, ANI II digits must be associated with screen indexes on the SCRIDXPA form (5543 Record). Sending ANI II digits (associated with the screen index) to a carrier must be allowed in the SEND ANI II field on the ICF form (5305-1/2 Record).

See Figure 1 for a Flexible ANI Enhancement form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ICF	5305-1/2	3	3R	10.3
SCRIDXPA	5543	3	5AQ	8.24
SFSYS	5713-1	3	5AR	8.22

ICF form (5305-1/2 Record) - This form is used to define the characteristics of an IC (InterLATA Carrier).

The field SEND ANI II was added for this feature. This field determines if the ANI II digits associated with a screen index on the SCRIDXPA form will be sent on calls for the IC.

SCRIDXPA form (5543 Record) - This form is used to assign parameters to a line or trunk on a per screening index basis.

The field ANI II DIGITS was added for this feature. It associates the ANI digits with the screen index.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable

the feature for the operating company. Secured Feature ID 142 on the SFSYS form must have ACT set to "Y" to enable the Flexible ANI Enhancement feature.

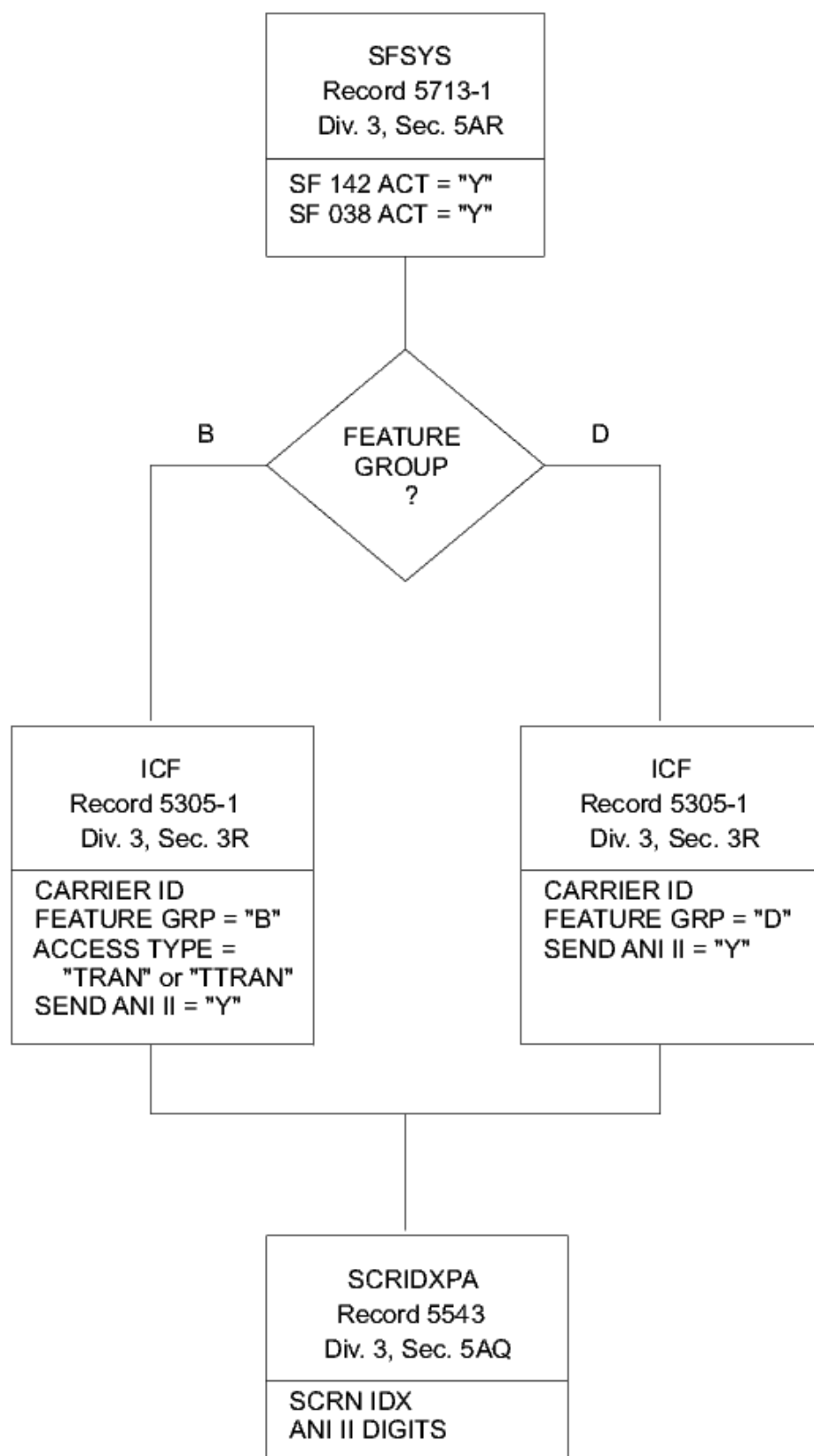


Figure 1 FLEXIBLE ANI ENHANCEMENT FORM FLOW**SEC. 4A143: PINNACLE ACD E911****1. BACKGROUND**

In the B911 (Basic 911) service, on the 5ESS-2000 Switch, all emergency calls originating within the B911 dialing plan are routed to the same PSAP (Public Safety Answering Point) regardless of incongruities between the central office service area and the municipal boundaries. The B911 service does not provide caller location information of the 911 caller.

The E911 (Enhanced 911) service provides caller location information and consists of E911 serving offices (5ESS-2000 switches), PSAPs, a E911 SR (Selective Routing System) and ALI (Automatic Location Identification) data base.

In the traditional E911 environment, emergency calls are routed to E911 tandem switches that in turn route the calls over CAMA (Centralized Automatic Message Accounting) facilities to an appropriate PSAP. These PSAPs provide the necessary trunk termination equipment to accept the calls. They also provide line interface equipment to deliver the calls to agent positions.

The ISDN PSAP feature allows the 5ESS-2000 Switch to route the E911 calls to an ISDN PSAP position over a BRI (Basic Rate Interface). This eliminates the need for trunk termination and line equipment at the PSAP location. These ISDN PSAPs could not be ACD (Automatic Call Distributor) positions. See Div. 2, Sec. 4A114 for information on the ISDN PSAP feature.

The Pinnacle ACD E911 feature utilizes many of the BRCS features that are allowed on ISDN PSAPs.

For information on E911 overall services, see Document 235-190-115 Section 9. Also refer to Section 5.59 for a description of the Pinnacle ACD ISDN PSAP feature.

The addition of Pinnacle ACD/BRCS (Automatic Call Distributor/Business and Residential Custom Services) features provides ACD capabilities at the PSAP location and the associated MIS (Management Information System) provides significant functional improvements for all PSAP ACDs in a geographic area.

2. FEATURE DESCRIPTION

The feature number for Pinnacle ACD E911 Special Feature is 99-5E-2207. This secured feature is available as a Software Update for 5E9(1) and 5E9(2) Software Releases and BMI (Beginning Managed Introduction) for 5E10. See Div.2, Sec. 4A121 for provisioning the basic ACD services.

This feature is a Call Processing secured special feature, which is controlled by Secured Feature ID 143. The Pinnacle ACD E911 special feature provides ISDN PSAP support for the 5ESS Switch ACD/BRCS feature. It provides the ability to specify an ACD DN (Directory Number) as a PSAP DN for a E911 call. The use of an ACD DN defined as a PSAP DN will provide the E911 caller with access to the queuing, call vectoring, delay treatment, and the most idle agent position call routing that is currently available for the Pinnacle ACD system. The Pinnacle ACD E911 special feature depends upon the following two features:

1. ACD/BRCS which was introduced in the 5E9(1) generic.
2. ISDN Public Safety Answering Point (PSAP) special feature.

Pinnacle ACD E911 provides the ability to assign an ACD Position as an ISDN PSAP. This capability allows incoming 911 dialed calls to be handled by an ACD (Automatic Call Distributor) which will enable customized

treatment of the call. This "customized treatment" will provide more responsive service during wide spread emergencies. During peak incoming emergency calls to an office, this feature will provide for the queuing of calls for an available E911 position, call vectoring, delay treatment, and the selection of the most idle E911 agent position.

This feature allows assignment of an ACD DN or a DAA (Direct Agent Access) DN to be designated as an ACD E911 PSAP DN. Calls terminating to this PSAP DN will be treated as emergency calls. There are two ways that "emergency" calls can be initiated:

1. The caller dials 911 - the switch first queries a database to get the ESN (Emergency Service Number), which will contain the Primary PSAP. The Primary PSAP is an ISDN PSAP with an ACD DN. The switch will terminate to an E911 agent serving the ACD DN.
2. The caller dials the ACD DN/DAA DN directly - the switch will terminate to an E911 agent serving the ACD DN/DAA DN.

2.1 Call Scenario

The following is a typical E911 call scenario:

1. A caller from an end office dials 911 to report a fire.
2. The call is routed to the E911 serving switch over a CAMA or SS7 trunk.
3. The E911 serving switch determines that the call is an E911 call and launches a query with the CESID (Customer Emergency Services ID) to the ESA (E911 Service Adjunct).
4. The ESA passes back the appropriate ESN (Emergency Service Number) based on the CESID.
5. The switch retrieves the routing data associated with the ESN (i.e., the Primary PSAP, a maximum of 2 alternate PSAPs, up to 6 selective transfer numbers, and a flash control indicator) and routes the call to the Primary PSAP. For this scenario, the Primary PSAP is an ISDN PSAP with an ACD DN.
6. The ACD attempts to find an agent to service the call, but there are no available agents. The call is queued and delay treatment is applied.
7. An agent becomes available and the call is routed to the available agent of the 911 Serving Team servicing that ACD DN and the CESID and the flash control information is passed along with the call.
8. The PC connected to the receiving agent's phone launches a query to the ALI/DMS (Automatic Location Identification/Database Management System) data base with the CESID.
9. The ALI/DMS system returns location information that the PC displays on the screen for the agent to use, to interrogate the caller. (If the flash control information is indicated, the CESID will be flashed on the screen.)
10. Once the agent determines that the caller is reporting a fire, the attendant (E911 agent) presses the selective transfer function key for fire.
11. The switch uses the selective transfer number for fire associated with the caller's ESN and sets up a 3-way call between that number and the "911 caller". The CESID of the "911 caller" is passed to the fire department PSAP rather than the number of the PSAP initiating the transfer. The ESN data associated with the caller is also passed to the fire department PSAP.

12. When the fire department answers, the transferring PSAP may disconnect to complete the transfer.
13. If the fire department is another ISDN or CAMA PSAP, it can do another ALI/DMS look-up to get the caller's location.

2.2 Feature Interaction

The Pinnacle ACD E911 special feature interacts with the existing BRCS features the same way that the ACD/BRCS base feature and the ISDN PSAP special feature does, with the following exceptions:

1. Both the assigned and default TGSR (Terminal Group Station Restriction) features required by this feature must be fully unrestricted. The ACD/BRCS base feature allows any type of restriction and the ISDN PSAP special feature does not allow TGSR at all.
2. The ACD Position DN that is assigned as an ACD E911 PSAP cannot be a shared DN. The ACD/BRCS base feature does not allow the position DN to be shared, however, the ISDN PSAP special feature does allow the primary DN to be shared.
3. The ACD Position DN that is assigned as an ACD E911 PSAP cannot be a member of a multi-line hunt group. The ACD/BRCS base feature does not allow this. The ISDN PSAP special feature does allow the assignment of the DN to a MLHG.

2.3 Allowed and Blocked BRCS Features

The following lists the BRCS features which are allowed or blocked for the Pinnacle ACD E911 special feature.

BRCS FEATURE	STATUS
Account Codes	blocked
Attendant Control of Voice Terminals	blocked
Authorization Codes	blocked
Automatic Callback	allowed
Automatic Call Back Calling	allowed
Automatic Customer Station Rearrangement	blocked
Automatic Recall	allowed
Automatic Route Selection	blocked
Advanced Services Platform	blocked
Call Forwarding	allowed
Call Park	blocked, for 5E12 and later this feature is allowed for direct dialed calls only.
Call Forwarding over Private Facilities	blocked
Call Pickup	blocked
Call Waiting	allowed
Call Originated Trace	allowed
Distinctive Ringing	allowed
Electronic Desk Service	allowed
Individualized Dialing Plan	allowed
ISDN Intercom	blocked
Message Detail Recording	blocked
Modem Pooling	blocked
Message Service System	blocked
Multi-Line Hunt Group	blocked
Multiway	allowed
Precedence and Preemption	blocked
Private Facilities Access	blocked
LASS Selective features (SCA, SCF, SCR, SDA)	allowed
Speed Calling	allowed
Series Completion	blocked
Shared DN	blocked
Terminal Group Station Restriction	allowed

Time of Day	blocked

3. FEATURE ASSIGNMENT

The Pinnacle ACD E911 special feature is provisioned as follows (See Figure 1):

1. On the SFSYS form. Verify that the ACD/BRCS base feature is active and that all three levels of security have been turned on (Secured Feature IDs (ACD/BRCS DN Provisioning) 121, (ACD/BRCS Position Provisioning) 122, and (ACD/BRCS Agent Login) 123).
2. On the SFSYS form. Verify that the ISDN PSAP special feature is active (Secured Feature ID 114).
3. Turn on the Pinnacle ACD E911 special feature. On the SFSYS form set SFID 143 ACT to "Y".
4. For 5E9(2) and 5E10, on the STINFO form, assign a serving team as an E911 PSAP by setting the E911 PSAP field to "Y".

For 5E11 and later, on the STPARM form, assign a serving team as an E911 PSAP by setting the E911 PSAP field to "Y".

5. For 5E9(2) and 5E10, on the OSPSCT form, assign any call type queues that will be used by ACD E911 PSAP DNs. The serving teams for these call types must be marked as E911 PSAPs via the STINFO form.

For 5E11 and later, use the CQPARM form. Assign any call type queues that will be used by ACD E911 PSAP DNs. The serving teams for these call types must be marked as E911 PSAPs via the STPARM form.

6. On the ACDTN form, assign an ACD DN or a DAA DN to be an E911 PSAP DN. The E911 PSAP field should be set to "Y".
7. On the DSLUSR form, assign an ACD Position to be an ACD E911 Position. The E911 PSAP field should be set to "Y". The "POS NUM" field must be non-zero for this ISDN position to be an ACD Position.

NOTE: If a serving team is updated to become an E911 PSAP (refer to step four), all call type queues using this serving team must be assigned to an ACD DN/DAA DN that is marked as an E911 PSAP.

If a serving team is not marked as an E911 PSAP, all call type queues using this serving team must not be assigned to an ACD DN/DAA DN that is marked as an E911 PSAP.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDTN	5631-1	4	32A	4.15 (5E10) 6.10 (5E11 and later)
DSLUSR	5908	5	1I	23.8
SFSYS	5713-1	3	5AR	8.22
STINFO (for 5E9(2) and 5E10)	5402	3	4C	21.2
STPARM	5638	4	32C	6.1

ACDTN form (5631-1 Record) - The 5631-1 Record is used by the ACD/BRCS (Automatic Call Distributor/Business and Residential Custom Services) feature to define the ACD directory number or the DAA (Direct Agent Access) directory number.

The E911 PSAP field was added.

DSLUSR form (5908 Record) - The 5908 Record is used to collect data for digital subscriber lines.

Added Data Rule to the E911 PSAP field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 143 to "Y".

STINFO form (5402 Record) - The 5402 Record provides information about a serving team. A serving team is a group of operator positions that services one or more call types.

The E911 PSAP field was added and applies to 5E9(2) and 5E10. For 5E11 and later the E911 PSAP field is located on the STPARM form.

STPARM form (5638 Record) - The 5638 Record provides information about a serving team. A serving team is a group of agent positions that service one or more call queues. This form supports the ACD/BRCS Interworking II feature.

For 5E11 and later the E911 PSAP field provides the functionality formerly provided by the E911 PSAP field on the STINFO form.

5. GLOSSARY

ACD	Automatic Call Distributor
ALI/DMS	Automatic Location Identification/Database Management System
B911	Basic 911
BMI	Beginning Managed Introduction
BRCS	Business and Residential Custom Services
CAMA	Centralized Automatic Message Accounting
CESID	Customer Emergency Services ID
DAA	Direct Agent Access
DN	Directory Number
E911	Enhanced 911

ESA	E911 Service Adjunct
ESN	Emergency Service Number
ISDN	Integrated Services Digital Network
MIS	Management Information System
PSAP	Public Safety Answering Point
TGSR	Terminal Group Station Restriction

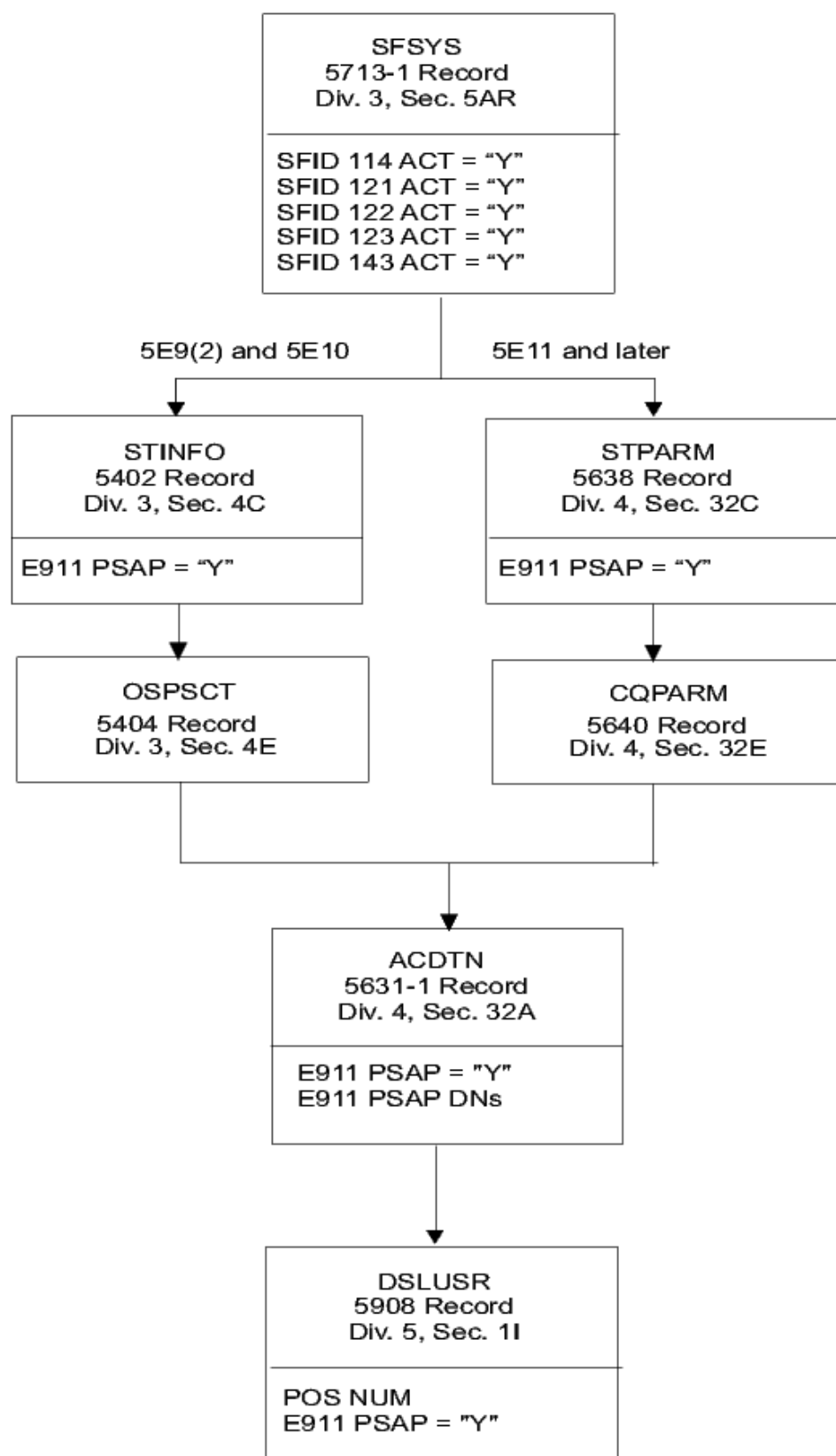


Figure 1 FORM FLOW PINNACLE ACD E911**SEC. 4A144: DUAL CIRCUIT FX (FOREIGN EXCHANGE) PLUGS****1. BACKGROUND**

Prior to this feature, the 5ESS Switch's Remote Terminal DCLU and IDCU software assumed that the FX (Foreign Exchange) plugs were of single circuit design. Therefore, provisioning of the adjacent "even numbered" FX circuits was denied. This feature removes this restriction currently imposed by the DCLU's and IDCU's TR-008 Mode I Interfaces. This feature is not supported for Mode II interfaces. Since all capabilities to originate and terminate calls will be maintained, this feature will be transparent to the end users of the Dual Circuit FXS Plugs.

2. FEATURE DESCRIPTION

The feature number for Dual Circuit FX (Foreign Exchange) Plugs Special Feature is 99-5E-2299. This secured feature is available for 5E9(1) and later.

This feature provides a new integrated 5ESS Switch access capability for the DCLU's and IDCU's TR-008 Mode I Interfaces which allows them to terminate, provision, and maintain SLC-96 compatible Dual Circuit FXS Plugs. Both loop start and ground start signaling will be supported.

For the 5E9(1) 5ESS Switch Software Release, the character string "SF1" will be used to identify the Dual Circuit FXS Plug. Therefore, when provisioning a Dual Circuit FXS Plug, the Channel Unit type will be "SF1". In 5E9(2) and later Switch Software Releases, the character string "DFXS" will be used to identify the Dual Circuit FXS Plug.

3. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 144 is set to "Y" on the SFSYS form.

When the feature has been enabled, Dual Circuit FXS Plugs can be provisioned on the RTERM form (5174 Record) if IDCU is provided or on the SLCCU form (5107 Record) if IDCU is not provided. On either of these forms the CHANNEL UNIT field is set to "SF1" for 5E9(1) or "DFXS" for 5E9(2) and later.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RTERM	5174	3	1S	18.15
SLCCU	5107	3	1G	18.11

RTERM form (5174 -1/2/3/4 Record) - This form is used by the switch owner to define all remote terminals connected to IDCU (Integrated Digital Carrier Unit) equipment. Channel Unit types "SF1" for 5E9(1), and "DFXS" for 5E9(2) and later are added to support this feature.

SLCCU form (5107 Record) - This form is used to define the assignment of SLC (Subscriber Loop Carrier) - 96 Channel Units to equipped shelves of a Integrated SLC-96 Remote Terminal. Channel Unit types "SF1" for 5E9(1), and "DFXS" for 5E9(2) and later are added to support this feature.

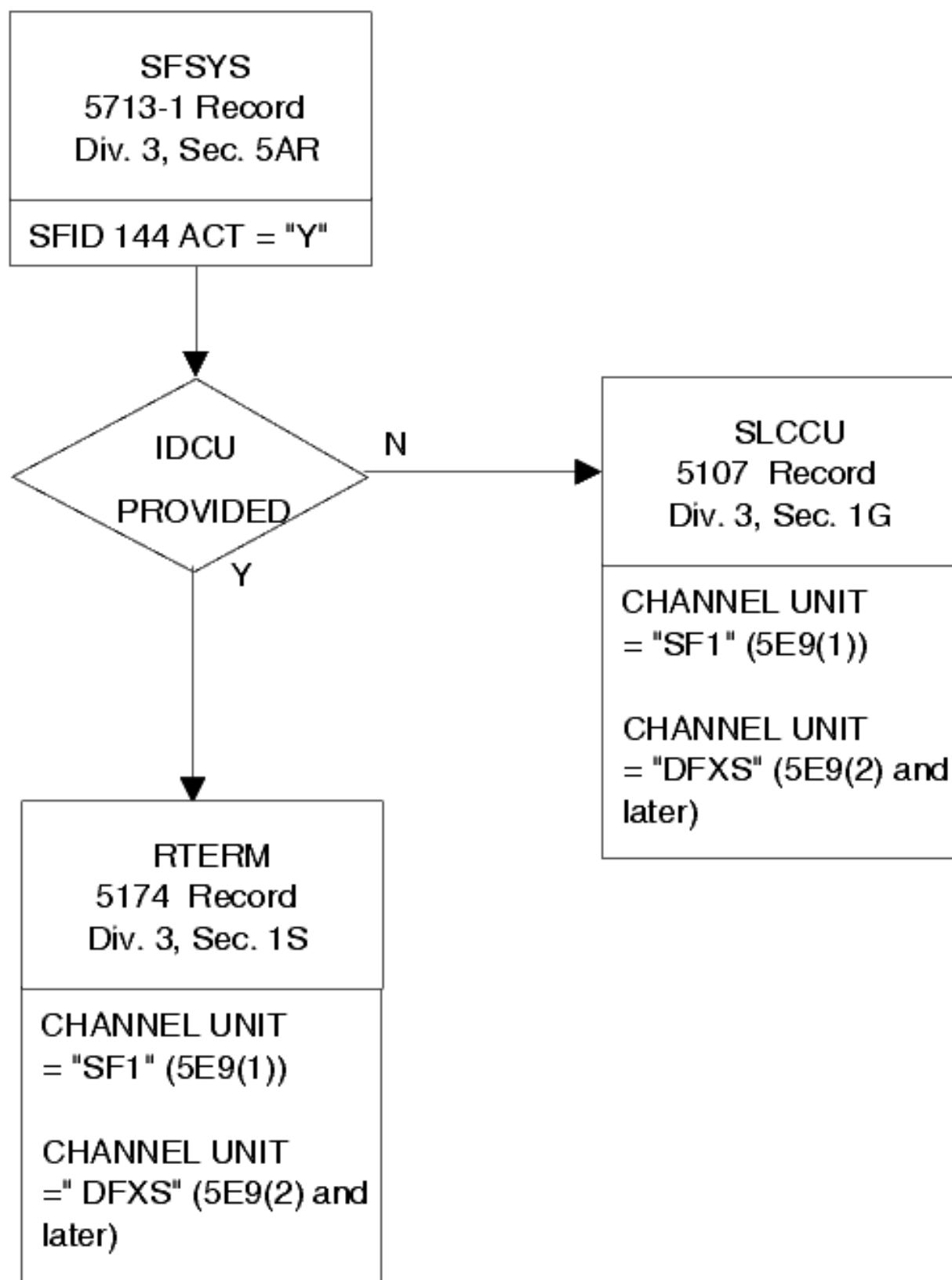


Figure 1 FORM FLOW DUAL CIRCUIT FX (FORIEGN EXCHANGE) PLUGS CAPABILITIES**SEC. 4A145: CALL WAITING DELUXE PHASE I AND II****1. BACKGROUND**

The Call Waiting Deluxe feature was separated into two phases. The Call Waiting Deluxe Phase I was deployed on the 5ESS Switch in a software update for the 5E9(1), 5E9(2) 5ESS Switch Software Releases and 5E10 in the BMI (Beginning Managed Introduction) Software Release. Call Waiting Deluxe Phase II is being deployed on the 5ESS Switch in a software update for 5E10 and 5E11 in the BMI Software Release.

2. FEATURE DESCRIPTION - CALL WAITING DELUXE PHASE I

The CWD (Call Waiting Deluxe) Phase I is a secured feature using SFID (Secured Feature ID) 145 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-2354.

Available with 5E9(1), 5E9(2), and 5E10, this feature allows an end-user to control the treatment applied to incoming calls while the end-user is already off-hook on a stable call. While the end-user is on an existing call, CWD notifies the end-user of an incoming call by sending Call Waiting Tone and immediately follows that with a CAS (CPE (Customer Premise Equipment) Alerting Signal) dual tone to notify the end-user's CPE of an incoming call. If the end-user has CIDCW (Calling Identity Delivery on Call Waiting) (Feature Number is 99-5E-1106) the CID (Calling ID) data may be provided to the customer immediately following CWD alerting and the ACK (Acknowledge) response from the CPE.

Upon being alerted of a second call, the CPE displays the menu for the CWD options and the customer may choose one of the following CWD options for treating the incoming call:

- ANSWER the waiting call and put the existing call on hold
- ANSWER the waiting call and DROP the existing talking connection,
- FORWARD the waiting call to the CFDA (Call Forwarding Don't Answer) destination
- Connect the waiting call to an ANNOUNCEMENT (i.e., suggesting the caller waiting call back later)
- Put the waiting call on HOLD connected to a hold announcement (i.e., asking the waiting calling party to wait) or
- CONFERENCE the waiting call with the existing call.

The above choices (for the CWD subscriber) are called "per-call options," and require the subscriber to take an action to notify the switch which option is desired.

If the end-user does not select one of the above treatments for the incoming call, the end-user's default treatment is applied. The default treatment is chosen by the CWD customer when he/she initially subscribes to the CWD service. The possible default treatments include:

- "forward" the incoming call to the CFDA destination,
- "continue ringing" continues to provide audible ringing to the incoming call. (If the CWD subscriber has this default, the subscriber can still select the CWD options).

The above choices which are available to the CWD subscriber are called "default treatment," and take effect if the subscriber does not take action to notify the switch which option is desired. In this case the treatment option is provided by the switch. The "default option" takes effect after the CFDA timer times out.

The "forward" default option is supported if the CFDA feature with the CFDA/CW (Call Forwarding after Call Waiting option) is assigned and active. If the CFDA feature with the Call Forwarding after Call Waiting option is not assigned, or is assigned but is inactive, the "continue ringing" default option is executed.

Once the customer has put either the incoming call or the existing call on hold, CWD provides the customer with the following additional per-call options:

- Alternate between the held party and existing call (RETURN),
- Connect to the held call and disconnect the existing call (DROP),
- Conference the held call and the existing call (CONFERENCE).

If the customer conferences the calls, CWD per-call options allows the customer to:

- disconnect the last added party (DROP LAST) from the conference call at any time. The last added party was the waiting party during the WAIT state.
- disconnect the first party (DROP FIRST) from the conference call at any time. The first party was the party in the talking connection during the WAIT state.

The end-user is required to have a special screen based ADSI (Analog Service Display Interface) to receive the full functionality of the CWD feature. However, subscribers who have a CIDCW set or a standard 2500 sets can also subscribe to this feature. If the set is a CWD ADSI compatible set or a CIDCW set, it responds with an ACK signal consisting of a DTMF A or a DTMF D, respectively. Even though the line might be given SAS (Subscriber Alerting Signal) + CAS (CPE Alerting Signal) alerting, a 2500 extension set on the line may have been used for the original two-party call, so an ACK is not guaranteed. The path is muted during the SAS + CAS alerting. If an ACK (Acknowledge) is received within the allotted time, FSK (Frequency Shift Keying) data is sent to the CPE. After the FSK data is sent, the switch reconnects the CWD subscriber to the original party, and the waiting party is getting audible ringing. See Figure 3.

Call Waiting Deluxe is an ADSI based feature and does not require the development of the ADSI signaling protocol on the switch. It is considered an ADSI feature because:

- the subscriber should use an ADSI compatible CPE to take full advantage of the feature functionality
- the CPE needs to be initialized after being plugged into the wall telephone socket if an ADSI CPE is used.

Initialization is accomplished by downloading, via ADSI signaling techniques, firmware scripts which execute in the CPE. The scripts provide the menu displays and interpret the soft-keys as specific DTMF signals to be sent to the switch. The ADSI scripts are obtained from an ADSI server. The switch is not an ADSI server and does not itself provide scripts to the CPE. See Figure 2.

2.1 Preconstructed CWD Phase I Features

The CWD feature adds ten new preconstructed CWD features to the CWTFD (Call Waiting Feature Definition) form with the CW DELUXE field set to "Y".

The new preconstructed CWD features are:

- /CWDTDT2
- /CWDTDT1
- /CWDT
- /CWDIODT
- /CWDIO
- /CWDC2DT
- /CWDC2
- /CWDCDT2
- /CWDCDT1
- /CWDC1

These new preconstructed CWD features are defined in the 5603-1 Record for the CWTFD form.

The mapping of the current Call Waiting Terminating features to the new Call Waiting Deluxe features is shown in Figure 1.

The switch provides the capability to request on demand and receive the following information on a per line basis:

- If CWD is assigned, which CWD preconstructed feature is assigned
- If CIDCW is assigned to the line
- If CFDA is assigned to the line
- If the CFDA/CW option of CFDA is assigned to the line
- If Call Waiting Distinctive Tones on Long Distance is assigned to the line.

The CWD feature is not dependent on the CIDCW feature. However, if the CWD subscriber also subscribes to the CIDCW feature, Caller ID information is provided to the customer in the off-hook state in conjunction with the CWD feature. For the Caller ID information to be delivered to the subscriber, the CIDCW feature must also be assigned to the CWD subscriber's line.

For the CONFERENCE option, the switch internally understands that a multiway feature is required and automatically incorporates one in the feature operation. Thus, no external assignment of a multiway feature is required.

2.2 CW Deluxe Phase I Restrictions

- If a customer has a call in the hard hold state (i.e. on hold because Call Hold was activated), the CWD feature is not invoked.

- The switch does not invoke CWD on a line engaged in a stable two-party connection if the Cancel Call Waiting feature has been invoked for the call.
- The switch does not invoke the CWD feature on a CWD customer's line during a TWC (Three Way Calling) session that was initiated by the CWD customer. The switch does not allow the TWC feature to be used from a CWD customer's line if the customer has a CWD session active.
- The switch does not allow Call Transfer to be activated from a CWD customer's line when that line has a CWD session active. CWD does not restrict far-end parties from using their Call Transfer features. Even though the line has subscribed to CWD, the switch does not invoke the CWD feature on a customer's line during a Call Transfer session that was initiated by the CWD customer.
- The CIDCW CPE set is not fully supported in Phase I. The T_flash option is not supported, requiring the CWD subscriber using a CIDCW set to signal the DTMF digit in the HOLD state within the time out interval of T_tone. Also, the telephone company will not be able to restrict non-ADSI sets from using the per-call options.
- Regardless of any additional flash features assigned to the line, all flashes are interpreted as requests for CWD options during CWD sessions.
- The 2500 set is not fully supported in Phase I. All lines, including those with 2500 sets, receive SAS + CAS tone in Phase I. Thus the CWD subscriber using a 2500 set is required to wait for the switch to time-out waiting for the ACK before being reconnected to the original party. Furthermore, the T_flash option is not supported. The telephone company is also not able to restrict non-ADSI sets from using the per-call options.
- The CWD feature only applies to analog lines. It does NOT apply to ISDN lines. The switch does not allow CWD to be assigned on:
 - ISDN lines,
 - multiline hunt group lines,
 - lines with remote call forwarding,
 - coin lines,
 - four-wire classes of service,
 - attendant lines,
 - shared DN Analog,
 - LTSB (Line Time Slot Bridging) lines,
 - two-party lines or
 - multiparty lines (i.e., four-party and eight-party lines).

3. CW DELUXE PHASE I SCENARIOS

The following are typical end-user normal operation scenarios:

3.1 Scenario #1 Participants:

- Subscriber A, with /CWDT /LIRCNMP features.
- Party B and Party C can be POTS lines.

3.1.1 CPE:

- The only CPE which is important to identify (because CWD is a terminating feature) is the CPE associated with Subscriber A. Subscriber A's line has ADSI CPE.

3.1.2 Translation:

- CWD must be purchased and enabled on the switch for this scenario to operate. Additionally, the subscriber must be assigned one of the CWD features. See Figure 1. Call Scenario:
- Subscriber A's line is initially idle.
- Party B then dials Subscriber A's telephone number and receives audible ringing.
- Subscriber A's telephone rings; sees party B's Name and Number displayed on the CPE and answers the call.
- Subscriber A and Party B are engaged in conversation when Party C dials Subscriber A's telephone number and receives audible ringing.
- The talking path between Party B and Subscriber A is muted and Subscriber A hears call waiting tone followed by a very short duration high frequency tone which alerts Subscriber A's CPE.
- Party A's CPE displays the CWD per-call options before Subscriber A receives a second call waiting tone.
- Subscriber A can now select any of the CWD per-call options to handle the incoming. For example, Subscriber A selects the HOLD option. Party C gets routed to the HOLD announcement (since flash is not honored during the setup of the call, the subscriber should allow sufficient time for routing and set up of the hold announcement before selecting another option again.) and hears silence after the announcement finished playing.

At this point Party A can FLASH to answer Party C or select the CONFERENCE option to conference the call or DROP the call.

3.2 Scenario #2 Participants:

- Subscriber A, with /CWDT /LIRCNMP features with CIDCW feature.
- Party B and Party C can be POTS lines.

3.2.1 CPE:

- The only CPE which is important to identify (because CWD is a terminating feature) is the CPE associated with Subscriber A. Subscriber A's line has ADSI CPE.

3.2.2 Translation:

- CWD must be purchased and enabled on the switch for this scenario to operate. Additionally, the subscriber must be assigned one of the CWD features. See Figure 1.

3.2.3 Call Scenario:

- Subscriber A's line is initially idle.
- Party B then dials Subscriber A's telephone number and receives audible ringing.
- Subscriber A's telephone rings
- Party B's Caller ID information (Name and Number) is displayed
- Subscriber A views Party B's information and answers the call.
- Subscriber A and Party B are engaged in conversation when Party C dials Subscriber A's telephone number and receives audible ringing.
- The talking path between Party B and Subscriber A is muted and Subscriber A hears call waiting tone followed by a very short duration high frequency tone which alerts Subscriber A's CPE.
- Subscriber A now views Party C's Caller ID information on the CPE along with the CWD per-call options before Subscriber A's telephone rings the second time.
- Subscriber A can now select any of the CWD per-call options to handle the incoming call. For example, Subscriber A selects the FORWARD option. Party C gets forwarded to the Forward-to-DN destination. Party A and B continue to converse.

3.3 Scenario #3 Participants:

- Subscriber A, with /CWDT /LIRCNMP features.
- Party B and Party C can be POTS lines.

3.3.1 CPE:

- The only CPE which is important to identify (because CWD is a terminating feature) is the CPE associated with Subscriber A. Subscriber A's line has ADSI CPE.

3.3.2 Translation:

- CWD must be purchased and enabled on the switch for this scenario to operate. Additionally, the subscriber must be assigned one of the CWD features.

3.3.3 Call Scenario:

- Subscriber A's line is initially idle.
- Party B then dials Subscriber A's telephone number and receives audible ringing.
- Subscriber A's telephone rings; sees party B's Name and Number displayed on the CPE and answers the call.
- Subscriber A and Party B are engaged in conversation when Party C dials Subscriber A's telephone number and receives audible ringing.
- The talking path between Party B and Subscriber A is muted and Subscriber A hears call waiting tone followed by a very short duration high frequency tone which alerts Subscriber A's CPE.
- Party A's CPE displays the CWD per-call options before Subscriber A receives a second call waiting tone.
- Subscriber A can now select any of the CWD per-call options to handle the incoming. For example, Subscriber A selects the ANSWER option and answers Party C's call. Part A and Party C are talking and Party B is on hold. Now, Subscriber A's CPE displays a new menu (FLASH, CONFERENCE and DROP) options. Party B goes on-hook. Party A and C are in a 2-way talk path. However, the CPE's screen stays the same. This results in the switch and the CPE getting out of synchronization. Now, if Party A presses one of the softkeys, it is interpreted wrong.

4. CW DELUXE PHASE I FEATURE ASSIGNMENT

4.1 Provisioning Features on the Switch

This feature is a secured feature. The ACT field for SFID 145 on the SFSYS form (5713-1 Record) must be set to "Y" to activate this feature. In addition, the secured feature Switch-to-CPE Analog Off-Hook FSK Data Interface feature must be active for the CWD feature. Therefore, the ACT field for SFID 140 must be set to "Y" on the SFSYS form. For more information on the Switch-to-CPE Analog Off-Hook FSK Data Interface feature, see Division 2, Section 4A140.

To provision features on the switch:

- If call forwarding options of CWD are desired, CFDA (Call Forwarding Don't Answer with the CF/CW (Call forwarding Don't Answer after Call Waiting options secured feature must be active. The ACT field for SFID 62 must be set to "Y" on the SFSYS form. For more information, see Division 2, Section 4A62.
- If calling number delivery is desired with CWD, CND (Calling Number Delivery, also known as ICLID (Incoming Call Line Identification)) special feature must be active. The ACT field for OFS ID 10 must be set to "Y" on the FOSYS form (5713-2 Record). For more information, see Division 2, Section 4C10.
- If calling name delivery is desired with CWD, CNAM (Analog Calling Name Delivery) secured feature must be active. The ACT field for SFID 40 must be set to "Y" on the SFSYS form. For more information, see Division 2, Section 4A40.
- If calling number delivery and/or calling name delivery is desired with CWD, CIDCW (Calling Identity Delivery on Call Waiting secured feature must be active. The ACT field for SFID 133 must be set to "Y" on the SFSYS form. For more information, see Division 2, Section 4A133.
- The secured feature Switch-to-CPE Analog Off-Hook FSK Data Interface feature must be active for CWD (as well as, the CIDCW feature, if present). The ACT field for SFID 140 must be set to "Y" on the SFSYS form. For more information, see Division 2, Section 4A140.

- The CWD secured feature must be active. The ACT field for SFID 145 must be set to "Y" on the SFSYS form.

4.2 Provisioning the Announcements

- Route indexes for two announcements must be provisioned (Require 13A or 14A announcements).
 - Per-call ANNOUNCEMENT.
 - Per-call HOLD announcement.

4.3 Provisioning CWD on Lines

To provision CWD on lines:

- Determine the subscriber's default option
 - If the subscriber wants forwarding as the default option, provision the CFDA (Call Forwarding Don't Answer) secured feature with the CF/CW (Call forwarding Don't Answer after Call Waiting) option.
 - If the subscriber wants the continue ringing as the default option, verify that the subscriber has the CFDA secured feature with CF/CW option set to "N".
- On the 5ESS Switch, choose which of the new Call Waiting Deluxe preconstructed features in Figure 1 to provide to the subscriber.

5. CW DELUXE PHASE I TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CWTFD	5603-1	4	4A	12.15
SFSYS	5713-1	3	5AR	8.22

CWTFD form (5603-1 Record) - This form is used to define a number of separate features by selecting various feature options for Call Waiting. The CW DELUXE field was added to support the Call Waiting Deluxe feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is a secured feature and is activated by setting the ACT field for SFID 145 to "Y" on the SFSYS form (5713-1 Record).

In addition, before this feature can be activated, the secured feature Switch-to-CPE Analog Off-Hook FSK Data Interface must be purchased and enabled. This feature is activated by setting the ACT field for SFID 140 to "Y" on the SFSYS form. For more information on this feature see Division 2, Section 4A140.

6. FEATURE DESCRIPTION - CALL WAITING DELUXE PHASE II

The CWD (Call Waiting Deluxe) Phase II is a secured feature using (SFID 145) and must be purchased before being activated. The feature number for this feature is 99-5E-2354.A. Call Waiting Deluxe Phase II is

available for 5E10 and later.

The CWD feature should be viewed as a single feature, two versions of CWD are NOT supported. Now that Phase II is available in a generic, Phase I is no longer supported in that vintage of the generic.

CWD is a feature that allows an end-user to control the treatment applied to incoming calls while the end-user is already off-hook on a stable call. While the end-user is on an existing call, CWD notifies the end-user of an incoming call by sending Call Waiting Tone, and immediately follows that with a CAS (CPE Alerting Signal) dual tone (Providing the CWD subscriber does not have an alerting type of SAS-ONLY) to notify the end-user's CPE of an incoming call. If the end-user has CIDCW (Calling Identity Delivery on Call Waiting Feature Number 99-5E-1106) the CID data may be provided to the customer immediately following CWD alerting and the ACK response from the CPE.

Upon being alerted of a second call, the CPE displays the menu for the CWD options and the customer may choose one of the following CWD options for treating the incoming call:

- ANSWER the waiting call and put the existing call on hold,
- ANSWER the waiting call and DROP the existing talking connection,
- FORWARD the waiting call to the CFDA (Call Forwarding Don't Answer) destination.
- Connect the waiting call to an ANNOUNCEMENT (e. g. suggesting the caller waiting call back later),
- Put the waiting call on HOLD. (i.e. asking the waiting calling party to wait) or
- CONFERENCE the waiting call with the existing call.

The above choices open to the CWD subscriber are called "per-call options," and require the subscriber to take action to notify the switch what option is desired.

If the end-user does not select one of the above treatments for the incoming call, the end-user's default treatment is applied. The default treatment is chosen by the CWD customer when he/she initially subscribes to the CWD service. The possible default treatments include:

- "Forward" the incoming call to the CFDA destination,
- Connect the incoming call to an "announcement" (this is not the same announcement as mentioned above), or
- "Continue ringing" continues to provide audible ringing to the incoming call.

The above choices available to the CWD subscriber are called "default treatments," and take effect if the subscriber does not take action to notify the switch what option is desired. In this case the treatment option is provided by the switch. The "default option" takes effect after the T default timer times out. Phase I utilized the CFDA timer as the default timer; the T default timer has replaced the need for the CFDA timer.

- The "forward" default option is supported if the CFDA feature with the CFDA/CW (Call Forwarding after Call Waiting) option is assigned and active. If the "forward" default option is chosen, and the CFDA feature with the Call Forwarding after Call Waiting option is not assigned, or is assigned but is inactive, the "continue ringing" default option is executed.
- If the "continue ringing" default option is executed, the calling party continues to receive audible ringing,

and the CWD subscriber may select a per-call option at any time, provided the calling party does not disconnect.

Once the customer has put either the incoming call or the existing call on hold, the CWD subscriber can select one of the following per-call options:

- Alternate between the held party and existing call (RETURN),
- Connect to the held call and disconnect the existing call (DROP),
- Conference the held call and the existing call (CONFERENCE).

If the CWD customer is a non-ADSI (Analog Service Display Interface) subscriber and has unrestricted use of the per-call options, the CWD subscriber has T flash time after hitting the FLASH key to select one of the above mentioned per-call options. If the customer conferences the calls, CWD per-call options allows the customer to:

- Disconnect the last added party (DROP LAST) from the conference call at any time. The last added party was the waiting party during the WAIT state.
- Disconnect the first party (DROP FIRST) from the conference call at any time. The first party was the party in the talking connection during the WAIT state.

Call Waiting Deluxe is available to customers with screen based phones such as ADSI compatible CPE, as well as customers with non-ADSI (i.e. standard 2500 sets and CIDCW sets) that are able to signal DTMF (Dual Tone Multifrequency). An ADSI CPE simplifies the selection of a treatment by displaying options (via text prompts associated with soft keys) to the customer and allowing them to press a soft key to select a treatment. In phase I of CWD, the CWD subscriber always sent the SAS plus CAS alerting sequence, and all CWD subscribers could utilize the per-call options. However, with CWD phase II, depending on the alerting type selected, the Switch Owner has the ability to choose whether to send SAS-only alerting or SAS plus CAS alerting, and to restrict the use of the per-call options for non-ADSI subscribers. All CWD subscribers have the ability to select the RETURN and ANSWER per-call options, and the ability to utilize any of the default options. Please refer to Figure 3 to see what restrictions are given to non-ADSI CPE depending on the alerting type.

The CWD feature has added four new preconstructed CWD MW (Multiway) features to the MWFD form, (5602-1,2 Record, RC/V 12.19) which are similar in functionality with existing MW features, with exception that the CONTROL field is set to "HLD ALT 3W". The four new preconstructed MW features are: /MWCWDAC, /MWCWDIO, /MWCWDNG, and /MWCWDGO. These four new CWD Multiway preconstructed feature replaces the existing MW features associated with the 10 Call-Waiting-Deluxe Terminating preconstructed features on the CWTFD form, (5603-1A/1B Record, RC/V 12.15).

The following is a mapping of the existing MULTIWAY feature to the new MULTIWAY feature:

Multiway Feature Mapping	
New MW Feature	Existing MW Feature
/MWCWDGO	/MWCWGO
/MWCWDAC	/MWCWAC
/MWCWDNG	/MWCWNG
/MWCWDIO	/MWCWIO

6.1 CW Deluxe Phase II Restrictions And Feature Interactions

The CW Deluxe Phase II feature is dependent on the following:

- The recent change system shall not allow activation of the CWD secured feature if the secured feature for the Switch-to-CPE Analog Off-Hook FSK Data Interface feature has not already been enabled.
- If a customer has a call in the hard hold state (i.e. on hold because Call Hold was activated), the CWD feature is not invoked.
- The switch shall not invoke CWD on a line engaged in a stable two-party connection if the Cancel Call Waiting feature has been invoked for the call.
- The switch shall not invoke the CWD feature on a CWD customer's line during a TWC (Three Way Calling) session that was initiated by the CWD customer. The switch shall not allow the TWC feature to be used from a CWD customer's line if the customer has a CWD session active.
- The switch shall not allow Call Transfer to be activated from a CWD customer's line when that line has a CWD session active. CWD shall not restrict far-end parties from using their Call Transfer features. Even though the line has subscribed to CWD, the switch shall not invoke the CWD feature on a customer's line during a Call Transfer session that was initiated by the CWD customer.
- The telephone company has the ability to restrict non-ADSI sets from using the per-call options.
- The telephone company has the ability to limit the CWD alerting sequence to SAS-only alerting
- A CWD feature with SAS-ONLY alerting may NOT be assigned to a line that has the CIDCW feature.
- The CWD feature is not supported with ASI (Advanced Services Interface).
- The CWD subscriber can assign "forward" as the per-line default option if and only if a CFDA feature with the CFDA/CW option is assigned to the customer's line. There is no equivalent check, if the subscriber has a default option of OFCDFLT OPT (use office default) and the per-office default value is "forward".
- The CWD feature only applies to analog lines. It does NOT apply to ISDN lines. The switch shall not allow CWD to be assigned on:
 - ISDN lines,
 - multiline hunt group lines,
 - lines with remote call forwarding,
 - coin lines,
 - four-wire classes of service,
 - attendant lines,
 - shared DN analog lines,
 - LTSB (Line Time Slot Bridging lines,
 - two-party lines or

— multiparty lines (i.e., four-party and eight-party lines).

- The CWD terminating feature takes precedence over the Dial Call Waiting Feature. Therefore, the CWD subscriber has the ability to utilize their per-call options when call waited.
- The CWD feature is not dependent on the CIDCW feature. However, if the CWD subscriber is also subscribed to the CIDCW feature, it provides Caller ID information to the customer in the off-hook state in conjunction with the CWD feature. For the caller ID information to be delivered to the subscriber, the CIDCW feature must also be assigned to the CWD subscriber's line.
- If Music on Hold is allocated for the terminal group associated with the CWD subscriber, the calling party receives music for T hold time between the HOLD announcement and reminder announcement, and between subsequent reminder announcements.

7. CW DELUXE PHASE II SCENARIOS

Typical End-User Scenario - Normal Operation

7.1 Scenario #1 Participants:

- Subscriber A, with /CWDT (with alerting type of CWD - SAS-only).
- Party B and Party C can be POTS lines.

CPE Needs:

The only CPE which is important to identify (because CWD is a terminating feature) is the CPE associated with Subscriber A. Subscriber A's line is a 2500 set.

Call Scenario:

- Subscriber A's line is initially idle.
- Party B then dials Subscriber A's telephone number and receives audible ringing.
- Subscriber A's hears telephone ring and answers the call.
- Subscriber A and Party B are engaged in conversation when Party C dials Subscriber A's telephone number and receives audible ringing.
- The talking path between Party B and Subscriber A is muted and Subscriber A hears the call waiting tone.
- Subscriber A can now select any of the CWD per-call options to handle the incoming call.
- Subscriber A selects the HOLD option (FLASH plus DTMF 6). Party C's gets routed to the HOLD announcement and hears silence after the announcement finished playing.
- After T hold time, Party C's call gets routed to the reminder announcement and hears silence after the announcement finished playing.
- Party A is now given additional T flash time to select the ANSWER option (FLASH).

- Party B is on hold and Party C and Party A are talking.
- Party A is not given additional T flash time to select the CONFERENCE option (FLASH plus DTMF 3).
- Parties A, B and C are now all on a conference call.
- All parties go on-hook and are disconnected.

7.2 Scenario #2 Participants:

- Subscriber A, is assigned to Terminal Group 1 with Music On Hold and has features /CWDT (Call Waiting Deluxe Terminating), /TGUUT (Terminal Group Allow Originate Allow Terminate), and /LIRCNP (Line Identification NUM DEL PRIM TERM Only) with CIDCW.
- Party B POTS line.
- Party C is assigned to Terminal Group 1 and has features /CWD, and /TGUUT.

CPE Needs:

The only CPE which is important to identify (because CWD is a terminating feature) is the CPE associated with Subscriber A. Subscriber A's line has ADSI CPE.

Call Scenario:

- Subscriber A's line is initially idle.
- Party B then dials Subscriber A's telephone number and receives audible ringing.
- Subscriber A's telephone rings and Party B's Caller ID information (Name and Number) is displayed.
- Subscriber A views Party B's information and answers the call.
- Subscriber A and Party B are engaged in conversation when Party C dials the Dial Call Waiting Activation Code followed by Subscriber A's telephone number and receives audible ringing.
- The talking path between Party B and Subscriber A is muted and Subscriber A hears call waiting tone followed by a very short duration high frequency tone which alerts Subscriber A's CPE.
- Subscriber A now views Party C's Caller ID information on the CPE along with the CWD per-call options.
- Subscriber A now selects the HOLD option. Party C's call is routed to the HOLD announcement.
- After the HOLD announcement is complete Party C hears music. After T hold time, party C is connected with the reminder announcement.
- Subscriber A selects the DROP option. Party B is immediately disconnected, and Party C is connected to Party A. Party A and B continue to converse.

8. CW DELUXE PHASE II FEATURE ASSIGNMENT

This feature is a secured feature and must be purchased before being enabled.

Provisioning the CWD phase II Feature (Figure 4) requires the following:

- Make sure that the CWD phase II 5E10 Software Update has been purchased and SFID 145 ACT field on SFSYS (5713-1 Record) is set to "Y".
- The MULTI WAY field on the CWTFD form, (5603-1A/1B Record, RC/V 12.15) has been updated with one of the following new MW features: /MWCWDIO, /MWCWDNG, /MWCWDAC, /MWCWDGO.

CWD Feature to New MW Feature Mapping	
CWD Feature	New MW Feature
/CWDC1 - Call Waiting Deluxe W/Cancel 1 (POTS)	/MWCWDAC
/CWDCDT1 - Call Waiting Deluxe W/Cancel 1 W/Dist Tones 1	/MWCWDGO
/CWDCDT2 - Call Waiting Deluxe W/Cancel 1 W/Dist Tones 2	/MWCWDNG
/CWDC2 - Call Waiting Deluxe W/Cancel 2 (Business)	/MWCWDIO
/CWDC2DT - Call Waiting Deluxe W/Cancel 2 W/Dist Tones	/MWCWDIO
/CWDIO - Call Waiting Deluxe Incoming Only	/MWCWDIO
/CWDIODT - Call Waiting Deluxe Incoming Only 2/Dist Tones	/MWCWDIO
/CWDT - Call Waiting Deluxe Terminating	/MWCWDAC
/CWDTDT1 - Call Waiting Deluxe Term W/Dist Tones 1	/MWCWDGO
/CWDTDT2 - Call Waiting Deluxe Term W/Dist Tones 2	/MWCWDNG

- For the CONFERENCE option, the switch internally understands that a multiway feature is required, and automatically incorporates one in the feature operation. Thus no external assignment of a multiway feature is required, even though a multiway feature is used to support this feature.
- If the CWD Phase I feature is already installed the CWDBUSY and the CWDHOLD announcements may already be available. To set up the CWD HOLD, CWD BUSY, HOLD REMINDER, and the CWD DEFAULT announcements, set the FIXED ROUTE TYPE on the FIXRT form (5301-1 Record, RC/V 10.1) to: "CWDHOLD", "CWDBUSY", "CWDDFANC", or "CWDREMDR", as a key. The appropriate RTI (Route Index) for the CWD feature is used to route to a 13A or 14A trunk.
- The SM should be engineered with a pumpable DSU2 (Digital Service Unit Model 2) - LDSU (Local Digital Service Unit). A sufficient number of TTR (Tone Transceiver) circuits should be engineered on the LDSU.
- Via the LINEFA form, (5112 Record, RC/V 1.8 or 1.11) assign any one of the of the CWD features.

9. CW DELUXE PHASE II FEATURE TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26A	12.9
CWTFD	5603-1	4	4A	12.15
CWTLPA	5603-2	4	4B	1.24
CWTMPA	5603-3	4	4C	3.24
FIXRT	5301-1	3	3G	10.1
LASSOP	5945	5	5F	8.21
MWFD	5602-1/2	4	3A	12.9
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

BFG form (5625 Record) - The 5625-1/8 Record is to specify and construct BFGs for use when assigning subscriber features to analog lines or ISDN terminals. The ALERT TYPE, DFTL OPT, and USG SENS CONF fields were added.

CWTFD form (5603-1 Record) - This form is used to define a number of separate features by selecting various feature options for Call Waiting. The ALERT TYPE, DFTL OPT, and USG SENS CONF fields were added.

CWTLPA form (5603-2 Record) - The 5603-2 Record is used to define specific parameters assigned to every non-Multi-Line Hunt line assigned with a specific constructed Call Waiting feature. The ALERT TYPE, DFTL OPT, and USG SENS CONF fields were added.

CWTMPA form (5603-3 Record) - The 5603-3 Record is used to define specific parameters assigned to every Multi-Line Hunt line associated with a specific constructed Call Waiting feature. The ALERT TYPE, DFTL OPT, and USG SENS CONF fields were added.

FIXRT form (5301-1 Record) - The 5301-1 Record is used to define Routing and Charging treatment of Fixed Route Types. Enumerations were added to the FIXED ROUTE TYPE field.

LASSOP form (5945 Record) - The 5945 Record is an ODA (Office Data Administration) input form that is used to supply global office options and parameters for the LASS features. The AMA AGGR TIME field was added.

MWFD form (5602-1/2 Record) - The 5602-1/2 Record is used to define many of the add-on and conferencing features used in other switching systems (e.g., Call Hold, Three-Way Calling, Six-Port Conferencing, and Call Transfer) and replaces the Three-Way Calling feature in earlier 5ESS Software Releases. An enumeration was added to the MULTIWAY CONTROL field. Data rules were added to the FEATURE BUTTON, DIAL CODE OR BUTTON, and ISDN ATTENDANT fields.

OFCOPT form (5509 Record) - The OFCOPT form is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The ALERT TYPE, DFLT OPT, USG SENS CONF, SUPV ANNC, DFLT ANNC, HOLD ANNC, FLASH TIMER, DFLT TIMER, and HOLD TIMER fields were added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is a secured feature and is activated by setting the ACT field for SFID 145 to "Y" on the SFSYS form (5713-1 Record).

In addition, before this feature can be activated, the secured feature Switch-to-CPE Analog Off-Hook FSK Data Interface must be purchased and enabled. This feature is activated by setting the ACT field for SFID 140 to "Y" on the SFSYS form. For more information on this feature see Division 2, Section 4A140.

10. GLOSSARY

2500 Set A non-ADSI (Analog Service Display Interface)

ACK - Acknowledge

ADSI Analog Service Display Interface

ADSI Set An analog telephone set capable of recognizing the

CAS CAS (CPE Alerting Signal) is a dual tone sent to the

CFDA Call Forwarding Don't Answer

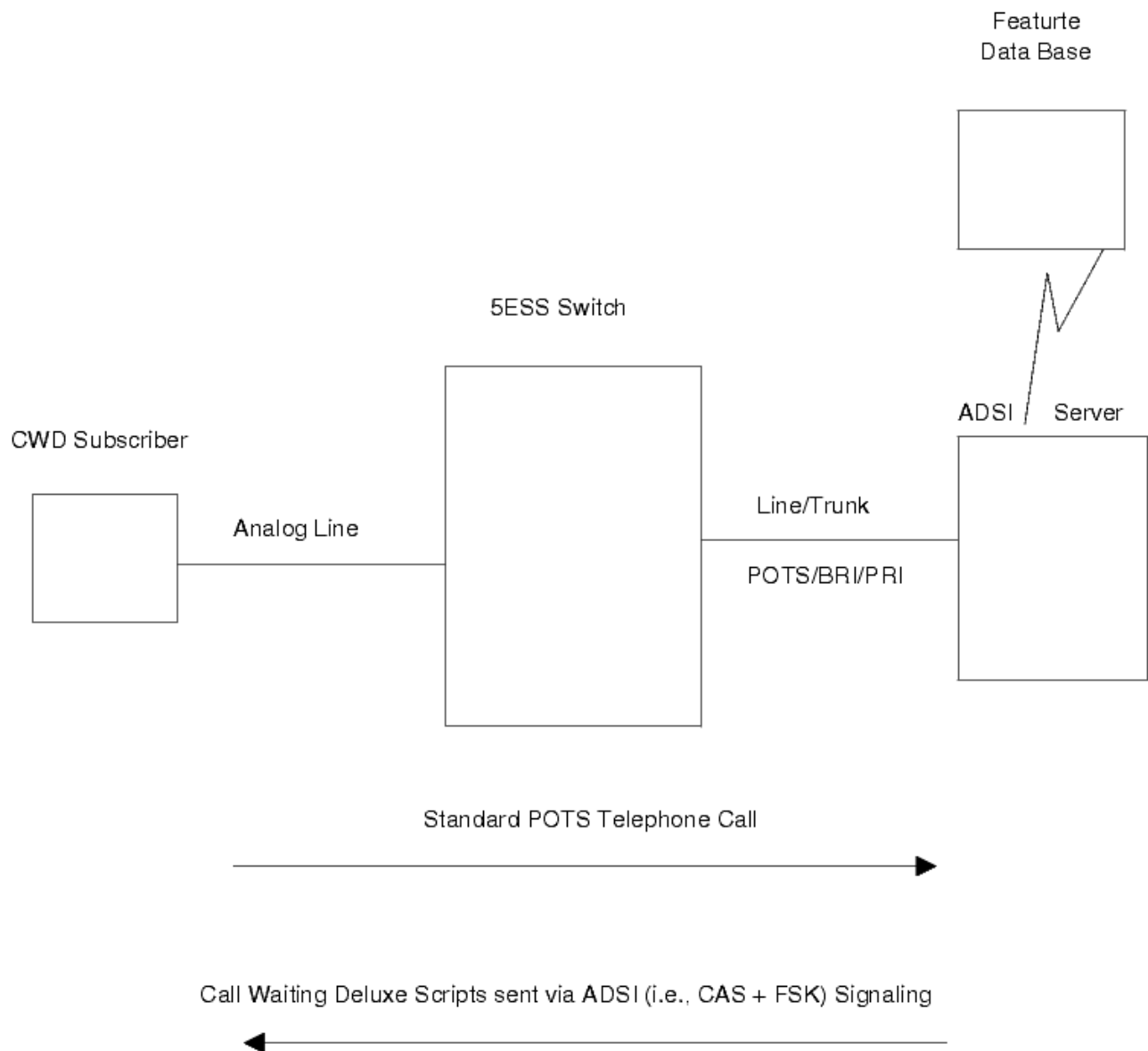
CFDA/CW Call Forwarding Don't Answer after Call Waiting

CID	Calling ID
CIDCW	Calling Identity Delivery on Call Waiting
CPE	Customer Premise Equipment
CWC1	Call Waiting with Cancel 1
CWC1DT1	Call Waiting with Cancel 1 with Distinctive Tone
CWC1DT2	Call Waiting with Cancel 1 with Distinctive Tone
CWC2	Call Waiting with Cancel 2
CWC2DT	Call Waiting with Cancel 2 with Distinctive Tones
CWD	Call Waiting Deluxe
CWDC1	Call Waiting Deluxe with Cancel 1
CWDC2	Call Waiting Deluxe with Cancel 2
CWDC2DT	Call Waiting Deluxe with Cancel 2 with Distinctive
CWDCDT1	Call Waiting Deluxe with Cancel 1 with Distinctive
CWDCDT2	Call Waiting Deluxe with Cancel 1 with Distinctive
CWDIO	Call Waiting Deluxe Incoming Only
CWDIODT	Call Waiting Deluxe Incoming Only with Distinctive
CWDT	Call Waiting Deluxe Terminating
CWDTDT1	Call Waiting Deluxe Terminating with Distinctive
CWDTDT2	Call Waiting Deluxe Terminating with Distinctive
CWIO	Call Waiting Incoming Only
CWIODT	Call Waiting Incoming Only with Distinctive Tones
CWT	Call Waiting Terminating
CWTDT1	Call Waiting Terminating with Distinctive Tone 1
CWTDT2	Call Waiting Terminating with Distinctive Tone 2
CWTFD	Call Waiting Feature Definition
DTMF	Dual Tone Multifrequency
FSK	Frequency Shift Keying
LTSB	Line Time Slot Bridging

RTU	Right-To-Use
RTI	Route Index
SAS	SAS (Subscriber Alerting Signal) is standard call waiting
SFID	Secured Feature ID
TWC	Three Way Calling

CALL WAITING TERMINATING TO CALL WAITING DELUXE FEATURE MAPPING	
5E8 and earlier CWT Feature	5E9(1) and later CWD Feature
/CWC1 (CALL WAITING W/ CANCEL 1) (POTS)	/CWDC1 (CALL WAITING DELUXE W/ CANCEL 1) (POTS)
/CWC1DT1 (CALL WAITING W/ CANCEL 1 W/ DISTINCTIVE TONE 1)	/CWDCDT1 (CALL WAITING DELUXE W/ CANCEL 1 W/ DISTINCTIVE TONE 1)
/CWC1DT2 (CALL WAITING W/ CANCEL 1 W/ DISTINCTIVE TONE 2)	/CWDCDT2 (CALL WAITING DELUXE W/ CANCEL 1 W/ DISTINCTIVE TONE 2)
/CWC2 (CALL WAITING W/ CANCEL 2) (BUSINESS)	/CWDC2 (CALL WAITING DELUXE W/ CANCEL 2) (BUSINESS)
/CWC2DT (CALL WAITING W/ CANCEL 2 W/ DISTINCTIVE TONES)	/CWDC2DT (CALL WAITING DELUXE W/ CANCEL 2 W/ DISTINCTIVE TONES)
/CWIO (CALL WAITING INCOMING ONLY)	/CWDIO (CALL WAITING DELUXE INCOMING ONLY)
/CWIODT (CALL WAITING INCOMING ONLY W/ DISTINCTIVE TONES)	/CWDIODT (CALL WAITING DELUXE INCOMING ONLY W/ DISTINCTIVE TONES)
/CWT (CALL WAITING TERMINATING)	/CWDT (CALL WAITING DELUXE TERMINATING)
/CWTD1 (CALL WAITING TERMINATING W/ DISTINCTIVE TONE 1)	/CWDTD1 (CALL WAITING DELUXE TERMINATING W/ DISTINCTIVE TONE 1)
/CWTD2 (CALL WAITING TERMINATING W/ DISTINCTIVE TONE 2)	/CWDTD2 (CALL WAITING DELUXE TERMINATING W/ DISTINCTIVE TONE 2)

Figure 1 MAPPING OF CALL WAITING TERMINATING FEATURES TO CALL WAITING DELUXE PHASE I FEATURES



ADSI Server Does The Following:

1. Determines Line's Features
2. Builds Scripts
3. Sends Scripts to CPE

Figure 2 ADSI SCRIPT DOWNLOADING

CALL WAITING DELUXE SWITCH OPERATION

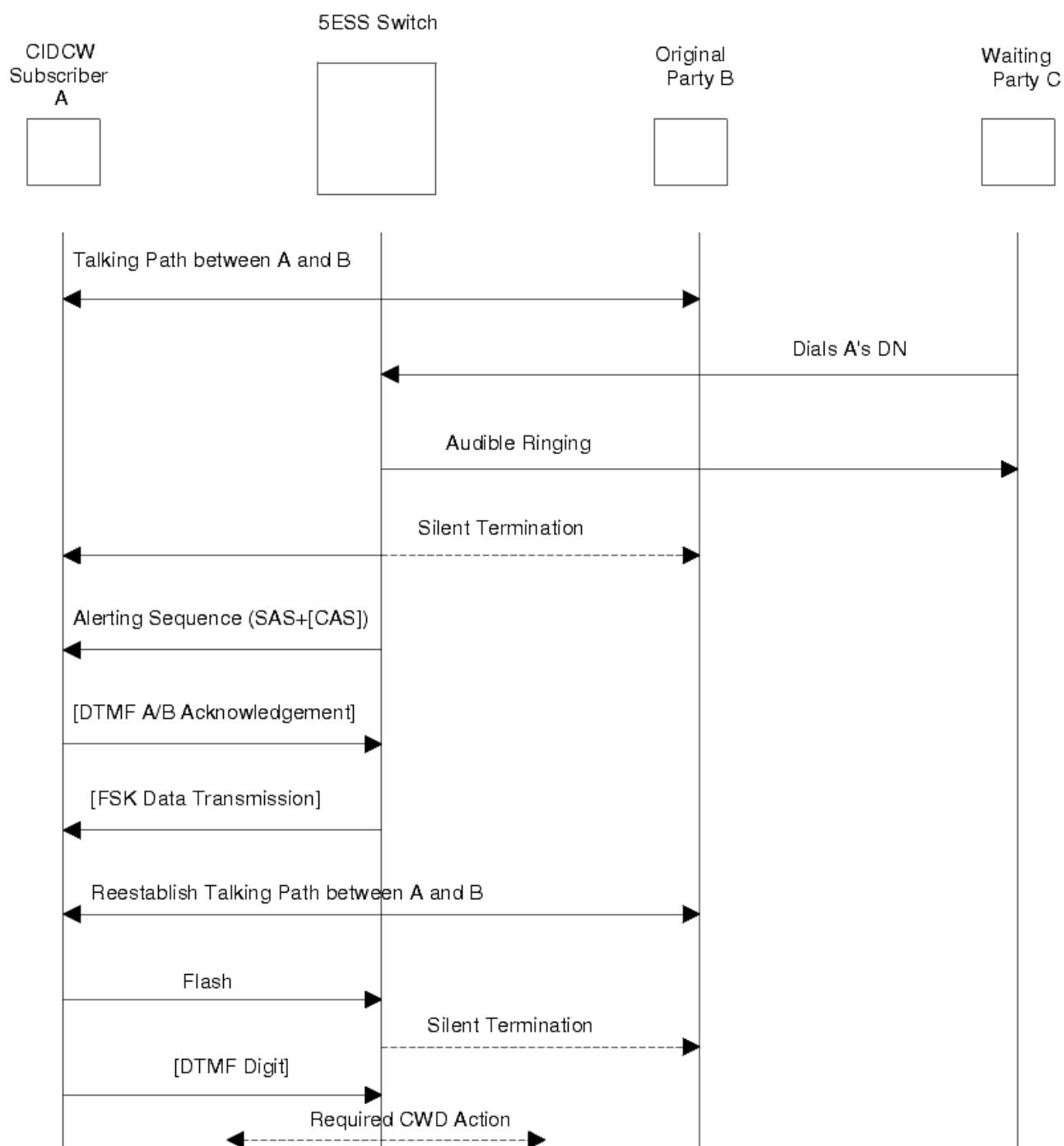


Figure 3

RESTRICTIONS GIVEN TO NON-ADSI CPE					
VALUE	RC VALUE	NAME	ALLOWED	ALERTING	OFF-HOOK

			OPTIONS		DELIVERY OF CID DATA
1	CWD1 w/o CIDCW	CWD on ADSI Sets onlyno CIDCW [SAS + CAS with non ADSI per call options restricted w/o CIDW]	ADSI sets all options; Answer & Return on non ADSI sets	SAS + CAS	Time parameter only
2	CWD1 with CIDCW	CWD on ADSI sets only [SAS + CAS with non ADSI per call options restricted with CIDW]	ADSI sets all options; Answer & Return on non ADSI sets	SAS + CAS	Deliver CID data according to CID feature on the line
3	CWD w/o CIDCW	CWD w/o CIDCW [SAS only w/o CIDCW]	ADSI & non ADSI sets - all options	SAS only	no FSK
4	CWD2 w/o CIDCW, CWD w/o CIDCW	[SAS + CAS with non ADSI allowed w/o CIDCW]	ADSI & non ADSI sets - all options	SAS + CAS	Time parameter only
5	CWD2 with CIDCW	Complete CWD [SAS + CAS with non ADSI allowed with CIDCW]	ADSI & non ADSI set - all options	SAS + CAS	Deliver CID data according to CID feature on the line

Figure 4 RESTRICTIONS GIVEN TO NON-ADSI CPE

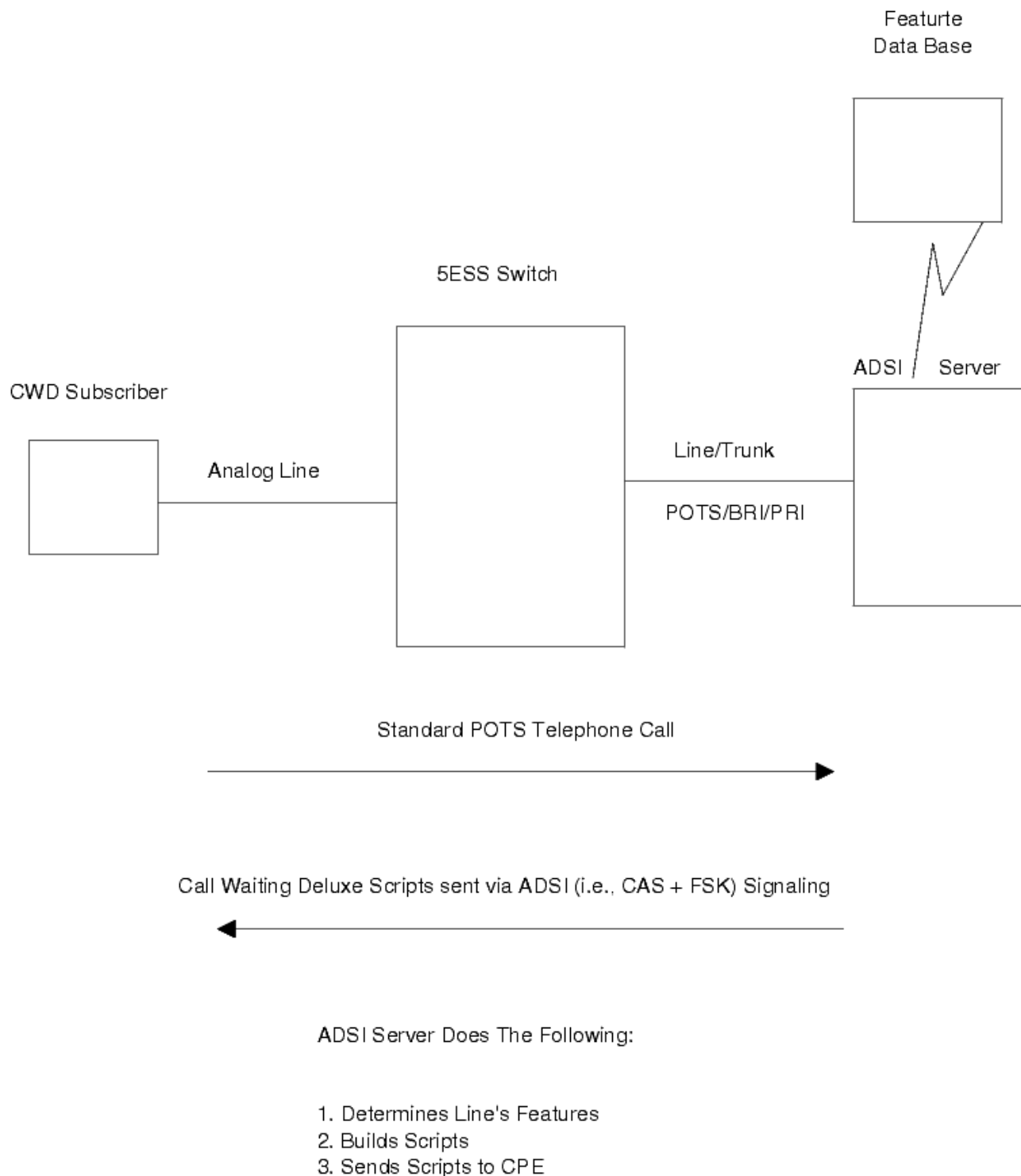


Figure 5 FORM FLOW FOR CALL WAITING DELUXE PHASE II

SEC. 4A147: ADVANCED SERVICES PLATFORM BUSY/NO ANSWER SUBSEQUENT EVENT DETECTION

1. BACKGROUND

Prior to this feature, ASP (Advance Services Platform) Release 0.1B provided the SCP (Service Control Point) with the ability to specify one or more routes (i.e. Carrier/DN or Route Index) which the switch used to complete the call. Once the SCP supplied the switch with routing instructions, its involvement in the call was over. If the switch could not find an idle route from the set of routes supplied, the call completed to reorder. Additionally, if the call was completed over an idle route, and the terminating station was busy or rings without being answered, Alternate routing could not redirect the call.

2. FEATURE DESCRIPTION

Available with Software Release 5E9(1) and later, the ASP BL/NA (Advanced Services Platform Busy/No Answer) Subsequent Event Detection feature is a secured feature using SFID (Secured Feature ID) 147 and must be purchased before being activated. The feature number is 99-5E-1576.

This feature allows the SCP to continue its involvement on a call by specifying that it is interested in being notified if certain call processing events occur while the switch is completing the call. The SCP does this by indicating in a NEL (Next Event List) the events in which it is interested.

There are two types of events.

- Request events - require further instructions from the SCP before routing can occur
- Notification events - are reported to the SCP and call processing continues.

When request events occur that were specified in the NEL, the SSP (Service Switching Point) informs the SCP of the event and the SCP can then return additional routing instructions to the switch, or can play a final or interactive announcement. When Notification events occur that were specified in the NEL, the SSP notifies the SCP and continues routing the call.

This feature supports four events that the SCP can request in the NEL. The events are:

- the terminating line or trunk has been seized (or is ringing)
- busy has been detected
- the terminating line has not been answered
- the terminating line has been answered.

The seize and answer events are notification events, whereas the busy and no answer events are request events. These events are defined in more detail in further sections.

These four events are those defined as OCM (Originating Call Model) events which the SCP can indicate in a NEL which accompanies either an Analyze_Route message or a Forward_Call message. Four synonymous events in the TCM (Terminating Call Model) can be indicated in a NEL which accompanies an Authorize_Termination message. The TCM events are not supported by this feature.

Because the events supported by this feature are OCM events, their detection occurs in the OCM (which models the call portion of the calling party). Note that the User Busy condition, for example, actually occurs in the TCM (which models the call portion of the called party), and is made "visible" to the OCM only after any applicable features assigned to the called party (i.e., CFBL (Call Forwarding Busy Line), CWT (Call Waiting

Terminating) are allowed to operate.

Because of the definition of the OCM and TCM, the OCM events supported by this feature are appropriate to use when the SCP redirects the call using a Forward_Call message, since the redirected portion of the call is modeled with an OCM.

When the SCP includes a Request component including a NEL indicating the events which it is in, the switch will maintain the TCAP (Transaction Capabilities Application Part) transaction with the SCP, and inform the SCP when the requested condition occurs. If an indicated event occurred and is a Notification event, the SSP informs the SCP that the event occurred, and continues processing the call. If an indicated event occurred and is a Request event, the SSP informs the SCP that the event occurred, and the SCP can then return additional routing instruction to the switch, or can play a final or interactive announcement.

The ASP BL/NA Subsequent Event Detection feature is only supported by ASP Release 0.1B and the Next Event List can accompany either an Analyze_Route message or a Forward_Call Message.

2.1 End User Perspective

The End User of this feature is a telephone subscriber who uses an AIN-based (Advanced Intelligent Network) service which makes use of the capabilities described in this document. This user may be either the calling party or the called party depending upon the nature of the AIN-based service.

The calling party may hear multiple call progress tones when the NEL capabilities are used by the SCP. For example, if the SCP has indicated that it is interested in the No Answer Event, the calling party hears normal audible ringing, and if the No Answer Timer expires, the calling party may hear an interval of silence. At this point the user may hear an announcement, more ringing if the call is redirected to another idle party, busy tone if the call is redirected to a busy party etc.

2.2 Customer Perspective

The capabilities provided by this feature are not assignable to any switch-based resource. They are invoked on a call-by-call basis by the SCP.

The Service Provider is impacted with respect to the ability to make use of the Next Event List and associated capabilities when creating or deploying AIN-based services.

2.2.1 Scenario 1

Suppose that the subscriber's first alternate DN is his or her other office across town. Per SCP instructions in the Forward_Call message, the switch attempts to complete the call. If a No Answer condition occurs, the switch informs the SCP, and the SCP will consult the Subscriber's list of alternate DNs and send the switch another routing message with instructions to complete the call to the second alternate DN, in this case the subscriber's cellular DN. Again, the SCP sends a Next Event List with the routing message indicating it wants to be informed of either busy or no answer.

Again, the switch attempts to complete the call per the SCP's instructions, and again it "monitors" the call for occurrence of the events the SCP indicated.

This scenario ends when either the call is answered (perhaps by the subscriber at one of the alternate locations, or perhaps by a voice mail system listed as the last alternate DN), or when the SCP has no more alternate DN entries to try after previous attempts have been unsuccessful and instructs the switch to play the caller a final announcement.

2.2.2 Scenario 2

The user dials a particular Feature Code (*321) which is defined as an ASP Feature Code trigger. When this code is dialed, the trigger is detected, and address digits are collected from the caller. When digit collection is complete, a Query is launched to the SCP. The SCP replies by sending an Analyze_Route message to the switch instructing it to complete the call to the address dialed by the caller. Along with the routing message, the SCP sends a Next Event List indicating that the SCP wants to be informed if the call encounters a Busy or No Answer condition.

If the call is answered, or the caller hangs up, the SSP sends a Close message to the SCP indicating that neither event in which the SCP was interested occurred, and no further SCP processing takes place.

If either a No Answer or Busy condition is detected, the switch sends a message to the SCP, and the SCP will send another Analyze_Route message to the switch instructing it to complete the call to another phone number, perhaps a VMS (Voice Messaging System). The VMS will interact with the caller to record the message and any delivery instructions.

2.2.3 Scenario 3

A user originates a call that encounters an originating trigger. A query is made to the SCP which responds with an Analyze Route message with a NEL with a no answer event. This is transaction T1. The DN returned in the Analyze Route message routes to a TAT (Terminating Attempt Trigger). The SCP is queried again and a NEL with a busy event is returned in the Forward Call. This is transaction T2. Finally, a TAT is encountered on the DN that was returned in the Forward Call message and a NEL is returned with a no answer event. This is transaction T3. At this point, 3 transactions are open for this call and 2 no answer timers are running.

Assume the no answer timer associated with T1 expires first. An O_No_Answer message is sent to the SCP. The SCP responds with an Analyze Route message with a NEL requesting the seize event. The call is cleared from this point forward and ringing to the originator is stopped. The NELs associated with transaction T2 and T3 are closed. The call is now routed to the DN specified in the Analyze Route message and the call is monitored for seizure. Assume the terminating line is busy so the originator now hears busy. Seizure does not occur and is not reported and the last NEL is closed via a Close message to the SCP.

2.3 Limitations

Existing ASP Release 0.1B requirements for detection of ASP Serial Triggers do not apply when a NEL is associated with a transaction. No further ASP serial triggering is allowed within the same call portion when a NEL is associated with the call (see the note below for SSP800/E911). However, serial triggers can be encountered in the terminating call portion and thus a Termination Attempt Trigger could be encountered.

An ANALYZE ROUTE with an NEL can be returned on any type of originating trigger (CDP (Custom Dialing Plan), FCD (Feature Code Dialing), DNT (Dialed Trigger Number), SIT (Special Information Tones), OHI (Off-Hook Immediate), OHD (Off-Hook Delay) from any type of OTP (Originating Terminal Process) (CCS (Common Channel Signaling), MF (Multi-Frequency) Trunk, POTS, BRCS, ISDN). For this feature, the detection of these events is isolated in a new OSDS (Operating System for Distributed Switching) process, called an ASP_TP, which resides "between" the OTP and TTP (Terminating Terminal Process). The ASP_TP is created when a NEL parameter is encountered in an OTP. The ASP_TP, after receiving the RT_GEN from the OTP, routes the call via RTA (5ESS Subsystem/Routing and Terminal Allocation) to the final destination, establishes a "forward" path to the TTP, and finally establishes a "backward" path back to the OTP.

NOTE: The term "ASP Serial Triggering" is used in the paragraph above to specifically indicate the case of encountering another ASP trigger. This does not include encountering E911 or SSP800 features. If an ASP call with one or more open NELs is routed and invokes the E911 or SSP800

feature, the NEL associated with the E911 or SSP800 transaction will be closed.

If the SCP includes a NEL in the Routing Component, no Termination Notification may be requested in the Routing Component.

However, DNT serial triggering is allowed after a FORWARD CALL message with an NEL is returned in response to a TAT query. Since the TCAP transaction associated with a FORWARD CALL message remains open, the DNT query cannot be launched from the same OSDS process as was done prior to this feature. This is because of the current restriction that only one TCAP transaction can be opened per OSDS process. Instead of launching a query, the query is formatted and stored in a TAT_DB tuple. An ASP_TP process will then be created to retrieve the query and send it off to the SCP. Thus, an ASP_TP is created for each opened TCAP transaction and associated NEL. The ASP_TP remains open until the TCAP transaction is closed.

3. FEATURE ASSIGNMENT

This is a secured feature, therefore, before it can be activated the ACT field for SFID 147 on the SFSYS form (5713-1 Record) must be set to "Y".

This feature is also dependent on the ASP Release 0.1B base feature. Therefore, the ACT field for SFID 126 on the SFSYS form must be set to "Y".

The ORIG NO ANS TIME field indicates the no answer timeout value in seconds for the ASP Busy Line/No Answer feature.

NOTE: Test Query provides the means by which craft can initiate a test query and the response returned from the SCP displayed on the I/O channel. TST:ASPTQ is the only switch means of determining that a NEL is involved with a call.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. The ORIG NO ANS TIME field is set to 1 - 120 seconds. This field is used to indicate the no answer timeout value in seconds for the ASP Busy Line/No Answer feature. This field is the timer

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 147 to "Y". Before activating this feature, the base 5E9.1 ASP Rel 0.1B feature must be activated by setting the ACT field to "Y" for SFID 126 on the SFSYS form.

5. GLOSSARY

AIN	Advanced Intelligent Network
ASP	Advanced Services Platform
BL/NA	Busy/No Answer
CCS	Common Channel Signaling
CDP	Custom Dialing Plan

DN	Directory Number
DNT	Dialed Trigger Number
FCD	Feature Code Dialing
MF	Multi-Frequency
NEL	Next Event List
OCM	Originating Call Model
OHD	Off-Hook Delay
OHI	Off-Hook Immediate
OSDS	Operating System for Distributed Switching
OTP	Originating Terminal Process
SCR	Selective Call Rejection
SCP	Service Control Point
SFID	Secured Feature ID
SIT	Special Information Tones
SSP	Service Switching Point
TAT	Terminating Attempt Trigger
TCM	Terminating Call Model

SEC. 4A148: ADVANCED SERVICES PLATFORM INTERWORKING WITH STATION MESSAGE DETAIL RECORDING

1. BACKGROUND

Prior to this feature, SMDR records were not affected by ASP (Advanced Service Platform) DNT (Dialed Number Trigger) originated calls. These triggers displayed the dialed number as the called party in the MDR (Message Detail Recording) record. Information from the SCP (Service Control Point) response message is not displayed in the MDR record.

ASP calls having an initial query from a subscribed origination created an MDR record type based on the route derived from the final response message. Only the called number or outgoing trunk group information was derived from the final response depending on whether it was a public or private route. TAT (Terminating Attempt Trigger) subscribers that have MDR assigned, created an MDR record only when a forward call response was sent. This record contained the TAT DN as the calling party and the forward-to number as the called party.

Message Detail Recording is not assignable to lines with OHD (Off-Hook Delay) and OHI (Off-Hook

Immediate) triggers, so SMDR records are never made for these calls.

2. FEATURE DESCRIPTION

The ASP Interworking with SMDR feature is a secured feature using SFID (Secured Feature ID) 148 and must be purchased before being activated. The feature number for this feature is 99-5E-2563.

Available with 5E9(1) and later, this feature is applicable for ASP customers with SMDR assigned to their line or any station or trunk origination which encounters a CDP (Custom Dialing Plan) trigger, FCD (Feature Code Dialing) trigger or a TAT with SMDR assigned, which possibly progresses through zero or more "play and collect" sequences, and then gets routed.

This feature does not affect DNT originated calls. AMA (Automatic Message Accounting) recording is also unaffected. Only subscribed origination ASP calls and TAT calls are affected by this feature.

This ASP SMDR Interworking feature populates AIN (Advanced Intelligent Network) specific data onto SMDR records. The AIN data that is used to populate the SMDR record is returned from the SCP when directing the switch to route a call.

It is important to realize that once this feature is turned on, MDR subscribers encountering CDP, FCD and TAT triggers will generate SMDR records containing the AIN specific data. In addition, any data provided by the user in terms of Account/Authorization/Access Codes is overwritten by the Account/Authorization/Access Codes in the SCP response if they are populated.

It is also important to realize that the SMDR ASP feature changes how the Calling Party Number field of the MDR record is populated in the AIN R0.1 protocol for TAT calls that return a FORWARD_CALL response with an AMAsplID parameter and an AMAAlternateBillingNumber parameter. With the SMDR ASP feature de-activated (i.e. existing functionality), the MDR record looks like this:

Calling Party Number = TAT DN

With the SMDR ASP feature unlocked (feature has been purchased), the MDR record looks like this:

Calling Party Number = AMAAlternateBillingNumber

If the SCP does not return the AMAAlternateBillingNumber parameter, the Calling Party Number in the MDR record will revert back to the TAT DN.

2.1 Example Scenarios

The following scenarios illustrate how this feature operates. These call scenarios are examples provided to help illustrate how this feature works.

Scenario 1

A station, with SMDR assigned, dials a number (e.g. 2468), a CDP trigger is encountered and a query is sent to the SCP. The SCP replies with routing information and AIN information. This feature generates an existing SMDR record with some of the record fields being filled with AIN data sent from the SCP when AMA billing is generated. The AIN data is gathered from the message sent from the final SCP when the AMA billing parameters are included. The AIN data is gathered from the message sent. The fields to be overwritten in the SMDR record are different between AIN Release 0.0 and 0.1 protocols. For this scenario, the fields generated in the SMDR record for AIN Release 0.0 and Release 0.1 protocols are shown in the following table.

Table 1

SMDR Fields Generated For AIN	
AIN Release 0.0	AIN Release 0.1
Called Number (Routing Number)	Called Number (Routing Number)
Calling Number	Calling Number
Business Customer ID	Business Customer ID
Authorization Code	Authorization Code
	Account Code
	Access Code

Scenario 2 - CENTREX Extended Calls

In this scenario, the CENTREX station located outside the CENTREX HUB with CENTREX extend capabilities places a call that results in the call getting routed to the CENTREX HUB. Once the call gets to the CENTREX HUB, the call encounters a TAT with SMDR assigned. A query is sent to the SCP, and the SCP asks for "play and collect" (possibly more than one). Then the SCP replies with routing information and AIN information. The AIN data will be gathered from the message sent from the SCP in the final SCP response. The fields to be overwritten in the SMDR record for AIN Release 0.1 protocol are as follows:

Table 2	
SMDR Fields Generated For AIN	
AIN Release 0.1	
Called Number (Routing Number)	
Calling Number	
Business Customer ID	
Authorization Code	
Access Code	

In general, this scenario applies to any station or trunk origination which encounters a TAT trigger with SMDR assigned, possibly progressing through zero or more "play and collect" sequences, and then is routed.

3. FEATURE OPERATION

The only triggers that are under consideration for this feature are the CDP and FCD triggers using the AIN Release 0.0 and Release 0.1 protocols, and the TAT trigger using the AIN Release 0.1 protocol. The following table illustrates this point and shows the expected SCP responses.

Table 3		
Triggers and Protocol Responses		
Trigger	Protocol 0.0 Response	Protocol 0.1 Response
CDP/FCD	INVOKE_CONNECT	ANALYZE_ROUTE/STR (final) DISCONNECT
TAT	Not Applicable	FORWARD CALL/DISCONNECT STR (final announcement)

The "public" and "private" pre-defined MDR record structures are used to produce the SMDR record containing the AIN specific data (See Table 1). The "public" and "private" MDR record structure is used in both AIN Release 0.0 and 0.1 protocols.

In AIN Release 0.0 protocol, the AIN data (See Table 1) is collected from the INVOKE_CONNECT message received from the final SCP response. The AIN specific fields in the INVOKE_CONNECT message are used to populate the SMDR record (See Table 3).

In AIN Release 0.1 protocol, the AIN data (See Table 1) is collected from one of the following messages received from the SCP:

- ANALYZE_ROUTE

- FORWARD_CALL
- SEND_TO_RESOURCE (final announcement)
- DISCONNECT

The AIN specific fields in either one of the above mentioned messages is used to populate the SMDR record (See Table 3).

In AIN Release 0.0 and 0.1 protocols, the response message in the final leg of the call must have the billing indicators (Billing_Indicators in 0.0 protocol and AMASlpID in 0.1 protocol) present in order to produce the SMDR record containing the AIN specific data. If the final SCP response does not have the billing indicators or information field is missing, then the SMDR record reverts back to the current operations.

When hitting a release AIN 0.0 protocol CDP/FCD trigger, the AIN specific data (see Table 1 for populating the SMDR record) will be retrieved from the INVOKE_CONNECT message sent from the SCP. Table 4 below shows which fields are used from the SCP response to populate the SMDR record for AIN Release 0.0 protocol.

Table 4	
SCP Response To SMDR Mapping 0.0 Protocol	
INVOKE_CONNECT	SMDR Fields
Called Party Number	Called Number
Billing Number	Calling Number
Business Customer ID	Business Customer ID
Authorization Code	Authorization Code
Personal Identification Number	Personal Identification Number

When hitting an AIN Release 0.1 protocol CDP/FCD trigger (see call Scenario 1), the AIN specific data (see Table 1) for populating the SMDR record is retrieved from one of the following response messages sent from the SCP:

- ANALYZE_ROUTE
- SEND_TO_RESOURCE (final Announcement)
- DISCONNECT

The table below shows which fields are used from the SCP response to populate the SMDR record for AIN Release 0.1 protocol.

Table 5	
SCP Response To SMDR Mapping 0.1 Protocol	
SCP Message	SMDR Fields
Called PartyID	Called Number
AMAAIternateBillingNumber	Calling Number
AMABusinessCustomerID	Business Customer ID
AMADigitsDialed.contextid=001	Authorization Code
AMADigitsDialed.contextid=002	Account Code
AMADigitsDialed.contextid=003	Access Code

In AIN Release 0.1 protocol, any station or trunk origination which encounters a TAT, with SMDR assigned, possibly progressing through zero or more "play and collect" sequences, and then is routed, should produce an SMDR record with AIN specific data (see Table 5). The AIN specific data is retrieved from the response message sent from the SCP.

When encountering a TAT, while using the AIN Release 0.1 protocol (see call scenario 2), the data for populating the SMDR record is retrieved from one of the following response messages sent from the SCP:

- FORWARD_CALL
- SEND_TO_RESOURCE (final Announcement)
- DISCONNECT

Table 6 shows the fields that are used from the SCP response to populate the SMDR record for AIN Release 0.1 protocol.

In AIN Release 0.0 protocol, it is possible to get both the authorization code and the PIN in a single response from the SCP. If this happens, populate the last parameter in the message into the authorization field on MDR record. This is the same approach that AMA billing is using.

In AIN Release 0.1 protocol, the authorization/account/access code is retrieved from the SCP response message (AMADigitsDialedWC parameter) if the response message has the data populated. If the AMADigitsDialedWC parameter is not included in the SCP response, or is included but does not contain the authorization/account/access code digits, then the codes are obtained from the user dialed digits.

In AIN Release 0.1 protocol, if the AMADigitsDialedWC parameter is returned from the SCP with more than a 15-digit authorization/account code, then the first 15 digits will be included in the MDR record because the MDR record only has room for 15 digits. The remaining digits are truncated.

In AIN Release 0.1 protocol, if more than one occurrence of authorization/account/access code appears in a single SCP response (AMADigitsDialedWC parameter), then the first occurrence of the code is stored in the MDR record, providing the response also includes the AMAslpid (i.e. other occurrences are ignored).

In AIN Release 0.0 and 0.1 protocols, if the BCID (Business Customer Identification Number) field from view 24.33 and the MDRGP form (5624-2 Record) is not included in the SCP response, or is included but does not contain any digits, then the default BCID value is used to populate the MDR record.

In AIN Release 0.0 and 0.1 protocols the SMDR record has a maximum value of 65535 for the BCID field. If a number greater than 65535 is received, then the BCID from view 24.33 is used to populate the MDR record.

If the Billing_Number (R0.0) or the AMAAlternateBillingNumber (R0.1) parameter is returned from the SCP with more than 10 digits, the first 10 digits are included in the MDR record because the MDR record only has room for 10 digits. The rest of the digits are truncated.

4. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

This feature is a secured feature and is activated by setting the ACT field for SFID 148 to "Y" on the SFSYS form (5713-1 Record).

5. GLOSSARY

AIN	Advanced Intelligent Network
AMA	Automatic Message Accounting

ASP	Advanced Services Platform
BCID	Business Customer Identification Number
CDP	Custom Dialing Plan
DNT	Dialed Number Trigger
FCD	Feature Code Dialing
MDR	Message Detail Recording
OHD	Off-hook Delay
OHI	Off-hook Immediate
SCP	Service Control Point
SMDR	Station Message Detail Recording
TAT	Terminating Attempt Trigger

SEC. 4A149: INTRA-LATA PIC CAPABILITY

1. FEATURE DESCRIPTION

The Intra-LATA PIC (Presubscribed Inter-LATA Carrier) feature is available with the 5E9(1) and later software release. The feature number is 99-5E-1291.

The Intra-LATA PIC feature is also referred to as ICLATA feature.

The Intra-LATA PIC allows the LEC (Local Exchange Carrier) to open up certain Intra-LATA Toll routes, which were previously handled exclusively by the LEC, to competition on an equal access basis between the LEC and the ICs (Inter-LATA Carriers). Refer to Figure 1 for competition categorization on a presubscription basis. The "certain Intra-LATA Toll routes" that are open to competition on a presubscription basis are based on [NPA]-NXX codes on a per "Digit Interpreter Table" basis through the introduction of a new type of CI (Carrier Interconnect) call.

The Intra-LATA PIC capability allows a subscriber to presubscribe to a PTC (Presubscribed Intra-LATA PIC/Intra-LATA Toll Carrier) which handles all Intra-LATA Toll traffic (7 - digit or 10 - digit calls with or without a "1/0" prefix), if dialed without a 10XXX (or 101XXXX) prefix, but which may or may not be the same as the PIC (Presubscribed Inter-LATA Carrier). If an Intra-LATA PIC user wishes to place an Intra-LATA Toll call via a carrier other than the PTC, a 10XXX (or 101XXXX) prefix must be dialed. The PTC may designate the LEC, if the LEC has an XXX code. 10XXX (or 101XXXX) dialing for the LEC will be available. Refer to Figure 2 for a feature flow diagram of an Intra-LATA PIC direct call.

Each central office specifies how operator assisted 0+ 7 - or 10 - digit Intra-LATA PIC calls are routed for Intra-LATA PIC customers on a per carrier basis. The switch may designate that all 0+ Intra-LATA PIC calls for a given carrier are handled either by the PTC or by the LEC (if the PTC carrier chose the LEC to carry the PTC Intra-LATA PIC operator assisted calls). Refer to Figure 3 for a flow diagram of a Intra-LATA PIC 0+ operator call and Figure 5 for a diagram of Intra-LATA PIC selection.

The switch provides the capabilities so that all 0- Intra-LATA PIC calls can be handled either by the LEC or by the PTC on a per carrier basis. Refer to Figure 4 for a flow diagram of a Intra-LATA PIC 0- operator call and

Figure 5 for a diagram of Intra-LATA PIC selection.

The 0+ and 0- calls may be routed to ICs differently than the non-operator handled calls.

All local calls are carried by the LEC if dialed without a 10XXX (or 101XXXX) prefix.

International calls, Inter-LATA calls, and Intra-LATA Local calls dialed with or without a 10XXX (or 101XXXX) prefix are not affected by Intra-LATA PIC feature.

The Intra-LATA PIC capability applies to both analog and ISDN line originated calls. It also applies to trunk originated calls (e.g., EDSL/PRI, PF trunk).

Once the carrier for a Intra-LATA Toll call has been determined, the call is routed as would be any other call the carrier handles. Intra-LATA Toll calls to the ICs are signaled as Inter-LATA calls, while those to the LEC are signaled as Intra-LATA calls.

Intra-LATA PIC calls carried by an IC are treated with respect to routing, billing, signaling, and measurements just as Inter-LATA calls are treated; Intra-LATA PIC calls carried by the LEC are treated as Intra-LATA Local calls.

1.1 End User Perspective

- The Intra-LATA PIC supports both business and residential customers. The assigned PTC is used on an Intra-LATA toll call dialed without a CAC (Carrier Access Code). The dialed IC or LEC is used if a CAC is dialed.
- Intra-LATA toll calls are billed according to each carrier's procedures, based on Inter-LATA AMA records from the LEC switch.
- Operator assistance for Intra-LATA toll calls is given by the PTC or dialed carrier. The carrier has an option (on the ICF form (5305 Record)) to have the LEC actually handle these operator calls.
- Calls are dialed using existing dialing formats.

1.2 Telephone Operating Company Personnel Perspective.

With this feature activated, the switch owner is able to perform the following operations:

- Specify the dial codes that are given Intra-LATA PIC treatment on the PDIT form, LDIT form, RDIT form, and MLDIT form. This implies separate forms for Intra-LATA toll and Intra-LATA Local calls rather than current consolidated forms marked as Intra-LATA (with TYP CI CALL field set to "INTRA"). Enough digits in the dial code must be defined so as to distinguish between calls that are to get the different treatments. Calls to be given Intra-LATA PIC treatment must have the TYP CI CALL field marked as "TOLL".
- Specify the dial codes that have conflicting treatments. This entails the specification of the TYP CI CALL attribute on the digit analysis form as well as attributes on the RAR form.

Conflict situations arise where two or more groups of end customers have the same dialing capabilities except for a few dial codes that are given different treatment by the switch. The screening index (on the LCC form, 5306 Record) is used to give separate treatment to different callers.

The Intra-LATA PIC introduces a new type of treatment, so the interactions become more complex. With three possible treatments available for handling a call - Intra-LATA Local (formerly Intra-LATA), Intra-LATA Toll, and Inter-LATA - dial codes can be defined with four different types of overlap of these treatments as follows:

- Intra-LATA Local vs. Inter-LATA.
 - Intra-LATA Local vs. Intra-LATA Toll.
 - Intra-LATA Toll vs. Inter-LATA.
 - Intra-LATA Local vs. Intra-LATA Toll vs. Inter-LATA.
- Conflict "Intra-LATA Local vs. Inter-LATA" which existed prior to the introduction of this feature, continue to be supported without any action by the switch owner. This conflict is identified in the digit analysis tables by a TYP CI CALL value of "CONFL", and the treatment given a specific caller can be determined by examining the SCREENING and ROUTING translations for the LEC (Intra-LATA or non-carrier) routing as follows:
 - If Feature Option 523 on the FOSYS form is set to "Y" or if the call is dialed with a 0+ prefix, then Intra-LATA call treatment is indicated providing the LEC Intra-LATA routing does not result in an announcement; if the call does result in an announcement, then Inter-LATA routing is given.
 - If Feature Option 523 is turned off and the call is dialed with either a 1+ or no prefix, and the route index from the RAR form is the same as that from digit analysis, then Intra-LATA treatment is given. Different route indexes result in Inter-LATA treatment.

These treatments are enhanced with the Intra-LATA PIC capability with the addition to the RAR form of three conflict resolution fields, (one associated with each dialable prefix):

ZERO PLUS CONF

ONE PLUS CONF

NONE CONF

The Intra-LATA PIC capability introduces new conflict resolution treatments. An additional TYP CI CALL value of "TCONF" is added to the digit analysis forms to help identify the conflicts. The conflict situations and the data population that can be used to give customers different treatments are summarized in the following table:

TABLE 1				
Conflict Situation	TYP CI CALL in Digit Analysis	RESOLVED CI CALLTYPE		
		INTRA	TOLL	INTER
Intra-LATA Local vs Inter-LATA	CONFL	blank *1	-	blank *1 or I
	TCONF	blank	-	I
Intra-LATA Local vs Inter-LATA Toll	CONFL	blank *1	T	-
	TCONF	blank	T	-
Intra-LATA Toll vs Inter-LATA	CONFL	-	T	I
	TCONF	-	T	I

Intra-LATA Local vs IntraLATA Toll vs Inter-LATA	CONFL	blank *1	T	blank *1 or I
	TCONF	blank	T	I

*1 Resolution is provided by existing methods

Populating "T" or "I" in the new CONF fields on the RAR form and "TCONF" in TYP CI CALL field on the digit analysis forms (LDIT, RDIT, or MLDIT) is not allowed unless the Intra-LATA PIC Special Feature (SFID 149) has been purchased and activated.

- Assign or change the Line PTC. The PTC is assignable to lines on a RSM (Remote Switching Module) and ORM (Optically Remote Module). An MLHG (Multi-Line Hunt Group) does not have one PTC associated with the entire group, however, each MLHG member may have its own PTC.
- Assign or change the Group PTC on an IDP (Individualized Dialing Plan) (or Centrex) group. The IDP Group PTC applies to both lines and PF (Private Facility) Trunks if the trunks belong to the IDP group.
- Assign or change the Office PTC.
- Specify whether 0+ Intra-LATA PIC operator-assisted calls are to be handled by the IC or by the LEC on a per-IC basis. Operator-assisted 0+ 7/10D calls are handled as follows:

TABLE 2

Call Type	Dialed Digits	Carrier
Intra-LATA PIC (Intra-LATA Toll)	0 + 7D or 10D	PTC or LEC, based on the Carrier's ICLATA OPT 0+ option
	10XXX + 0 + 7D, 10D or 101XXXX + 0 + 7D, 10D	XXX or LEC, based on the Carrier's ICLATA OPT 0+ option
	0 + 7D, 10D	LEC only
Intra-LATA (Intra-LATA Local)	10XXX + 0 + 7D, 10D or 101XXXX + 0 + 7D, 10D	XXX Carrier or denied based on Carrier's INTRALATA option
	0 + 7D, 10D	

On the ICF form, setting the ICLATA OPT field to "Y" means that the LEC handles the call; setting the ICLATA OPT field to "N" means the IC handles the call.

- Specify whether 0- Intra-LATA PIC calls are to be handled by the PTC or LEC on a per-IC basis.

If the TYP CI CALL for 0- on the PDIT form is "TOLL" the call is routed to the PTC operator if that carrier's ICLATA OPT field is set to "N" (default).

If the PTC's ICLATA OPT field is set to "Y" in this situation, the call is routed to the LEC operator instead.

If the TYP CI CALL for 0- is "INTRA" the call is routed to the LEC operator.

If TYP CI CALL is "INTER" the calls continue to be routed to the operator for the PIC carrier. If the TYP CI CALL for 00- on the PDIT form is "TOLL" the call is routed to the PTC operator if that carrier's ICLATA OPT field is set to "N" (default). Calls dialed 10XXX 0- are routed to the operator for the XXX IC based on the 0- ICLATA OPT field. It is to be noted that 00- ICLATA calls will route to the LEC (if PIC2 is blank, or PIC2=IC with 0- option on ICF is the LEC) provided the LEC routes (CDI/RTI) for 00- are properly set in

PDIT (should be same as that for 0- calls).

- Set the Office 0- option for SCD (Selective Carrier Denial) treatment given to 0- Intra-LATA PIC calls from a non-paying customer.

The SCD special feature on the 5ESS-2000 Switch, SFID 013, provides the ability to selectively inhibit completion of certain carrier-handled calls from those lines which have been designated as non-paying by the particular carrier. SCD can be used to deny access to multiple carriers.

Intra-LATA PIC calls are blocked by the SCD feature if the caller attempts to access an IC and is considered to be a non-payer for that carrier.

A 0- Intra-LATA PIC call from a customer who is denied access to the PTC carrier (as a result of SCD screening) can optionally be routed to the LEC operator based on the value of the ICLATA SCD IND indicator. The ICLATA SCD IND indicator, on the OFCOPT form (5509 Record) does not apply to 10XXX 0- calls. If the indicator is set to "N" (default), the call is routed to the LEC operator; if the indicator is set to "Y", the call is given SCD treatment (tone or announcement).

Also, 0- Intra-LATA PIC calls routed to the LEC operator as a result of SCD screening cause ANI II digits to be sent. This informs the LEC operator that this caller is a non-payer for the carrier.

- Assign a PTC to a PRI trunk. The Intra-LATA PIC capability applies to PRI (Primary RATE Interface) (PRI, it is also known as EDSL (Extended Digital Subscriber Line)) trunk group. The PRI trunk group can have a PTC assigned to it on the TRKGRP form (5202 Record), Recent Change View 5.1.

A new field, "DIR CON IC", is introduced on the TRKGRP form (5202 Record), Recent Change View 5.1. This field takes on values "Y" or "N", with a default value of "N". The DIR CON IC field is allowed to be set to "Y" only for EDSL and EDSLHM trunk classes, and only if the Intra-LATA PIC feature is turned on. This field should be set to "Y" only for PRI trunk groups that directly connect to an Inter-exchange Carrier's switch.

If the DIR CON IC field is set to "Y", then for all outgoing Intra-LATA Toll PRI calls, no carrier ID information is sent in the TNS IE of the PRI SETUP message.

If the DIR CON IC field is set to "N" (default), then for all outgoing Intra-LATA Toll PRI calls, the carrier ID that is obtained by the carrier selection procedure is sent in the TNS/NSF IE of the PRI SETUP message. If no carrier is obtained by the carrier selection procedure, then no carrier ID is sent in the TNS/NSF IE of the PRI SETUP message.

For incoming Intra-LATA Toll PRI calls, if a carrier is received in the TNS IE and/or the NSF IE of the incoming SETUP message, existing procedures for carrier determination for Inter-LATA calls are applied to Intra-LATA Toll calls.

For incoming Intra-LATA Toll PRI calls, if no carrier is received in the TNS and/or NSF IEs of the incoming SETUP message, then the PTC carrier assigned to the PRI trunk group is used for the call. If the PRI trunk group PTC is not assigned, then the IDP group PTC is used; if the IDP group PTC is not assigned, then the Office PTC is used; if the Office PTC is not assigned, then the LEC is used for the call.

- Assign Toll Restriction and Toll Diversion to Intra-LATA PIC calls.

These existing features are not modified by the Intra-LATA PIC. Toll Restriction/Diversion is done on a dial code basis through Code Index CDI field on the RAR form (5301 Record) and in conjunction with the Line Screening capability of a line LCC form (5306 Record). By using existing Code Indices (or assigning new Code Indices) to Intra-LATA PIC calls, the switch owner has the flexibility of applying or not applying Toll Restriction/Diversion to Intra-LATA PIC calls.

- Assign Originating LASS (Local Area Signalling Services) Features. The Intra-LATA PIC call works as follows:

— AR/AC (Automatic Recall/Automatic Callback) Interaction with Intra-LATA PIC:

When LASS AC or AR is attempted and the ILHB (Incoming Line History Block) DN in the case of AC or the OLHB (Outgoing Line History Block) DN in the case of AR is such that the AC/AR attempt would result in an Intra-LATA Toll call, then the AC/AR attempt is not blocked by the INTER LATA AC/AR field on the LASSOP (5945 Record) form being set to "N". An Intra-LATA Toll call is treated as Intra-LATA for AC/AR attempt and therefore the INTER LATA AC AR field does not apply to the AC/AR attempt.

In the 5ESS-2000 Switch, the current operation of LASS invalidates the OLHB when a call is dialed with a CAC (10XXX/101XXXX) and the INTER LATA AC /AR field on the LASSOP (5945 Record) form is set to "N" even if the call is Intra-LATA (local or toll). Thus, if an Intra-LATA (local or toll) call is dialed with a CAC, the OLHB is invalidated and AR does not succeed immediately following the call.

— Screen List Editing (SLE) feature interaction with Intra-LATA PIC:

The ability to add an Intra-LATA number to a screening list of an SLE feature (e.g., Selective Call Rejection, Selective Call Forwarding, etc.) is affected by whether calls, made by the SLE feature subscriber, are carried by the LEC or an IC.

- Terminating LASS features (call to a LASS user), the Intra-LATA PIC call works as follows:

All LASS features work properly with incoming Intra-LATA PIC calls, provided the calling number is delivered. However, if the LEC does not transmit the calling party number to the IC, or the IC does not transmit the calling party number to the LEC, then features which depend on delivery of calling party number do not work properly. These include AC, ICLID, COT (Customer Originated Trace), BCLID, the SLE screening features (e.g., SCR, SCA, SCF, SDA), CPN/BND (Calling Party Number/Billing Number Delivery). Note that the CPN SUBSC option on the DTRTX form (5314 Record) can be used to allow/disallow passing of the SS7 Calling Party Number parameter to an IC.

1.3 Intra-LATA PIC Call Scenarios

1.3.1 NONE/1+ 7/10 Digit Calls

When an end user originates an Intra-LATA non-operator assisted call (None or 1+ 7/10 digits and no CAC),

the switch checks to see if the dialed number is one which is treated as an Intra-LATA PIC call; this is indicated by a CI CALL TYPE of "TOLL" in digit analysis. If so, the switch determines the carrier (IC or LEC) to handle the call as follows:

Refer to Figure 6 for a flow chart.

- Verify Intra-LATA PIC capability is active. SFSYS form SFID 149 ACT field is set to "Y".
- If a line PTC is assigned, the call is routed to that carrier.
- If a line PTC is designated, but an IDP Group and IDP Group PTC is, the call is routed to the IDP Group PTC.
- If there is no line or IDP Group PTC, but an Office PTC exists, then the call is routed to the Office PTC.
- If no line, IDP Group, or Office PTC is designated, then the call is routed to the LEC.

1.3.2 Intra-LATA Local/Intra-LATA Toll Conflict

This scenario involves 2 subscribers, A and B. For a specific Intra-LATA destination, 220-1000, subscriber A dials 220-1000 which is a local call, and subscriber B dials 1 + 220-1000 which is a toll call. Assume SI1 (Screening Index 1) is assigned to subscriber A and SI 2 is assigned to subscriber B. The switch processes the call as follows:

Refer to Figure 7 for a flow chart for this scenario.

- The call is recognized as a CI conflict by the CI CALL TYPE equal to "TCONF" in digit analysis.
- This CI CALL TYPE is new for Intra-LATA PIC so the switch verifies the Intra-LATA PIC is active (SFID 149).
- To resolve the conflict, the switch checks the NONE CONF, ZERO PLUS CONF, AND ONE PLUS CONF fields on the RAR form (5301 Record) using the originator's screening index and the code index from digit analysis.
- If the call was dialed with no prefix (subscriber A), the NONE CONF field is checked on the SI 1 RAR form (5301 Record). No entry is indicated (blank). This resolves CI CALL TYPE to INTRA, and the call is routed to the LEC.
- If the call was dialed with a 1 + prefix (subscriber B), the ONE PLUS CONF field is checked in the SI 2 RAR form (5301 Record). The field is populated with a "T". This resolves CI CALL TYPE to toll, and from this point the call is handled the same as the toll case in the first scenario, using the PTC or the LEC to handle the Intra-LATA toll call.

1.4 Intra-LATA PIC Capability Interactions

The Intra-LATA PIC Special Feature has the following interactions:

- Full/Split 1+ Blocking applies to Intra-LATA PIC calls carried by a carrier (presubscribed or 10XXX dialed) other than the LEC. Full/Split 1+ Blocking does not apply to Intra-LATA PIC calls carried by the LEC (presubscribed, office default, or 10XXX dialed, where XXX is the LEC).

- 911 can not be marked as Intra-LATA PIC. However, other N11 types of codes (i.e. 411, 611, 811, and etc.) can be marked as Intra-LATA PIC.
- Currently, when an ASP (Advanced Services Platform) call is made from a line, the PIC for Inter-LATA calls or the LEC for Intra-LATA calls is transmitted by the switch to the SCP (Service Control Point) under the TCAP (Transactions Capabilities Application Part) protocol. The SCP sends back a message to the switch containing a routing number and carrier information. The carrier information may indicate an IC, LEC, or autonomous (unknown) carrier should be used to carry the call.

ICLATA will not transmit PIC2 for IntraLATA Toll calls as part of the TCAP message. ICLATA calls will be treated as IntraLATA for population of the carrier (i.e., LEC) in the query.

ICLATA will not override any carrier information sent back by the SCP. However, in the case of Autonomous carrier, if the switch reanalyzes the routing number to determine the type_ci_call (INTER, INTRA, ICLATA) and finds that the type_ci_call is ICLATA, then the PIC2 (or the XXX carrier if 10XXX is dialed) should carry the call. For autonomous carrier selection after a serial trigger, the PIC2 will be used for ICLATA calls.

Calls which encounter a trigger, but do not query will use the PIC2 for ICLATA calls. These would be calls which encounter an OHD escape or, an inactive trigger. These end up routing using just switch information.

Another case is the "CONTINUE" response from the SCP which means to route the call using the switch information. ICLATA calls will use the PIC2.

- The Intra-LATA PIC capability does not apply to calls routed using ARS (Automatic Route Selection) routes. However, if a ARS call overflows to the public network as an Intra-LATA toll call, ARS will mark the call as Intra-LATA and route it as such.
- On an Intra-LATA PIC call, 10XXX (or 101XXXX) is prohibited from being dialed, if the CI DIAL per-line attribute is set to "DENY"; however, 10XXX or (101XXXX) dialing is not required even if the CI DIAL is set to "REQ".

2. FEATURE ASSIGNMENT

The Intra-LATA PIC is a secured feature that must be activated before any Intra-LATA PIC data can be assigned on ODA forms such as the following:

- TOLL CARRIER and ICLATA SCD IND fields on the OFCOPT form.
- The PTC attribute on forms IDPGP, LINE/MLHLN, LINEFA, DSL/DSLUSR, TKGRP.
- The values of "TOLL" or "TCONF" to the TYP CI CALL attribute on forms PDIT, LDIT, RDIT, and MLDIT.
- The ONE PLUS CONF, ZERO PLUS CONF, and NONE CONF attributes on the RAR form.
- The ICLATA OPT field on the ICF form.

Provisioning the Intra-LATA PIC capability (Figures 8, 9, 10, 11, and 12) requires the following:

- Activate the Secured Feature ID 149 on the SFSYS form. The ACT field for SFID 149 is set to "Y" on the SFSYS form (5713-1 Record).
- Assign the TOLL CARRIER (i.e. the office PTC) and ICLATA SCD IND fields on the OFCOPT form. In order to set the ICLATA SCD IND field to "Y", both Intra-LATA PIC and SCD special features must be purchased and activated. When the ICLATA SCD IND field is set to "Y", the Intra-LATA PIC 0- calls blocked by SCD are routed to an SCD announcement. When the ICLATA SCD IND field is set to "N", the LEC handles the blocked Intra-LATA PIC 0- calls.
- Assign the Intra-LATA PIC 0+/0- option on the ICF (Inter-LATA Carrier Feature) form. This field is used to represent both Intra-LATA PIC 0+ and Intra-LATA PIC 0- options in 5E9(1) and later. When the ICLATA OPT field is set to "Y", the LEC handles the Intra-LATA PIC 0+/0- calls for the designated carrier. When the ICLATA OPT field is set to "N", the Intra-LATA PIC 0+/0- calls are handled by this FGD carrier. For 5E10, the ICLATA OPT field is split into ZPLUS OPT and ZMINUS OPT fields.

The PTC must be predefined on the ICF form (5305 Record).

The INTRA LATA field does not apply to Intra-LATA PIC calls.

The ICLATA OPT field must be set to "N" when any one of the following conditions is true:

- FEAT GRP is set to "B"
- CARRIER TYPE is "INC"
- CARRIER TYPE is "IC" and ACCESS TYPE is "950" or "T950"
- CARRIER TYPE is "PSEUDO "

NOTE: For 5E9(1) and 5E9(2), in order for 0- calls to route to the RBOC, and 0+ calls to route to an IC's PTC (if populated), the TYPE OF CI CALL on the PDIT form must be "INTRA". The "INTRA" type on PDIT allows 0- calls to route to the RBOC, while TYPE OF CI CALL of "TOLL" on the LDIT form allows the 0+ calls to route to an IC's PTC.

- Assign TYP CI CALL of "TOLL" on the LDIT form. (See Figure 8)
- Assign the conflict resolution on either the LDIT, RDIT, or MLDIT forms and the RAR form.
 - Figure 9 uses the existing conflict resolution between Inter-LATA and Intra-LATA Local conflict, (resolving the conflict to either INTER or INTRA (Local) when the Intra-LATA PIC is activated). TYP CI CALL of "CONFL" can be assigned on either LDIT, RDIT or MLDIT forms; only the LDIT form is shown in Figure 9.
 - Figure 10 uses the LEC to route the call for conflict combination Intra-LATA Local vs. Inter-LATA, Intra-LATA Local vs. Intra-LATA Toll, and Intra-LATA Local vs. Intra-LATA Toll vs. Inter-LATA from Table 1 (when the Intra-LATA PIC is activated): (TYP CI CALL of "TCONF" can be assigned from either LDIT, RDIT, or MLDIT; only the LDIT form is shown in the Figure 10.)
 - Figure 11 uses the Inter-LATA carrier to route the call for the conflict combination Intra-LATA Local

vs. Inter-LATA, Intra-LATA Toll vs. Inter-LATA, and Intra-LATA Local vs. Intra-LATA Toll vs. Inter-LATA, from Table 1 (when the Intra-LATA PIC is activated): (TYP CI CALL of "CONFL" or "TCONF" can be assigned from either LDIT, RDIT, or MLDIT; only the LDIT form is shown in Figure 11.)

- Figure 12 uses the PTC carrier to route the call for the conflict combination Intra-LATA Local vs. Intra-LATA Toll, Intra-LATA Toll vs. Inter-LATA, and Intra-LATA Local vs. Intra-LATA Toll vs. Inter-LATA, from Table 1 (when the Intra-LATA PIC is activated): (TYP CI CALL of "CONFL" and "TCONF" can be assigned from either LDIT, RDIT, or MLDIT; only the LDIT form is used in Figure 12.)

- Assign the PTC for analog lines on the LINE/MLHLN form.
- Assign the PTC for analog lines on the LINEFA form.
- Assign the PTC for ISDN lines on the DSL/DSLUSR form.
- Assign the PTC for the TKGRP form.
- Assign the GROUP PTC on the IDPGP form.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2, 23.8
ICF	5305	3	3R	10.3
IDPGP	5601-4	4	2D	9.10
LDIT	5300	3	3C	9.3
LINE	5109	3	1I	1.5, 1.6
MLDIT	5300	3	3C	9.15
MLHLN	5111	3	1K	1.6
OFCOPT	5509	3	5I	8.1
PDIT	5300-2	3	3B	9.2
RAR	5301	3	3F	10.10
RDIT	5300-7/8	3	3H	9.9
TKGRP	5202	3	2A	5.1

DSLUSR form (5908 Record) - The 5908 Records are used for four major purposes:

1. DSLUSR defines the associated TN(s) and status of a DSL user. The OE field on this form is the field that associates a user with a particular DSL. This DSL is defined on a DSL form (5907-1 Record) in the DSL OE field. These two fields are the only link between a DSL form and a DSLUSR form.
2. DSLUSR defines the circuit switching (voice and data) attributes of a DSL user.
3. DSLUSR defines the D-channel packet switching attributes of a DSL user.
4. DSLUSR defines the On Demand B-channel packet switching attributes of a DSL user.

For 5E9(1) and later, the PTC field was added to support the Intra-LATA PIC Secured Feature.

ICF form (5305 Record) - The 5305 Record is used to define the characteristics of Inter-LATA carriers. For 5E10 the ICLATA OPT field is split into ZPLUS OPT and ZMINUS OPT fields.

For 5E9(1) and later, the ICLATA OPT field was added to support the Intra-LATA PIC Secured Feature.

IDPGP form (5601-4 Record) - The 5601-4 Record defines the options associated with IDPs (Individualized Dialing Plans).

For 5E9(1) and later, the GROUP PTC field was added to support the Intra-LATA PIC Secured Feature.

LDIT form (5300-3 Record) - The 5300-3 and 5300-5 Records are used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Any code from 1 to 15 digits in length may be defined. The LDIT serves as both a "local" and "foreign" area translator.

For 5E9(1) and later, "TCONF" and "TOLL" valid entries were added to the list of valid entries for the TYPE OF CI CALL field to support the Intra-LATA PIC feature.

MLDIT form (5300-5 Record) - The 5300-3 and 5300-5 Records are used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Any code from 1 - 15 digits in length may be defined. The MLDIT serves as both a "local" and "foreign" area translator.

For 5E9(1) and later, "TCONF" and "TOLL" valid entries were added to the list of valid entries for the TYPE OF CI CALL field to support the Intra-LATA PIC feature.

LINE form (5109 Record) - The 5109 Record defines the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch.

For 5E9(1) and later, the PTC field was added to support the Intra-LATA PIC Secured Feature.

MLHLN form (5111 Record) - The 5111-1/2/3 Record, defines the individual Terminal Numbers assigned to a particular MLHG.

For 5E9(1) and later, the PTC field was added to support the Intra-LATA PIC Secured Feature.

OFCOPT form (5509 Record) - The 5509 Record is used to supply various miscellaneous office options and parameters.

For 5E9(1) and later, TOLL CARRIER and ICLATA SCD IND fields were added to support the Intra-LATA PIC Secured Feature.

PDIT form (5300-2) - The 5300-2 Record is used to define the Prefix/Feature Digit Interpreter in a 5ESS Switch. The purpose of PDIT is to provide information defining feature and operator access and to provide prefix information for dialed codes which are analyzed in the LDIT (Local Digit Interpreter Table). Digit analysis for all line originated calls in a 5ESS Switch start in PDIT. At least the first digit of every valid dialable code must be represented in PDIT.

For 5E9(1) and later, "TOLL" was added to the list of valid entries for the TYPE OF CI CALL field to support the Intra-LATA PIC feature.

■ **NOTE:** For 5E9(1) and 5E9(2), in order for 0- calls to route to the RBOC, and 0+ calls to route to an IC's PTC (if populated), the TYPE OF CI CALL on the PDIT form must be "INTRA". The "INTRA" type on PDIT allows 0- calls to route to the RBOC, while TYPE OF CI CALL of "TOLL" on the LDIT form allows the 0+ calls to route to an IC's PTC.

RAR form (5301 Record) - The 5301 Record, is used to define the routing and charging for each Code Index and Screening Index combination in a 5ESS Switch.

For 5E9(1) and 5E9(2), the NONE CONF, ZERO PLUS CONF, and ONE PLUS CONF fields were added to support the Intra-LATA PIC Secured Feature. For 5E10, CONF replaces the NONE CONF, ZERO PLUS CONF, and ONE PLUS CONF fields to support the Intra-LATA PIC feature.

RDIT form (5300-7/8) - The RDIT input form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request.

For 5E9(1) and later, "TCONF" and "TOLL" were added to the list of valid entries for the TYPE OF CI CALL field to support the Intra-LATA PIC feature.

TKGRP form (5202 record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

For 5E9(1) and later, the PTC field was added to support the Intra-LATA PIC Secured Feature. Also for EDSL/PRI Trunk Groups, the DIR CON IC field was added to support the Intra-LATA PIC Secured Feature.

4. GLOSSARY

AC	Automatic Callback
AR	Automatic Recall
ARS	Automatic Route Selection
ASP	Advanced Service Platform
BCLID	Bulk Calling Line Identification
BND	Billing Number Delivery
CAC	Carrier Access Code is the 5-digit prefix 10XXX where XXX is the 3-digit CIC Carrier Identification Code. A new CIC expansion feature was introduced in 5E9(1) that increased the CAC to 7-digit prefix (i.e. 101XXXX) with 4-digit carrier codes.
CDI	Code Index
CI	Carrier Interconnection
CIC	Carrier Identification Code
CPN	Calling Party Number/Billing
EAEO	Equal Access End Office
EAS	Extended Area Service
EDSL	Extended Digital Subscriber Line
FGD	Feature Group D (Equal Access)
ICF	Inter-LATA Carrier Form
ICLATA	Inter-LATA Carrier's Intra-LATA Capability, also same as Intra-LATA PIC

Intra-LATA PIC Intra-LATA Presubscribed Inter-LATA Carrier Capability , also same as ICLATA

IC Inter-LATA Carrier handles Inter-LATA calls dialed via the North American Numbering Plan, and may be allowed to handle Intra-LATA toll calls through the Intra-LATA PIC capability, or Intra-LATA loc calls dialed with a CAC.

IND Indicator

Intra-LATA LOCAL CALLS All Intra-LATA calls that are not defined to be Intra-LATA PIC/Intra-LATA Toll calls are referred to as Intra-LATA Local calls in this document. These calls are carried by the LEC unless dialed with a CAC (Carrier Access Code) for an IC (Inter-LATA Carrier) with approval to carry Intra-LATA calls.

Intra-LATA PIC Inter-LATA Carrier's Intra-LATA Capability described in this document. Also, used synonymously with ICLATA an Intra-LATA toll.

Intra-LATA PIC/Intra-LATA TOLL/TOLL Calls Intra-LATA PIC or Intra-LATA Toll Calls as defined in this document are any Intra-L calls which are open to competition. Usually such calls are inter-s and are not defined by the tariff as a Local Calling Area call or an EAS (Extended Area Service) call. The LEC defines which calls are Intra-LATA PIC/Intra-LATA Toll calls.

LASS Local Area Signalling Service

LATA Local Access and Transport Area is a defined non- overlapping geographical area where an EAEO (Equal Access End Office) and/or AT (Access Tandem) can provide a carrier access to the local exchan

LEC Local Exchange Carrier, the Local Telephone Company th owns the switch, provides the local loop, and serves as the default carrier for Intra-LATA calls.

NPA Numbering Plan Area

ODA Office Data Assembler

ORM Optically Remote Module

PF Private Facility

PIC Presubscribed Inter-LATA Carrier, an IC which handles Inter-LATA calls dialed without a CAC. A PIC can be associated with a line, an IDP (Individualized Dialing Plan) Group, or with the entire office.

PIC2 Presubscribed Intra-LATA PIC/Intra-LATA Toll Carrier

PRI Primary Rate Interface

PTC Presubscribed Intra-LATA Toll Carrier, an IC (or LEC) which handles Intra-LATA toll calls dialed without a CAC. A PTC can be associated with a line, an IDP (Individualized Dialing Plan) group (CENTREX), or with the entire office.

RSM Remote Switching Module

TCAP Transactions Capabilities Applications Part

CURRENT

Intra-LATA PIC

Intra-LATA LEC		Inter-LATA & International *PIC
Intra-LATA LOCAL LEC	Intra-LATA TOLL *PTC	Inter-LATA & International *PIC

* COMPETITION (on a pre-subscription basis)

Figure 1 COMPETITION CATEGORIZATION ON A PRE-SUBSCRIPTION BASIS

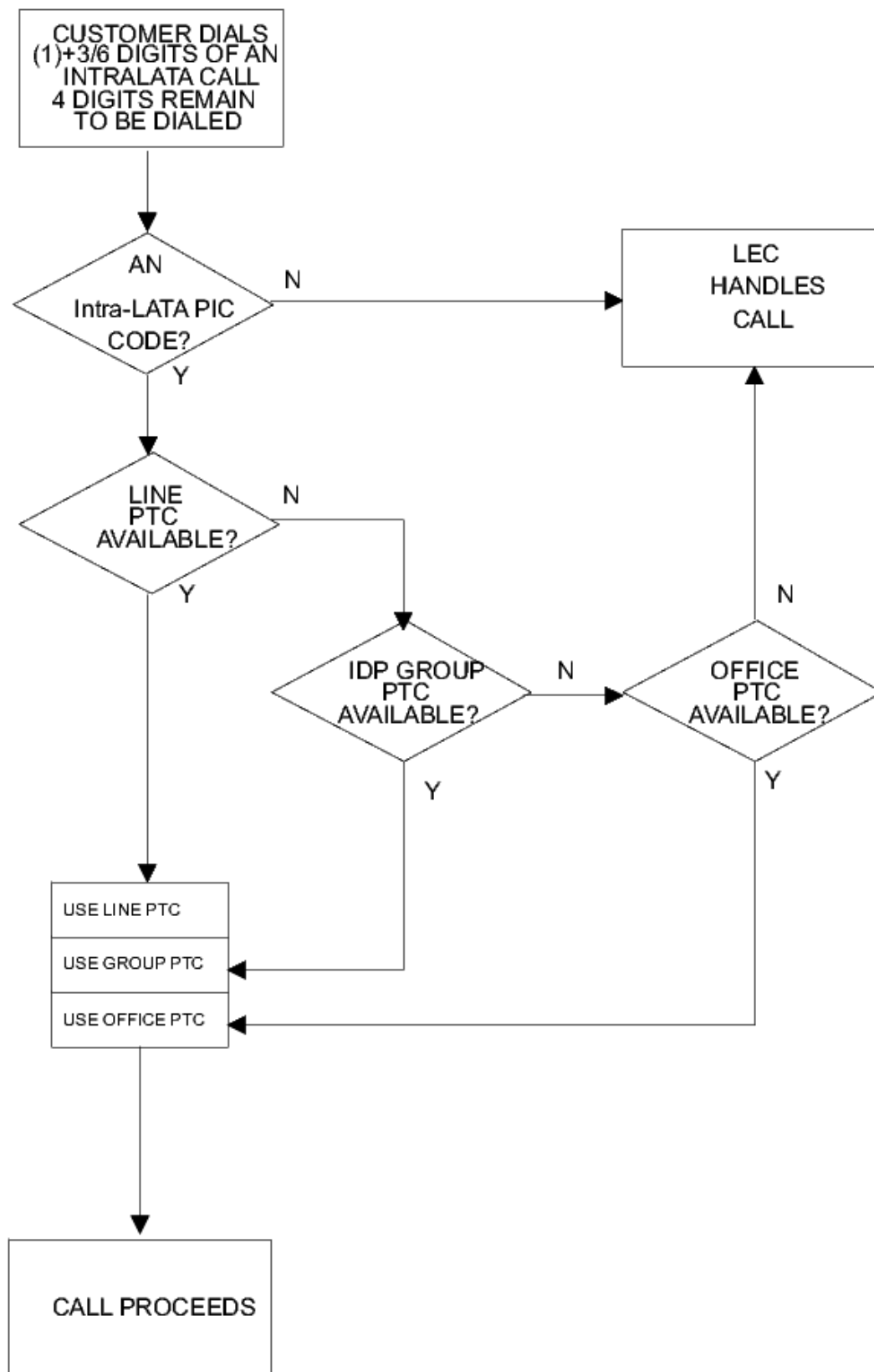


Figure 2 FEATURE FLOW DIAGRAM Intra-LATA PIC DIRECT CALL

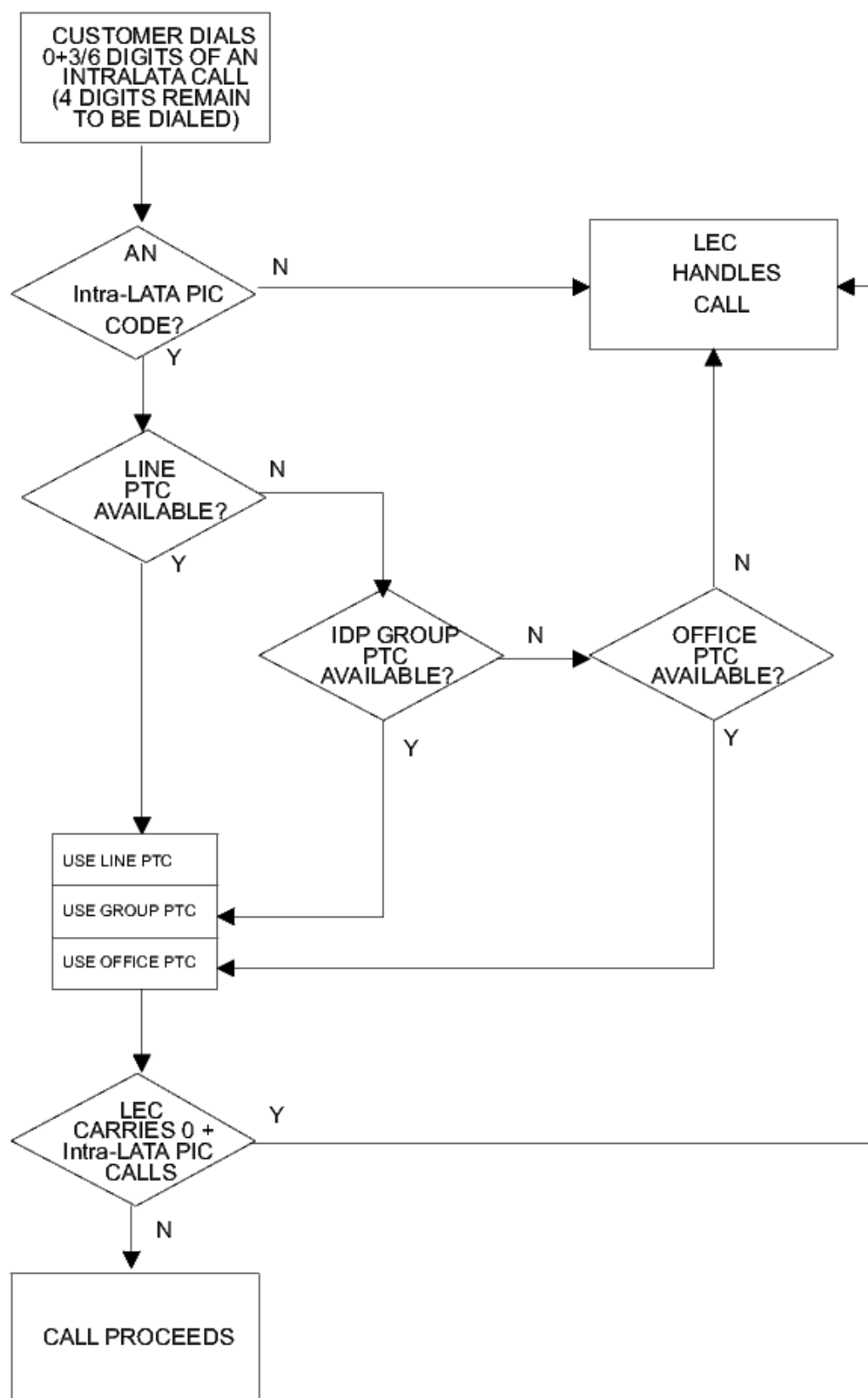


Figure 3 FEATURE FLOW DIAGRAM Intra-LATA PIC 0+ OPERATOR CALL

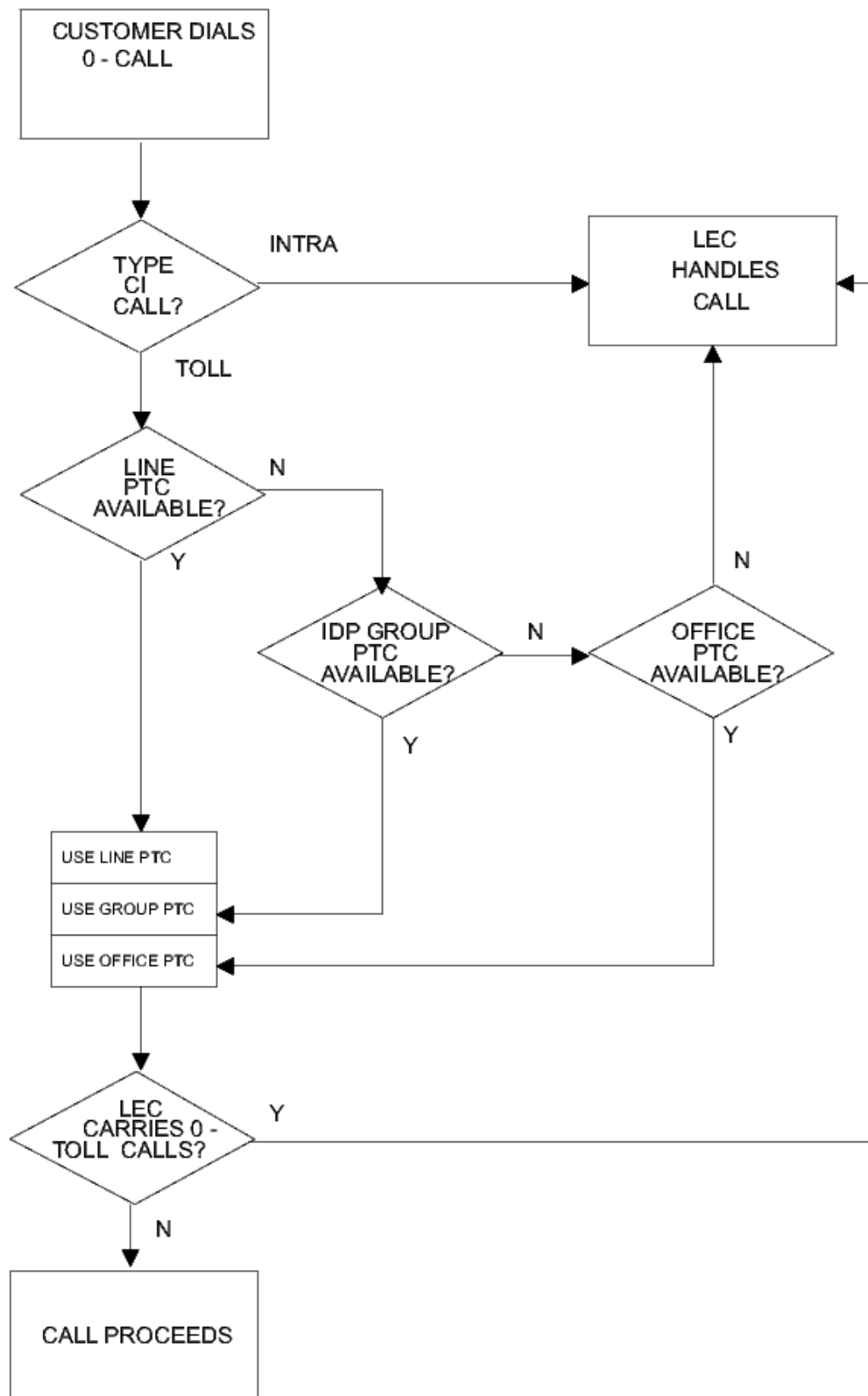


Figure 4 FEATURE FLOW DIAGRAM Intra-LATA PIC 0- OPERATOR CALL

TYPE CI CALL	DIALED CAC	PREFIX	ICLATA CARRIER SELECTION		INTRA LATA	USE CIC	CSI MATCH
			ICLATA OPT (ZMINUS OPT)*	ICLATA OPT (ZPLUS OPT)*			
TOLL	NONE	1+/NONE	-	-	-	PTC	PTC
TOLL	NONE	0+	-	N	-	PTC	PTC
TOLL	NONE	0+	-	Y	-	LEC	N/A
TOLL	NONE	0-	N	-	-	PTC	PTC
TOLL	NONE	0-	Y	-	-	LEC	N/A
TOLL	XXX	1+/NONE	-	-	-	XXX	PTC
TOLL	XXX	0+	-	N	-	XXX	PTC
TOLL	XXX	0+	-	Y	-	LEC	N/A
TOLL	XXX	0-	N	-	-	XXX	PTC
TOLL	XXX	0-	Y	-	-	LEC	N/A
INTER	XXX	-	-	-	-	XXX	PIC
INTER	NONE	-	-	-	-	PIC	PIC
INTRA	XXX	-	-	-	Y	XXX	PIC
INTRA	XXX	-	-	-	N	ANN	N/A
INTRA	NONE	-	-	-	-	LEC	N/A

*Note: In 5E9(1) and 5E9(2), the ICLATA OPT field on the ICF form is the same for both 0- and 0+ calls. With 5E10 and later, the ICLATA OPT field is split into two fields, ZMINUS OPT and ZPLUS OPT. The following is an explanation of the values used for each attribute of the table above:

- TYPE CI CALL
 - TOLL : Intra-LATA Toll
 - INTER : Inter-LATA
 - INTRA : Intra-LATA Local
- DIALED CAC
 - XXX : The user dialed 10XXX or 101XXXX
 - NONE : The user did not dial a CAC
- PREFIX
 - 1+/NONE : The user dialed a call with a 1+ or NONE prefix
 - 0+ : The user dialed a call with a 0+ prefix
 - 0- : The user dialed a 0- call
- ICLATA (ZMINUS) OPT
 - N : Carrier routes the 0- Intra-LATA PIC call
 - Y : LEC routes the 0- Intra-LATA PIC call

- ICLATA (ZPLUS) OPT
 - N : Carrier routes the 0+ Intra-LATA PIC call
 - Y : LEC routes the 0+ Intra-LATA PIC call
- INTRA LATA
 - N : Carrier not allowed to carry Intra-LATA calls
 - Y : Carrier allowed to carry Intra-LATA calls
- USE CIC
 - XXX : Dialed CAC will carry the call
 - PIC : Presubscribed Inter-LATA carrier will carry the call
 - PTC : Presubscribed Intra-LATA Toll carrier will carry the call
 - LEC : Local Exchange Carrier will carry the call
 - ANN : Announcement will be provided
- CSI MATCH
 - PIC : Compare against PIC if CAC dialed to determine CSI
 - PTC : Compare against PTC if CAC dialed to determine CSI
 - N/A : Not Applicable
 - Generally, "-" in a field means it does not matter.

Figure 5 Intra-LATA PIC SELECTION

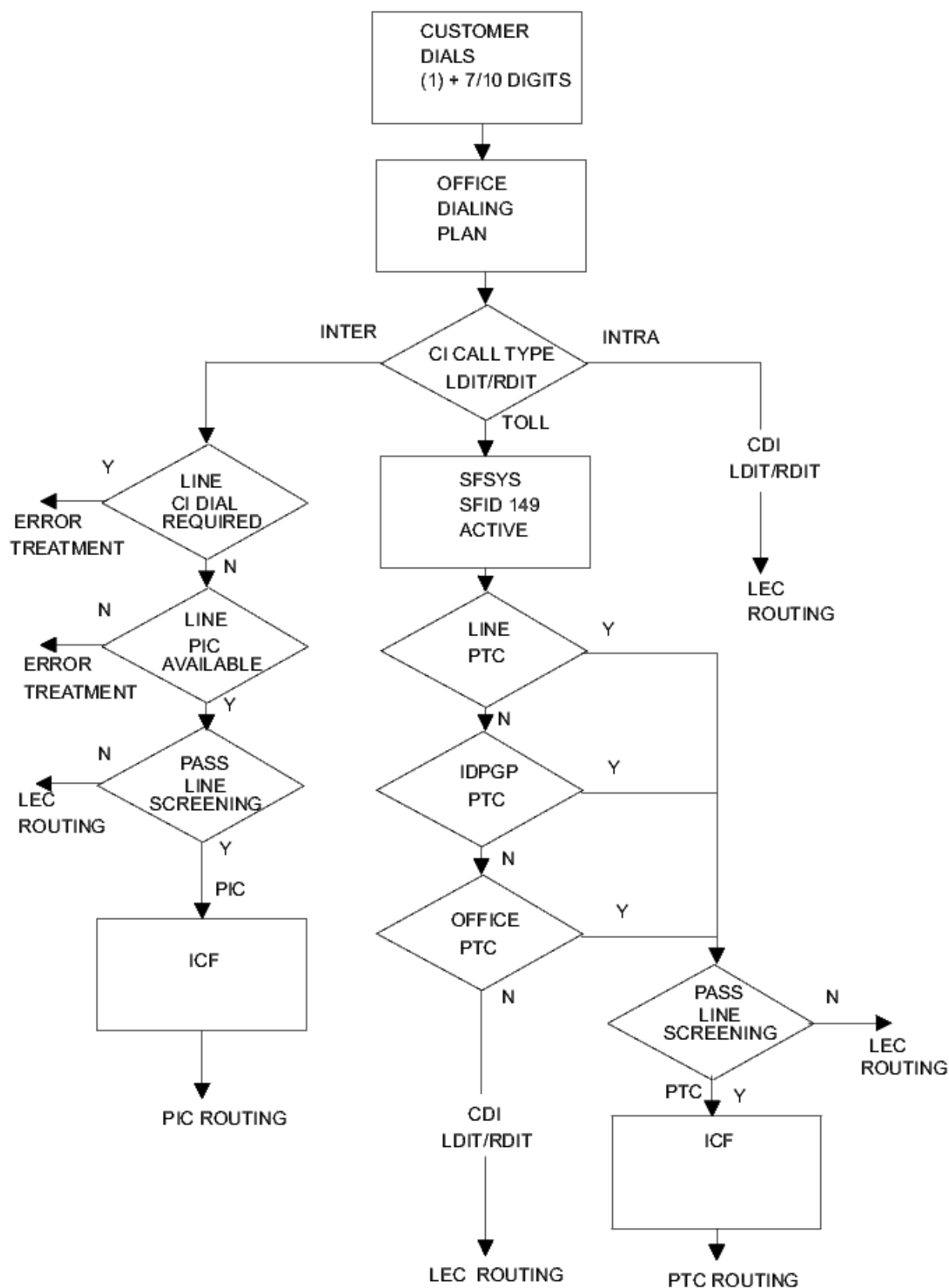


Figure 6 CALL FLOW FOR Intra-LATA PIC (1) + 7/10 DIGIT CALL

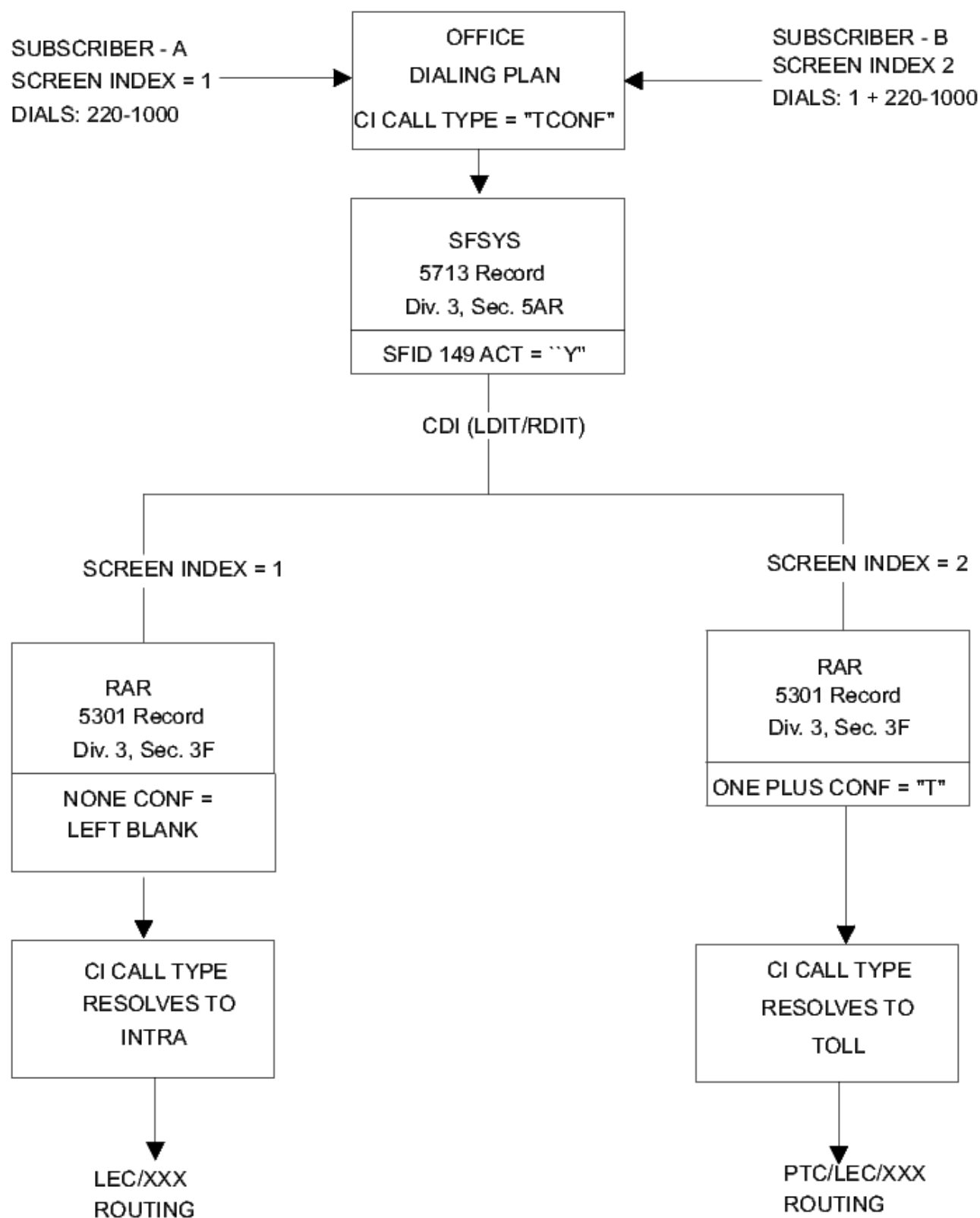


Figure 7 CALL FLOW FOR Intra-LATA PIC CONFLICT FOR Intra-LATA LOCAL AND Intra-LATA TOLL

CALLS

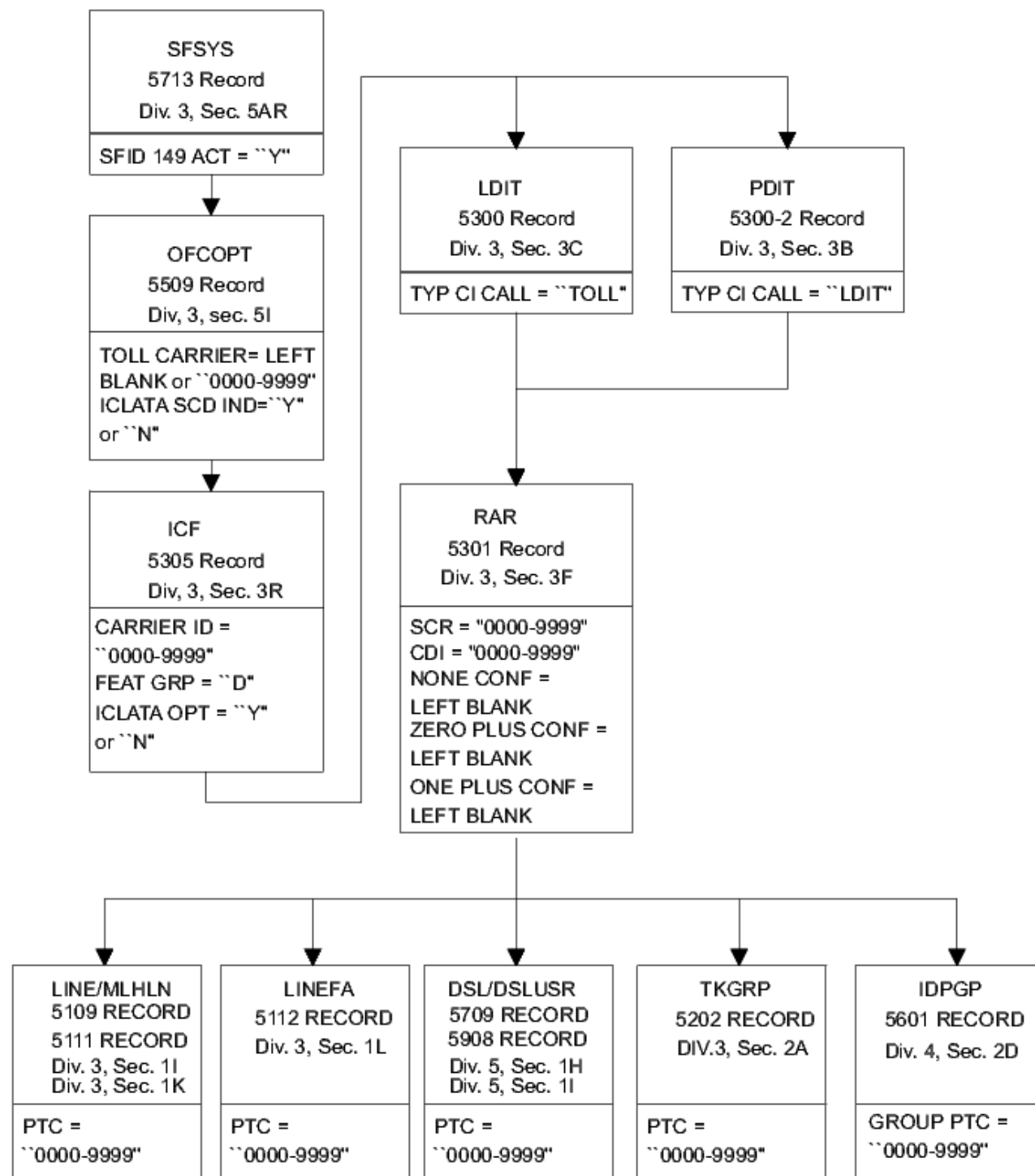


Figure 8 FORM FLOW FOR ASSIGNING Intra-LATA PIC CAPABILITY

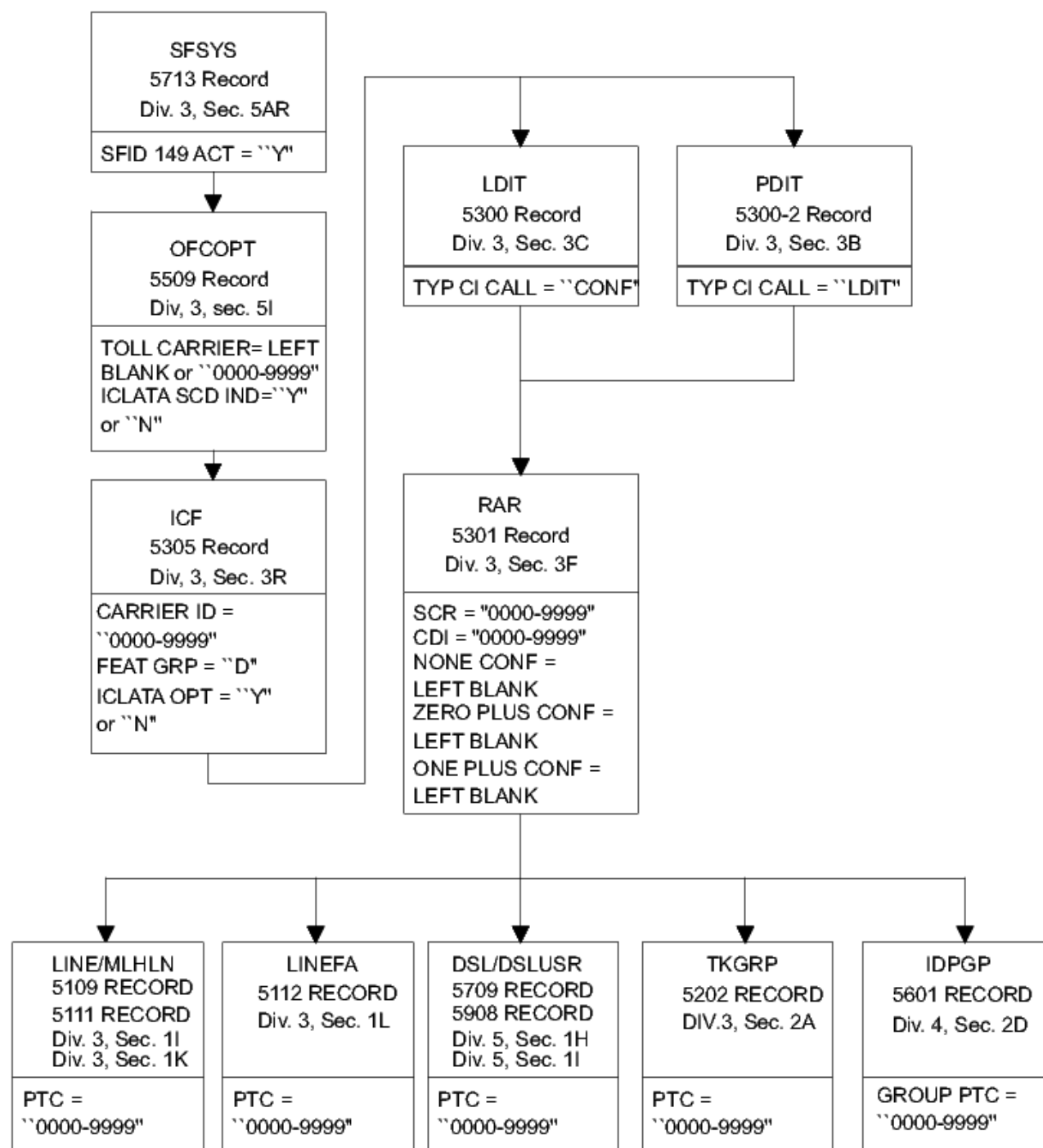


Figure 9 FORM FLOW FOR CONFLICT RESOLUTION USING THE EXISTING CONFLICT RESOLUTION

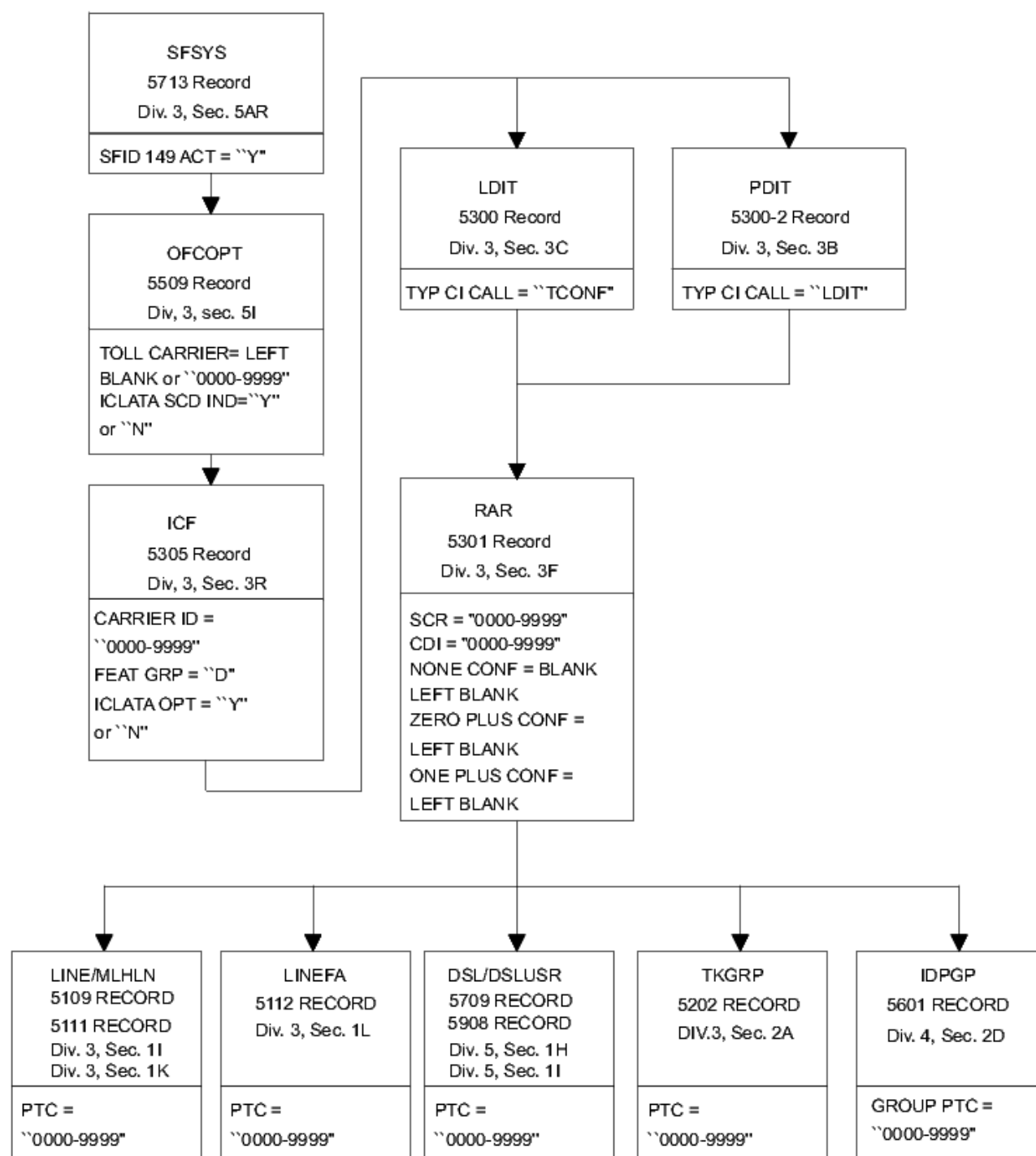


Figure 10 FORM FLOW FOR CONFLICT RESOLUTION USING THE LEC TO ROUTE THE CALL

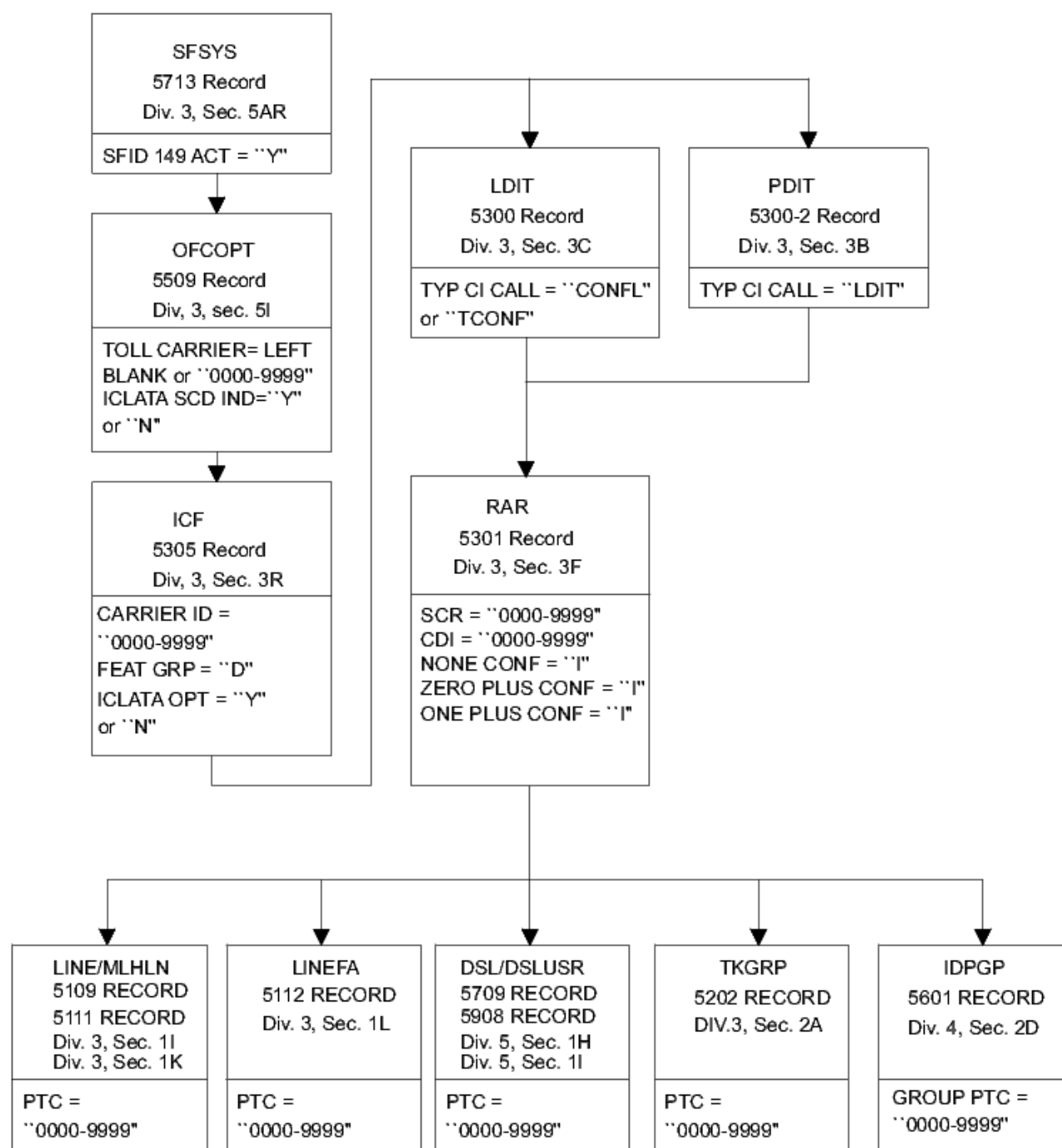


Figure 11 FORM FLOW FOR CONFLICT RESOLUTION USING THE Inter-LATA CARRIER TO ROUTE THE CALL

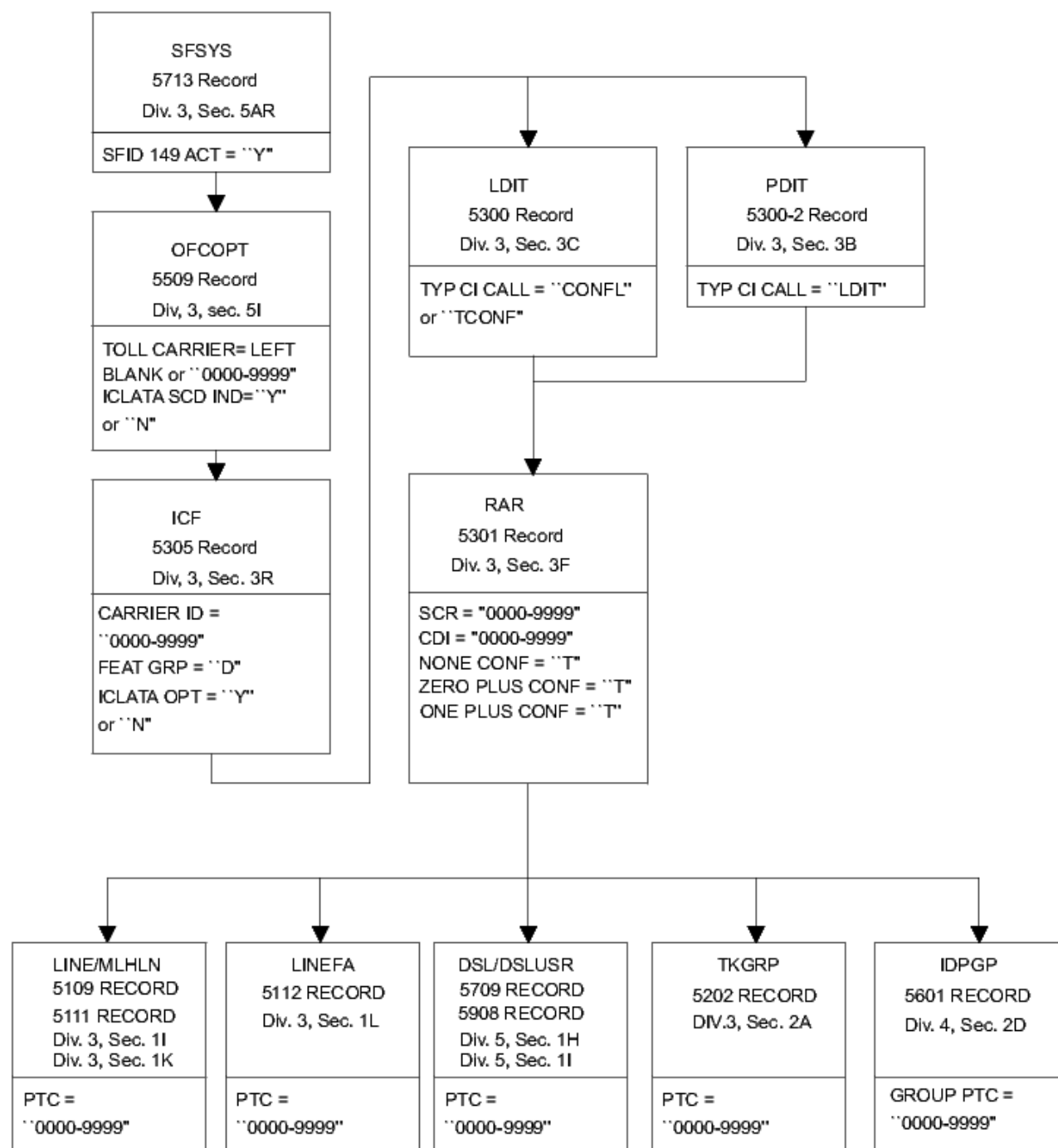


Figure 12 FORM FLOW FOR CONFLICT RESOLUTION USING THE PTC CARRIER TO ROUTE THE CALL

SEC. 4A150: ADDITIONAL ASP OHD INTERACTIONS WITH ACCOUNT CODE AND CPN/BN

1. BACKGROUND

As implemented in 5E9(1), ASP (Advanced Services Platform) Release 0.1B feature prohibited the assignment

of BRCS features and an OHD (Off-Hook Delay) trigger to the same line. SCN (Service Circuit Node) services were not allowed on the same line as an OHD trigger. The ASP Interworking with National ISDN and ISAT secured feature (SFID 139) and the ASP OHD BRCS Interworking secured feature (SFID 137) provide the ability to assign an OHD trigger to a National ISDN station and the ability to assign several BRCS features to an analog or National ISDN station concurrently with an ASP OHD trigger.

2. FEATURE DESCRIPTION

The Additional ASP OHD (Off-Hook Delay) Interactions with Account Code and CPN/BN (Calling Party Number/Billing Number) feature is a secured feature using SFID (Secured Feature ID) 150 and must be purchased before being activated. The feature number for this feature is 99-5E-2477.

Available with 5E9(1) and later, the Additional ASP OHD Interactions with Account Code and CPN/BN secured feature is necessary to provide a variety of SCN services. This feature allows an Account Code, Calling Party Number/Billing Number Delivery or RND (Redirecting Number Delivery) feature to be assigned to a line that is also assigned an ASP OHD trigger.

This feature is in addition to the ASP Interworking with National ISDN and ISAT and ASP OHD BRCS Interworking secured features that assign BRCS features to an analog or National ISDN station concurrently with an ASP OHD trigger. For more information on these features, see Division 2, Section 4A137 and Division 2, Section 4A139, respectively. This feature is not dependent upon either of the above mentioned interworking features. However, the ASP Interworking with National ISDN and ISAT secured feature must be activated in order to provision an ASP OHD trigger on an NISDN line.

2.1 Feature Interaction

When a line is assigned an Account Code feature and also has an ASP OHD trigger, the account code feature may be invoked by dialing an Account Use dialed code or pressing an Account Code feature button. The user is prompted to enter an account code and a valid number of Account Code digits. If the user dials additional digits, the digits are collected and the OHD trigger causes an Info_Collected query message to be sent to the SCP (Service Control Point). If no additional digits are dialed after the account code is entered, the query will not be sent. The only exception to this scenario is the case in which the Account Code use code is associated with a valid digit pattern (which would ordinarily encounter the OHD trigger if dialed from the line) in the Account Code Association table. In this case the digits in the Account Code Association table are analyzed and the Info_Collected query sent to the SCP.

If an Account Code is to be used for a line that has an OHD feature assigned and active, the OHD trigger provisioned for the line is active, and the trigger's administration status is unlocked, the Account Code procedures must be invoked before address digits are collected. Once address digits are collected, the OHD trigger will cause an Info_Collected query to be launched and the user will not be prompted for an Account Code.

For example, assume line A has an AMA (Automatic Message Accounting) restricted account code group, and account code and ASP OHD features assigned. When user A dials a DN (Directory Number) that would result in a billable call, the OHD trigger will cause an Info_Collected query to be sent to the SCP. The user is not prompted to enter an account code.

This contrasts to the case in which the ASP OHD feature is not assigned to the line. Assume line B has an AMA restricted account code group and an account code feature assigned. When user B dials a directory number that would result in a billable call, the user is prompted to enter an account code.

Account code digits will not be included in the query message to the SCP.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields for this feature.

This feature is a secured feature and is activated by setting the SFID 150 ACT field to "Y" on the SFSYS form (5713-1 Record). Before activating this feature, the base 5E9(1) ASP Release 0.1B feature must be activated by setting the SFID 126 ACT field to "Y" on the SFSYS form.

4. GLOSSARY

AMA	Automatic Message Accounting
ASP	Advanced Services Platform
BRCS	Business and Residential Customer Services
CPN/BN	Calling Party Number/Billing Number
DN	Directory Number
ISAT	ISDN Attendant
OHD	Off-Hook Delay
RND	Redirecting Number Delivery
SCN	Service Circuit Node
SCP	Service Control Point

SEC. 4A151: PROTOCOL MONITORING TRANSLATOR FOR NATIONAL ISDN

1. FEATURE DESCRIPTION

The feature number for the Protocol Monitoring Translator for National ISDN (Integrated Services Digital Network) feature is 99-5E-1539. This feature is controlled by SFID (Secured Feature ID) 151 and is deployed in a Software Update for the 5E9(1) and 5E9(2) Software Releases.

The NI (Network Interconnect) Protocol Translator capability is dependent on the AM Based Protocol Monitor Translator feature (feature number 99-5E-0796, SFID 32).

The Protocol Monitoring Translator for National ISDN feature allows the 5ESS Switch to translate messages and message components which were introduced by the National ISDN Protocol changes. In addition, triggering of Protocol Monitoring sessions on new NI messages is now possible.

New Q.931 message translation and triggering capability includes:

Codeset 0 (CCITT Encoding) Messages:

USER INFORMATION
SUSPEND REJECT
RESUME REJECT
HOLD

SUSPEND
RESUME
HOLD ACKNOWLEDGE
SUSPEND ACKNOWLEDGE
RESUME ACKNOWLEDGE
HOLD REJECT
RETRIEVE
RETRIEVE ACKNOWLEDGE
RETRIEVE REJECT
SEGMENT
FACILITY
REGISTER
FACILITY ACKNOWLEDGE
NOTIFY
FACILITY REJECT
CONGESTION CONTROL

Codeset 6 (Network-Specific Encoding) Messages:

KEY HOLD
KEY RELEASE
KEY SETUP
KEY SETUP ACKNOWLEDGE

New Q.931 Information Element translation capability:

Codeset 0 (CCITT Encoding) Information Elements:

Segmented Message
Connected Number
Extended Facility
Call Identity
Standard Facility
Notification Indicator
Display
Information Request
Standard Feature Activation
Standard Feature Indication
Standard Service Profile ID
Standard Endpoint ID
Precedence Level Information
Connected Number
Connected Subaddress
Calling Party Subaddress
Called Party Subaddress
Redirecting Number
Redirection Number
Low-Layer Compatibility
Hi-Layer Compatibility

Codeset 5 Information Elements:

Operator System Access
Standard Display

Codeset 7 Information Elements:

Standard Call Appearance

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT fields for SFIDs 32 and 151 on the SFSYS form (5713-1 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 32 and 151 to "Y".

SEC. 4A152: ADVANCED SERVICES PLATFORM 3/6/10 DIGIT TRIGGER PRE-QUERY SCREENING

1. FEATURE DESCRIPTION

ASP (Advanced Services Platform) 3/6/10 Digit Trigger Pre-Query Screening is a secured feature using SFID (Secured Feature ID) 152 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-2848.

Available with 5E9(1) and later, the ASP 3/6/10 Digit Trigger Pre-query Screening feature provides the ability to screen 3/6/10 digit triggers and inhibit the query to the SCP (Service Control Point) if the trigger fails screening. It is applicable to both AIN (Advanced Intelligent Network) Release 0 and AIN Release 0.1 protocol triggers.

When a 3/6/10 digit trigger is encountered as the first trigger on a call, it is screened using the information on RAR (Rate and Route) form referenced using the SCR (Screening Index) of the originating facility, the dialed or impulsed prefix (NONE, 0+ or 1+) and the CDI (Code Index) derived from the translation of the dialed number.

The 3/6/10 digit trigger will pass screening if the referenced SCREENING DATA entry either does not exist or contains one of the following:

- RTI is "REGL" on the RAR form (5301 Record)
- RTI on the RAR form matches the RTI from the translation of the 3/6/10 digit DN in the Office Dialing Plan

- OFFCOD on the RAR form matches the OFFCOD from the translation of the 3/6/10 digit DN in the Office Dialing Plan

For all other cases, the 3/6/10 digit trigger will fail screening.

If the 3/6/10 digit trigger passes screening, the call proceeds as an ASP call, and the ASP query is sent to the SCP. If it fails screening, no query is sent, the call proceeds as a non ASP call, and the call is routed via the RTI or OFFCOD specified by the SCREENING entry.

Note that the dialed or derived carrier is not used either in screening the 3/6/10 digit trigger or in routing the call if it fails screening.

Screening is done for 3/6/10 digit triggers encountered as the first trigger on any of the following originations:

- All line originations currently allowed to encounter a 3/6/10 digit trigger
- Extended Digital Subscriber Line (EDSL and EDSLHM)
- Private Facility Trunks (PF, PFITT, PFLASH)

Screening is not done in any of the following cases:

- For originations other than those listed above
- For a 3/6/10 digit trigger detected as a subsequent trigger on a call
- For a 3/6/10 digit trigger detected in routing an SSP800 call
- For a 3/6/10 digit trigger DN collected after an FCD (Feature Code Dialing) trigger or CDP (Custom Dialing Plan) trigger.
- For a 3/6/10 digit trigger DN collected after an Off Hook Delay Trigger, unless the 3/6/10 digit trigger specifies escape.
- For originations with Type of CI Call of "TCONF" when Option ID 743 (Pre-Query Swreening for Type of CI' Call TCONF) is not active.

2. FEATURE ASSIGNMENT

There are no new forms or new fields for this feature. The only translation needed to enable this feature is to set the SFID 152 ACT field to "Y" on the SFSYS form (5713-1 Record).

If the feature is not enabled, 3/6/10 digit triggers will not be screened pre-query which is consistent with the existing functionality.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. SFID 152 must have the field ACT set to "Y" to enable the feature.

SEC. 4A153: ASP DEFAULT ROUTING FOR 3/6/10 DIGITS

1. FEATURE DESCRIPTION

The feature number for the ASP (Advanced Services Platform) Default Routing for 3/6/10 digits is 99-5E-2533. This secured feature (SFID 153) is available for 5E9(1) and later Software Releases. The feature allows calls that initiate an AIN (Advanced Intelligent Network) 3/6/10-digit query and encounters failures in the response to provide default routing to the dialed DN (Directory number) or the 13A announcement. The type of default routing provided will be provisioned via the use of a new field DFLT RT which will be defined on each form where a 3/6/10-digit trigger can be defined.

When the 5ESS-2000 Switch encounters a 3/6/10-digit trigger, an ASP TCAP (Transaction Capabilities Application Part) query is sent to an SCP (Service Control Point). If a fatal protocol error or an application error is detected in the response, or the response is not received prior to the ASP global timer expiring, then current 5ESS-2000 Switch operations will route the call to reorder.

When ACG (Automatic Call Gapping) is active, the call will be routed to an NCA (No Circuits Available) announcement.

When an error is encountered in the response to a 3/6/10-digit query or ACG is active, the provisioned trigger data is checked to determine whether default routing applies. Default routing treatment will allow the call to be routed to the dialed number, provided the number is a valid number in the Public Office Dialing Plan, or to an office-wide 13A announcement.

The default routing options are:

- None. No default routing applies. Existing error treatment will be provided.
- Dialed DN. Route the call to the dialed 3/6/10-digit trigger directory number.
- Announcement. Route the call to the ASP 3/6/10-digit Trigger Default Routing 13A announcement.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 153 is set to "Y" on the SFSYS form.

When the feature has been enabled, ASP DEFAULT ROUTING for 3/6/10 can be provisioned on the PDIT form (5300-2 Record), LDIT form (5300-3 Record), IDDD form (5307 Record), RDIT form (5300-7a Record), or the MLDIT form (5315 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
PDIT	5300-2	3	3B	9.2
LDIT	5300-3	3	3C	9.3
IDDD	5307	3	3T	9.6

RDIT	5300-7A	3	3H	9.9
MLDIT	5315	3	3AB	9.15

SFSYS form (5713-1 Record) - This form is used to activate secured features. The following secured feature SFID 153 should be set to "Y" to activate this feature.

PDIT form (5300-2 Record) - The purpose of PDIT is to provide information defining feature and operator access and to provide prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table).

LDIT form (5300-3/5 Record) - This form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

IDDD form (5307 Record) - This form is used for IDDD (International Direct Distance Dialing) Country Access Codes.

RDIT form (5300-7/8 Record) - The RDIT form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request.

MLDIT form (5300-3 Record) - This form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch.

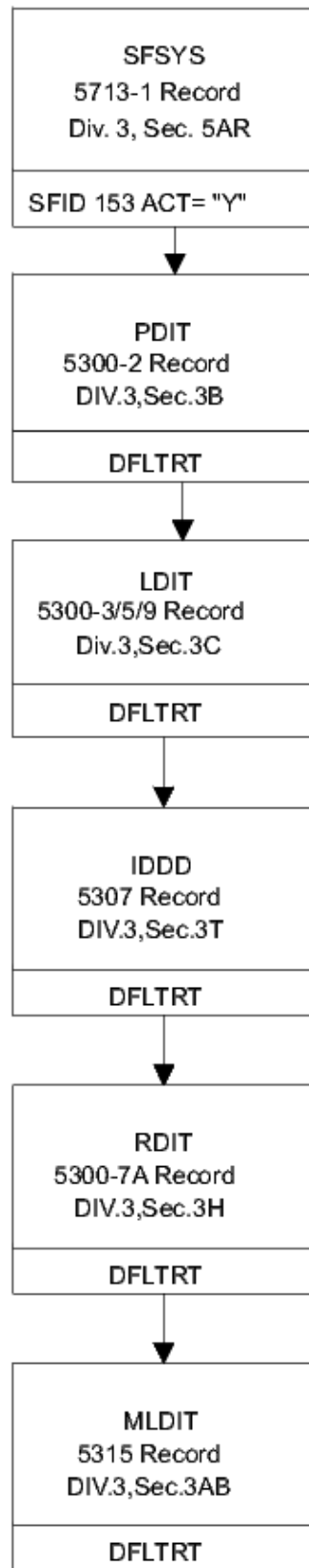


Figure 1 FORM FLOW FOR ASP DEFAULT ROUTING FOR 3/6/10 DIGITS**SEC. 4A154: TOLL CONNECTING ROUTING AND BILLING FEATURE****1. FEATURE DESCRIPTION**

The Toll Connecting Routing and Billing feature is a secured feature (SFID 154) and must be purchased before being activated. The feature number for this feature is 99-5E-2851.

Available with 5E9(1) and later, this feature provides a means of accepting SS7 (Signaling System 7), FGD (Feature Group D) signaling, or EAMF (Equal Access Multifrequency) signaling from an EAEO (Equal Access End Office) or AT (Access Tandem) switch and to switch the traffic to an IC (Interexchange Carrier) for completion.

An example of this configuration is:

EAEO —>> AT—>> Service Provider —>> IC

Control of the feature operation is based on trunk groups having a trunk class of "TTOLLCON" and the office having SFID 154 activated.

Specifically this feature provides the following:

- Routes an incoming SS7 IAM (Initial Address Message) containing the 10 digit called number, the ANI (Automatic Number Identification), and the OLI (Originating Line Identity) or an incoming EAMF trunk to either an SS7 outgoing group to an IC or an EAMF group to an IC. The called number, ANI, and OLI are passed to the IC. Routing is based on the called number. No carrier ID (Identification) is received from the LEC (Local Exchange Carrier). Any routing that is needed and is based on the carrier ID must be done with separate trunk groups for each carrier from the LEC.
- Routes an incoming SS7 IAM containing an international destination, an ANI, an OLI, and a TNS (Transit Network Selection) (containing carrier ID and circuit code) or an incoming EAMF international call to an SS7 outgoing group, to an IC, or to an EAMF group to an IC. The called number, ANI, OLI, and carrier ID/circuit code information will be passed to the IC with the appropriate signaling.
- Routes 0+, 0- calls received on an SS7 or EAMF incoming group to either an SS7 outgoing group or EAMF outgoing group. 0+ calls are routed the same as non operator requested calls. If 0+ and 1+ calls are to be separated for the IC, they must be separated from the LEC on two trunk groups.
- Records FGDOL (Feature Group D Originating LATA) AMA (Automatic Message Accounting) records on calls received on "TTOLLCON" trunk classes. The FGDOL record will be populated with information available to the call, that is, not all tables will be populated as they would be at an EAEO. The AMA record will not contain the carrier ID because it is not signaling from the LEC. Operator information will not be stored, all calls will be marked as 1+ calls. The carrier ID will be recorded if it is received from the LEC.

For the specific case of an EAMF call where the tandem cuts through after the first stage of digits (0ZZ-XXX or 1NX-XXX-CCC), the AMA record will not contain the ANI or the dialed number.

- Handles the CRM (Circuit Reservation Message) from the LEC indicating MF-SS7 interworking in the LEC network. Before this feature the message was only handled for trunk groups with a trunk class of "LATA".

2. FEATURE ASSIGNMENT

To enable this feature, SFID 154 must have the field ACT set to "Y" on the SFSYS form. This feature becomes assigned to any trunk group with a "TTOLLCON" trunk class when SFID 154 is activated. This feature does not change any existing capabilities of trunk groups with a "TTOLLCON" trunk class.

Specific translations are needed to provide the capabilities outlined under the feature description section. These translations are specific to the Toll Connecting and Routing Billing Feature.

2.1 Routing 10 - Digit Incoming 0+ and 1+ Calls

To route 10 - digit incoming 0+ and 1+ calls, the following translations are needed. The indication of 0+ or 1+ is contained in the SS7 IAM Called Party number Nature of Address field and is not used by the 5ESS Switch but is passed on. (See Figure 1)

- TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Set TRKCLS to "TTOLLCON".
- DAS form (5300-1 Record) - This form is used to associate the translation environment for the incoming trunk group with trunk class "TTOLLCON". The DAS is obtained from the Trunk Group (5202-1 Record).
- INDIT form (5309 Record), LDIT (5300-3/5 Record) - These forms are used to translate called digits. At a minimum digits 2 through 9 must be populated to handle all NPAs (Numbering Plan Area) in the NANP (North American Numbering Plan). Calls may be routed directly from the INDIT using a TYPE OF CI CALL set to "NONCI", NBR OF DIGITS EXPECTED set to 10, and an appropriate ROUTE INDEX set to an SS7 or EAMF trunk group. Calls may also be routed using the LDIT with CALL TYPE set to "NORMAL", and TYPE OF CI CALL set to "NONCI".
- RAR form (5301 Record) - All calls are handled by setting the PFX field to "NONE". The SCR is obtained from the Trunk Group Record and the CODE INDEX is obtained from the INDIT or LDIT record.
- RTIDX form (5303 Record) - The route index used to derive the outgoing trunk group must be set up correctly for SS7 or MF signaling. For SS7 signaling, the SIGNALING PROTOCOL must be "TRAD". The SS7 parameters such as calling party number, charge number, and originating line information will then be passed by the 5ESS Switch. For EAMF signaling trunks, the SIGNALING PROTOCOL must be "EA", or CI ROUTE TYPE must be "DTG", and ANI OUTPUTSING must be "Y" in order to send the ANI to the next switch.

2.2 Routing International Calls

Both international DDD (Direct Distance Dialing) calls, and operator assisted calls are handled using existing 5ESS Switch AT (Access Tandem) capabilities. The indication of direct dialed versus operator assisted is contained in the Circuit Code field of the SS7 IAM Transit Network Selection parameter. The following translations are needed to route international calls. (See Figure 2)

- CKTCODE form (5311 Record) - This form is used to convert the Circuit Code contained in the SS7 IAM Transit Network Selection parameter to the equivalent 1NX code used for EAMF international signaling. Typically, CKT CODE equal to 1 yields DIG equal to 138, and CKT CODE equal to 2 yields DIG equal to 158.
- DAS form (5300-1 Record) - This form is used to associate the translation environment for the incoming trunk group with trunk class "TTOLLCON". The DAS is obtained from the TKGRP form (5202-1 Record).

- INDIT form (5309 Record) - This form is used to map 138 or 158 to the correct call type. For INCOMING DIGITS equal to 138 or 158, TYPE OF CI CALL must equal "INC", NBR OF DIGITS EXPECTED is equal to 9 (this correlates to the MF 1NX-XXX-CCC signaling sequence.), LDIT is equal to "N", and a valid CODE INDEX must be populated.
- CDIM form (5300-6 Record) - This form is used to route the international call to the correct trunk group. The CODE INDEX is from the INDIT, and the CARRIER ID is from the SS7 IAM Transit Network Selection parameter. The CARRIER CDI (Code Index) and CARRIER RI (Route Index) are used in conjunction with the SCR field from the incoming TKGRP form to route the call.
- RAR form (5301 Record) - International calls are handled by setting the PFX field to "NONE". The SCR value is obtained from the TKGRP Record and the CODE INDEX is obtained from the CDIM record.
- RTIDX form (5303 Record) - The route index used to derive the outgoing trunk group and is obtained from the CDIM record and must be set up as follows: the SIGNALING PROTOCOL must be "INC", CI ROUTE TYPE must be "DTG", and ANI OUTPUTSING must be "Y" in order to send the ANI to the next switch.

2.3 Routing 0- Calls

To handle 0- calls, the following translations are needed. Since no digits are received in the SS7 IAM, the 5ESS Switch inserts the digit 0 prior to performing digit analysis for SS7 calls which are marked Nature of Number equal to No Number Present, Operator Requested. Digit analysis is then performed on the digit 0. (See Figure 3)

- TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Set TRKCLS to "TTOLLCON".
- DAS form (5300-1 Record) - This form is used to associate the translation environment for the incoming trunk group with trunk class "TTOLLCON". The DAS is obtained from the TKGRP Record (5202-1).
- INDIT form (5309 Record) - This form is used to route 0- calls with the following information: INCOMING DIGITS equal to 0, TYPE OF CI CALL equal to "NONCI", NBR OF DIGITS EXPECTED equal to 1, NBR OF DIGITS TO BE DELETED equal to 1, and the appropriate ROUTE INDEX and CODE INDEX.
- RAR form (5301 Record) - In this configuration, 0- calls are handled by setting the PFX field to "NONE". The SCR is obtained from the TKGRP form and the CODE INDEX is obtained from the INDIT form.
- RTIDX form (5303 Record) - The route index used to derive the outgoing trunk group must be set up correctly for SS7 or MF signaling.
 - For SS7 signaling, the SIGNALING PROTOCOL must be "TRAD". The SS7 parameters, such as calling party number, charge number, and originating line information will be passed by the 5ESS Switch.
 - For EAMF signaling trunks, the SIGNALING PROTOCOL must be "EA", CI ROUTE TYPE must be "DTG", and ANI OUTPUTSING must be "Y" in order to send the ANI to the next switch.

2.4 Generating AMA Records

AMA Records are generated for this feature provided that the Charge Index derived from the Rate and Route

form yields a valid AMA type. In order to discriminate between calls from various trunk groups, the trunk group SCR index may be used to obtain a different charge index via the RAR Record. An Alternate Service Feature Code may be used on each Charge Index to indicate different trunk groups.

- CGIDX form (5302-1 Record) - This record is used to generate an AMA record. The CHARGE INDEX is obtained from the RAR form (5301 Record) for the call. The AMA CALL TYPE must be "FGDOL" in order to generate a Feature Group D Originating LATA AMA Record .

2.5 Circuit Reservation Message Translations

No specific translations are needed to handle the SS7 Circuit Reservation Message.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable the feature for the operating company. SFID 154 must have the field ACT set to "Y" to enable the feature.

4. GLOSSARY

AMA - Automatic Message Accounting

CDI Code Index

CRM Circuit Reservation Message

DDD Direct Distance Dialing

EAEO Equal Access End Office

EAMF Equal Access Multifrequency

FGD Feature Group D

FGDOL Feature Group D Originating LATA

IAM Initial Address Message

IC Interexchange Carrier

LATA Local Access And Transport Area

LEC Local Exchange Carrier

MF Multi-Frequency

NANP North American Numbering Plan

NPA Numbering Plan Area

OLI Originating Line Identity

SFID	Secured Feature ID
SS7	Signaling System 7
TNS	Transit Network Selection

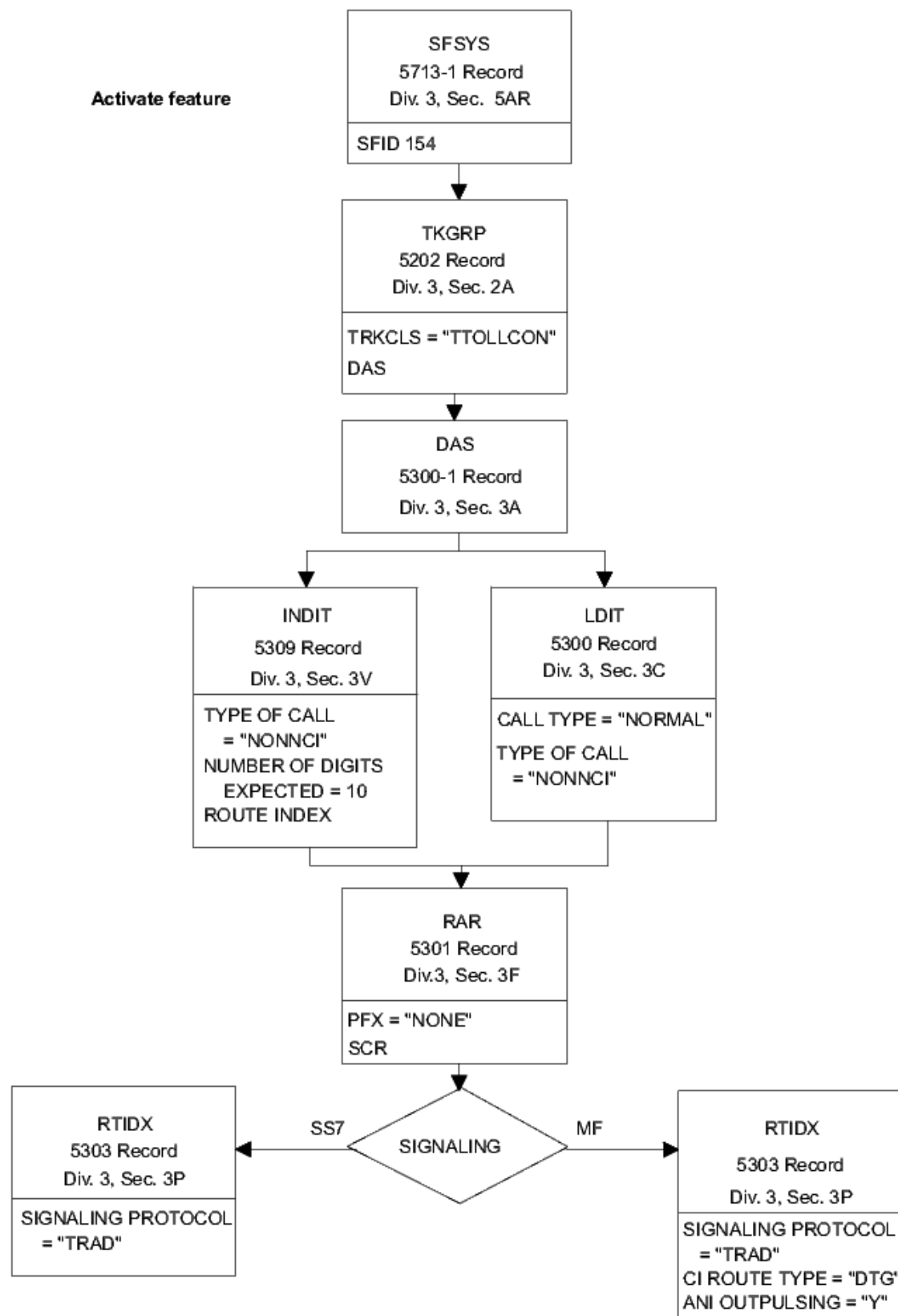


Figure 1 FORM FLOW FOR ROUTING INCOMING SS7 IAM CONTAINING 10 DIGIT CALLED NUMBERS

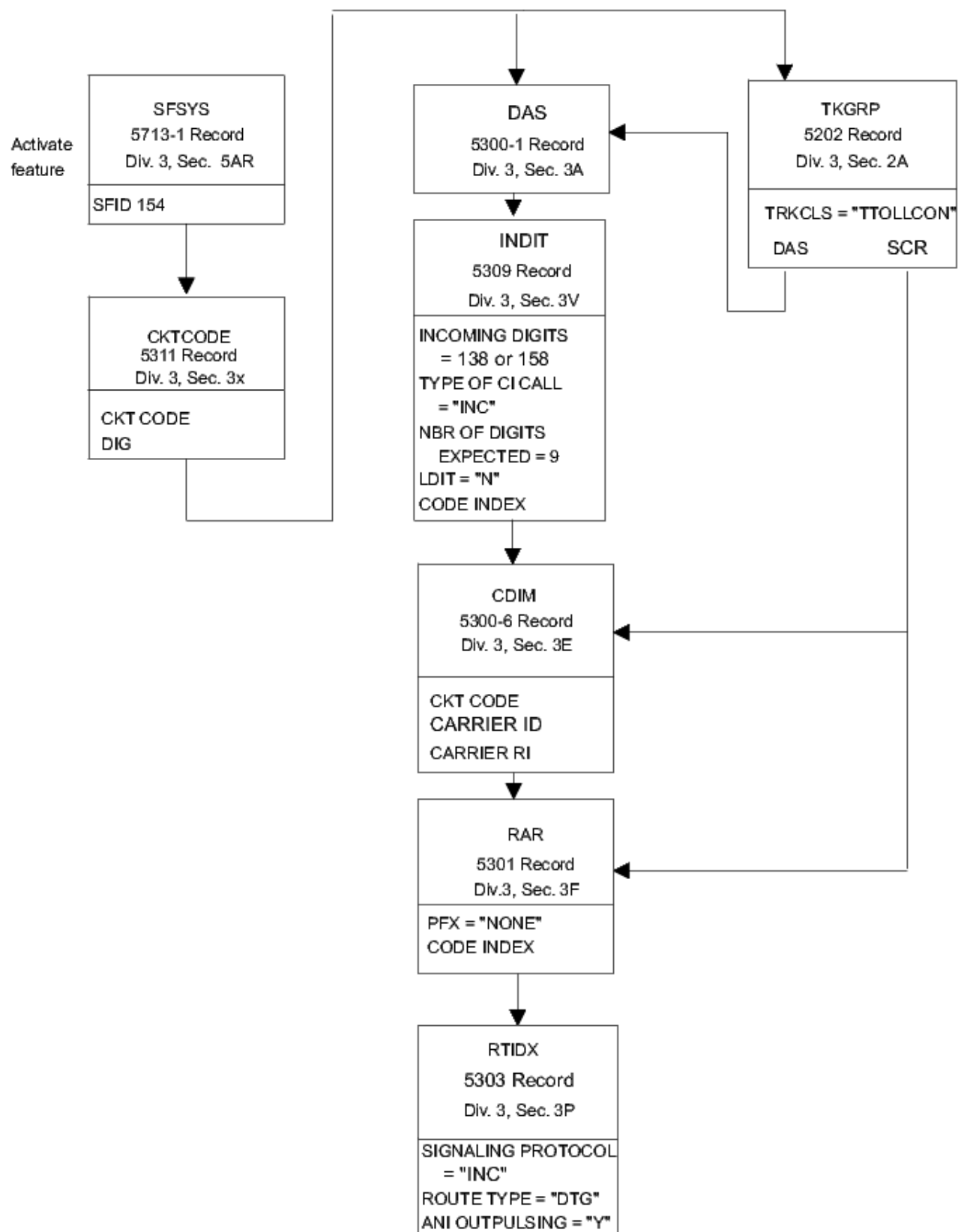


Figure 2 FORM FLOW FOR ROUTING INCOMING SS7 IAM CONTAINING AN INTERNATIONAL DESTINATION

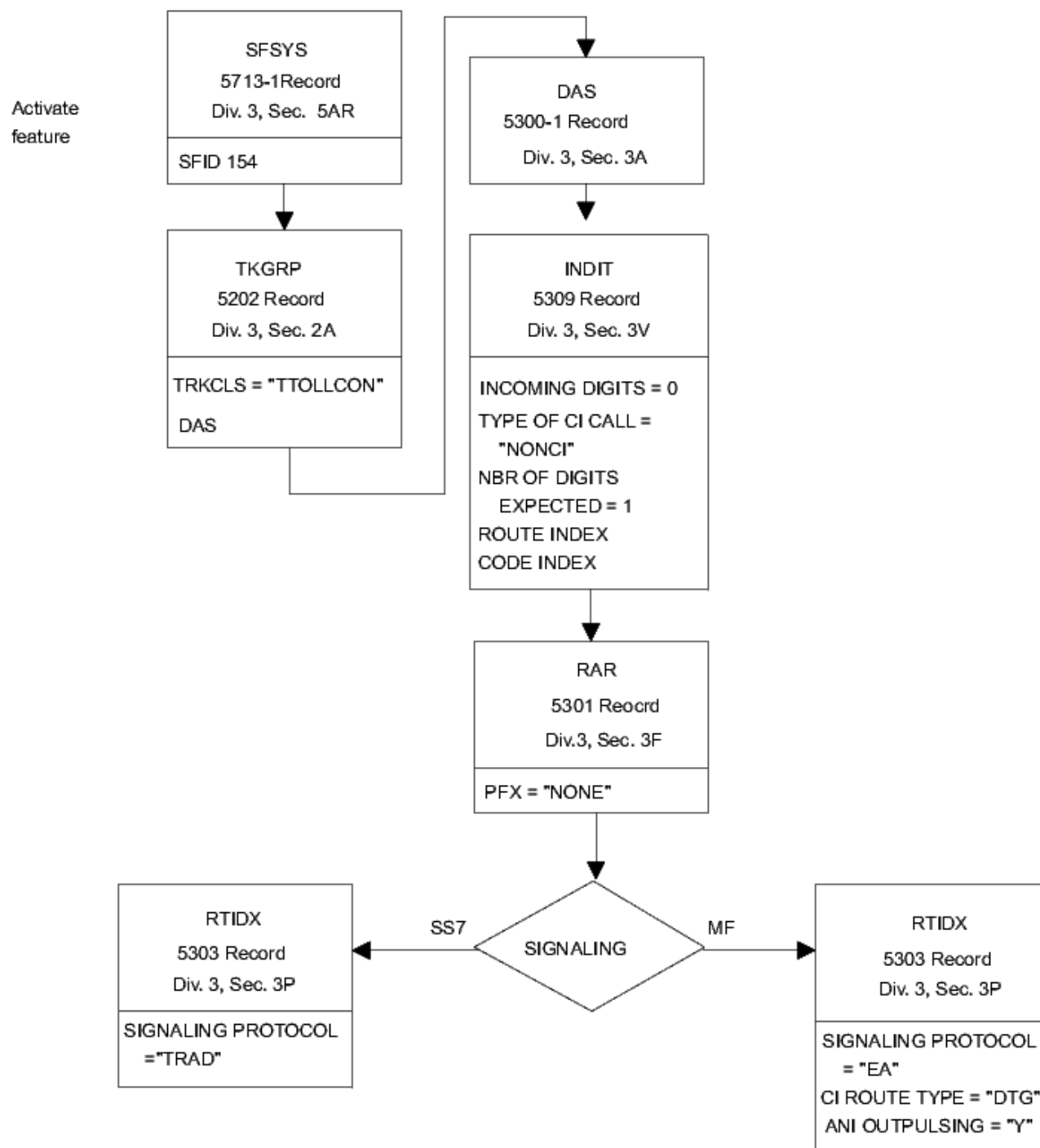


Figure 3 FORM FLOW FOR ROUTING 0- CALLS

SEC. 4A155: CALL FORWARDING OVER PRIVATE FACILITIES/DON'T ANSWER

1. FEATURE DESCRIPTION

The feature number for the CFPF/DA (Call Forwarding Over Private Facilities/Don't Answer) capability is 99-5E-2669. This feature is available with 5E10 and later Software Releases and as a Software Update for 5E9(1) and 5E9(2). This is a Secured Feature with SFID 155. An SFSYS form (5713-1 Record) must exist with the ACT field for SFID 155 set to "Y" to activate this feature.

This capability provides the ability to construct a CFPF feature so that calls terminating to analog, custom ISDN, or National ISDN (only available for 5E10 and later) lines may call-forward over dedicated private facilities in the case of a "don't answer" condition. That is, this feature allows CFPF when the Forwarding Condition (FWD CONDITION) feature option is set to "IDLE" for analog, custom ISDN, or National ISDN lines. The ability to provide CFPF when the FWD CONDITION is "BUSY" (e.g., like CFBL (Call Forwarding Busy Line)) is currently available on the 5ESS-2000 Switch via BRCS MFC (Modular Feature Customization).

The present design for all 5ESS-2000 Switch CFDA features does not allow for forwarding over private facilities nor does the present design for the CFPF features allow for forwarding over private facilities when the FWD CONDITION is set to "IDLE". The current CFPF design only allows for forwarding over private facilities when the FWD CONDITION is "BOTH" (i.e., like Call Forwarding Variable) or "BUSY" (i.e., like Call Forwarding Busy Line, when BRCS MFC is used). This feature allows CFDA access to Private Facilities via the ARS (Automatic Route Selection) and PFA (Private Facilities Access) features to eliminate LMS (Local Measured Service) charges for the forwarded portion of the call (e.g., to a VMS (Voice Messaging Service)).

This feature does not permit activation nor routing (forwarding) over non-senderized (cut-through) facilities. Any attempt to construct a CFPF/DA feature with the DNSK (Directory Number Screening option "K" (IDP PFA Cut-Through)) on the CFWFD form (5612 Record) value set to "Y" will be blocked.

2. FEATURE ASSIGNMENT

To define CFPF/DA, the following attributes on the CFWFD form must be as indicated:

- FWD CONDITION must be "IDLE"
- CFPF ALW must be "Y"
- if DN SCREENING is "Y",
 - DNSK must be "N"
 - either DNSL or DNSO must be "Y"
 - DNSK must be "N"
- DNSQ = "N" (This is recommended since dialing of Precedence and Preemption and DSN (Defense Switched Network) codes in a forward-to DN is not permitted; however, no data rule is enforced.)

For additional information on CFPF, see Division 2, Section 1AH. For CFPF National ISDN applications, see Division 2, Section 1AM.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
CFWFD	5612-1/2	4	15A	12.12
SFSYS	5713-1	3	5AR	8.22

CFWFD form (5612-1/2 Record) - This form is used to define a number of separate but related features by selecting various feature options for Call Forwarding. Data rules were added to indicate that if the CFPF ALW field is set to "Y", the FWD CONDITION field must be set to "IDLE" when SFID 155 (CFPF/DA) is purchased (for 5E9(1) and later). Data rules were also added to block access to non-senderized (cut-through) facilities.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate this feature, the ACT field for SFID 155 must be "Y".

SEC. 4A156: SPONTANEOUS USAGE SENSITIVE 3-WAY CALLING

1. FEATURE DESCRIPTION

SUSTWC (Spontaneous Usage-Sensitive Three-Way Calling) is a secured feature using SFID (Secured Feature ID) 156 and must be purchased before being enabled. The AT&T feature number for this feature is 99-5E-2530.

Available with 5E9(1) and later, this feature allows end-users to make three-way calls on a sporadic and spur of the moment basis without requiring line subscription to a Multi-way feature. This feature allows analog users to invoke a three-way call while active on a two-party call without having to indicate their intentions prior to the two-party call. Users are billed for the service on a "per use" basis, also known as a usage-sensitive basis.

This feature was built upon the access code version of the secured feature USTWC (Usage Sensitive Three-Way Calling) but does not change the USTWC method of operation or provisioning. The major difference between USTWC and SUSTWC is that SUSTWC allows an end-user to initiate a three-way call by flashing while active on a two-party call and adding a third party. USTWC requires that the end-user dial a code before initiating the two-party call.

The USTWC feature (Secured Feature ID 106) does not have to be enabled for the SUSTWC feature to be enabled, and SUSTWC can be provisioned to function like USTWC. Details on how this is done are discussed in the Feature Assignment section. The USTWC and SUSTWC features are mutually exclusive on a given switch.

The SUSTWC feature expands functionality of the MW (Multi-Way) TWC (Three-Way Calling) feature in the following ways:

- Assignment of the feature to the user: when SUSTWC is made generally available in an office, any valid terminal can access it. Alternatively the feature can be turned off for all terminals in the office and made available only to those customers who wish to subscribe to it.
- Billing of the feature to the user: the user can be billed per usage rather than the flat rate fee charged for subscription TWC. USTWC Charge records and USTWC Activation records are two types of records that may be optionally made. Generation of each is controlled independently on an office-wide basis.
- Feature interactions: the user is not allowed to use the feature if the user already subscribed to any other MW feature or to a TG (Terminal Group) feature. CW (Call Waiting) is inhibited while SUSTWC is active on a call.

Any number of three-way calls may be made during a single SUSTWC activation; each one is charged. If the originator disconnects with a party on hold, the originator will be rung back to restore the held party to the talking connection.

1.1 Scenario

The following is an end user scenario for SUSTWC. For this scenario, the three parties are designated A, B, and C. Parties A and B represent the stable 2-way call with A being the controlling party with access to the SUSTWC feature. Party C represents the third or added on party.

1. Party A has either originated a call to party B or party B has originated a call to party A. In either case, answer has occurred and a normal two-party talking connection has been established.
2. Party A initiates a switch-hook flash. The two-party call is interrupted and party B is temporarily placed on hold. Special dial tone is returned to party A.
3. Party A dials the second leg of the call, adding on party C. Party C is either ringing or answered. At this point, a USTWC Activation Record is made if the USTWC Activation Records are enabled in the office and any of the following occur:
 - Party A initiates a flash, B is taken off hold and a three-way call is established.
 - Party C disconnects and party A is automatically reconnected to party B after 10 second disconnect timing elapses.
 - Party A disconnects and party C is dropped. Ring back is applied and party A answers the ring back.

If C answers and Party A initiates a second switch hook flash to form a 3-way call, there are four AMA (Automatic Message Accounting) related scenarios:

If USTWC Charge Records are enabled in the office,

- and this call is not normally AMA recorded, a USTWC Charge Record is made.
- and this call is normally AMA recorded, the service feature field will indicate that USTWC was used.

If USTWC Charge Records are not enabled in the office,

- and this call is not normally AMA recorded, there will be no output.
- and this call is normally AMA recorded, the service feature field will indicate that USTWC was used.

The BRCS feature activation count for the SUSTWC feature is also pegged. Party A and C are now talking.

The following describes abnormal end user interactions. For these interactions, the two parties are designated A and B. Parties A and B represent the stable 2-way call with A being the controlling party of the original 2-way call.

- SUSTWC is not allowed on party A's line because the service class or the feature set is not valid (See Feature Assignment).

- SUSTWC has a valid service class and feature set but has been denied use of the SUSTWC feature on the LINE form (See Feature Assignment).
- Party A attempts to flash before the first called party answers.

1.2 Billing

This feature makes it possible to record a USTWC Charge Record for the added party, if the call is not normally AMA recorded or if the call is AMA recorded to provide an indication via the service feature field that USTWC was used.

Provision is also made to allow AMA recording for the SUSTWC activation. A USTWC Activation record can be created when the user flashes to add-on a second party or is reconnected to the soft-held party.

Automatic Message Accounting is affected as follows:

A USTWC AMA Activation Record is made when a successful 3-way conference call has been established or when the controller returns to the soft-held party before a 3-way conference call is established. The record is only made if the USTWC ACT office parameter is "Y". The Structure Code for the USTWC Activation record is 00028; the Call Type is 049.

A USTWC AMA Charge Record is made for an added-on party that answers if the USTWC CHRG office parameter is "Y" and an AMA record is not normally made for this call. The structure codes for SUSTWC Charge records are 00001 and 00101; the Call Type is 048. The Service Feature Field in this record is populated with a value of 018.

- **NOTE:** Unlike the Activation Record, this record is generated when the call is disconnected or at midnight in cases where long duration records apply.

If an AMA record would normally be made for the added-on party call, the Service Feature Field in this record is populated with a value of 018 if the SUSTWC CHRG office parameter is "Y".

- **NOTE:** Unlike the Activation Record, this record is generated when the call is disconnected or at midnight in cases where long duration records apply.

2. FEATURE ASSIGNMENT

- **NOTE:** This feature may lead to increased usage of 3-port conference circuits. Therefore, examination of existing traffic measurements to determine if additional 3-port hardware circuits are required is suggested before making this feature generally available.

2.1 To activate SUSTWC:

1. The SUSTWC feature must be enabled for any other value to be entered. Set the ACT field for SFID 156 to "Y" on the SFSYS form to enable the SUSTWC feature.
2. Enable Optioned Feature. The switch provides an office option via the FOSYS form, RC View 8.31 to allow the generation of USTWC Charge Records (Call Type 048) for every spontaneous USTWC call. Set the ACT field for FID 664 to "Y" on the FOSYS form, RC View 8.31 to enable the Billing Option for SUSTWC feature. This option can be turned on regardless of the value of the USTWC CHRG field on the OFCOPT form, RC View 8.1. If this option is turned on, it takes precedence over the USTWC CHRG field on the OFCOPT form. If this option is turned on, then the switch will always generate a Call

Type 48 charge record when a spontaneous three-way call is made — even if a normal AMA record is made. The switch will not set the SFF field to 18 in a normal AMA record either, if this option is turned on. For more information, see Div. 2, Sec. 4B664.

3. The SUSTWC preconstructed feature /MWSP3WC is installed as part of the SU (Software Update) installation.
4. Use the new preconstructed feature /MWSP3WC, or if desired, define a SUSTWC feature on the MWFD form. Only the name of the SUSTWC feature can be changed; none of the feature options or parameters can be modified for this type of feature.
5. On the OFCOPT form, set the USTWC fields as follows:
 - SPONT AVAIL determines how SUSTWC operates. The default of this field is "UNAVAIL".
 - "GENAVAIL" - all the lines in the office with field USTWC ALW set to "Y" on the LINE form have access to the feature.
 - "SUBSCR" - only those lines in the office with field SUBSCR USTWC set to "Y" on the LINE form have access to the feature.
 - "UNAVAIL" - SUSTWC is not allowed in this office. If USTWC FEAT has a feature entered, the original code activated USTWC functionality is available in the office.
 - In the USTWC FEAT field, enter the desired SUSTWC feature either "/MWSP3WC" or the feature constructed on the MWFD form if SPONT AVAIL is "GENAVAIL" or "SUBSCR". If SPONT AVAIL is "UNAVAIL", USTWC FEAT must be "/MWUS3WC", its equivalent constructed feature, or blank. The default for USTWC FEAT is inactive (blank). This field cannot be changed from the default unless the SUSTWC or USTWC feature has been purchased and enabled.
 - USTWC ACT field must be set to "Y" to make USTWC AMA Activation Records for all SUSTWC calls in the office. Set this field to "N" if USTWC AMA Activation Records are not to be made on SUSTWC calls. The default for USTWC ACT is "N". This field cannot be changed from the default unless the SUSTWC or USTWC feature has been purchased and enabled.
 - USTWC CHRG field must be set to "Y" to make USTWC AMA Charge Records for all USTWC calls in the office. Set this field to "N" if USTWC AMA Charge Records are not to be made on SUSTWC calls. The default for USTWC CHRG is "N". This field cannot be changed from the default unless the SUSTWC or USTWC feature has been purchased and enabled.
1. On the LINE form, set the USTWC fields to allow SUSTWC.
 - USTWC ALW field is used when the SPONT AVAIL field on the OFCOPT form is set to "GENAVAIL". The USTWC ALW field default is "Y" for all valid terminals (described below). For invalid terminals, USTWC ALW defaults to "N".

Valid terminals are those terminals with a CLASS OF SERVICE of "INDIV", "PBX", or "4WINDIV" except shared analog terminals, which are terminals that are "HOT" or "MAN" lines (i.e., NO DIAL field on the LINE form), or those that have the Calling Line Side Supervision feature (CLSS field on the LINE form).

- SUBSCR USTWC is used when SPONT AVAIL on the OFCOPT form is set to "SUBSCR". This field must be set to "Y" for every terminal which should be allowed to access SUSTWC. The SUBSCR USTWC field default is "N" and can be set to "Y" only on valid terminals (see above).

NOTE: For 5E9(1) and 5E9(2) Recent Change operation only, to avoid OS (Operations System) (e.g., MARCH) impact when updating on an invalid terminal, if the SUBSCR USTWC field is set to "Y", it automatically changes back to "N" (without ERROR or WARNING messages).

2.2 To deactivate SUSTWC:

1. The SUSTWC feature can be turned off for the entire office by setting the SPONT AVAIL field on the OFCOPT form to "UNAVAIL". Note that in the "UNAVAIL" mode, the LINE form fields SUBSCR USTWC and USTWC ALW have no effect. Even if they are set to "Y", the line cannot use the feature since the SPONT AVAIL field is set to "UNAVAIL".
2. If SPONT AVAIL is "GENAVAIL", the feature can be de-activated on a per line basis, by setting field USTWC ALW to "N" on the LINE form. Note in the "GENAVAIL" mode, the LINE form field SUBSCR USTWC has no effect on the operation of the feature for other lines and can be set to either "Y" or "N".
3. If SPONT AVAIL is "SUBSCR", the feature can be deactivated on a per line basis, by setting field SUBSCR USTWC to "N" on the LINE form. Note in the "GENAVAIL" mode, the LINE form field USTWC ALW has no effect on the operation of the feature for other lines and can be set to either "Y" or "N".

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.6
MLHLN	5111-3	3	1K	1.6
MWFD	5702-1/2	4	3A	12.19
OFCOPT	5509-4	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch office. The SUBSCR USTWC was added to indicate if the line has subscribed to USTWC (Usage-Sensitive Three-Way Calling).

MLHLN form (5111-3 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG (Multi-Hunt Line Group). The SUBSCR USTWC was added to indicate if the line has subscribed to USTWC (Usage-Sensitive Three-Way Calling).

MWFD form (5702-1/2 Record) - This form is used to define many of the Add-On and conferencing features and to define how call processing is affected by customer attempts to flash or disconnect while holding, adding, or transferring calls. The new preconstructed feature /MWSP3WC was added to support the SUSTWC feature.

OFCOPT form (5509-4 Record) - This form is used to supply various miscellaneous office options and parameters. The field SPONT AVAIL was added to support the SUSTWC feature and determines if SUSTWC is available and how it operates.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. SFID 124 must have the field ACT set to "Y" to enable the feature.

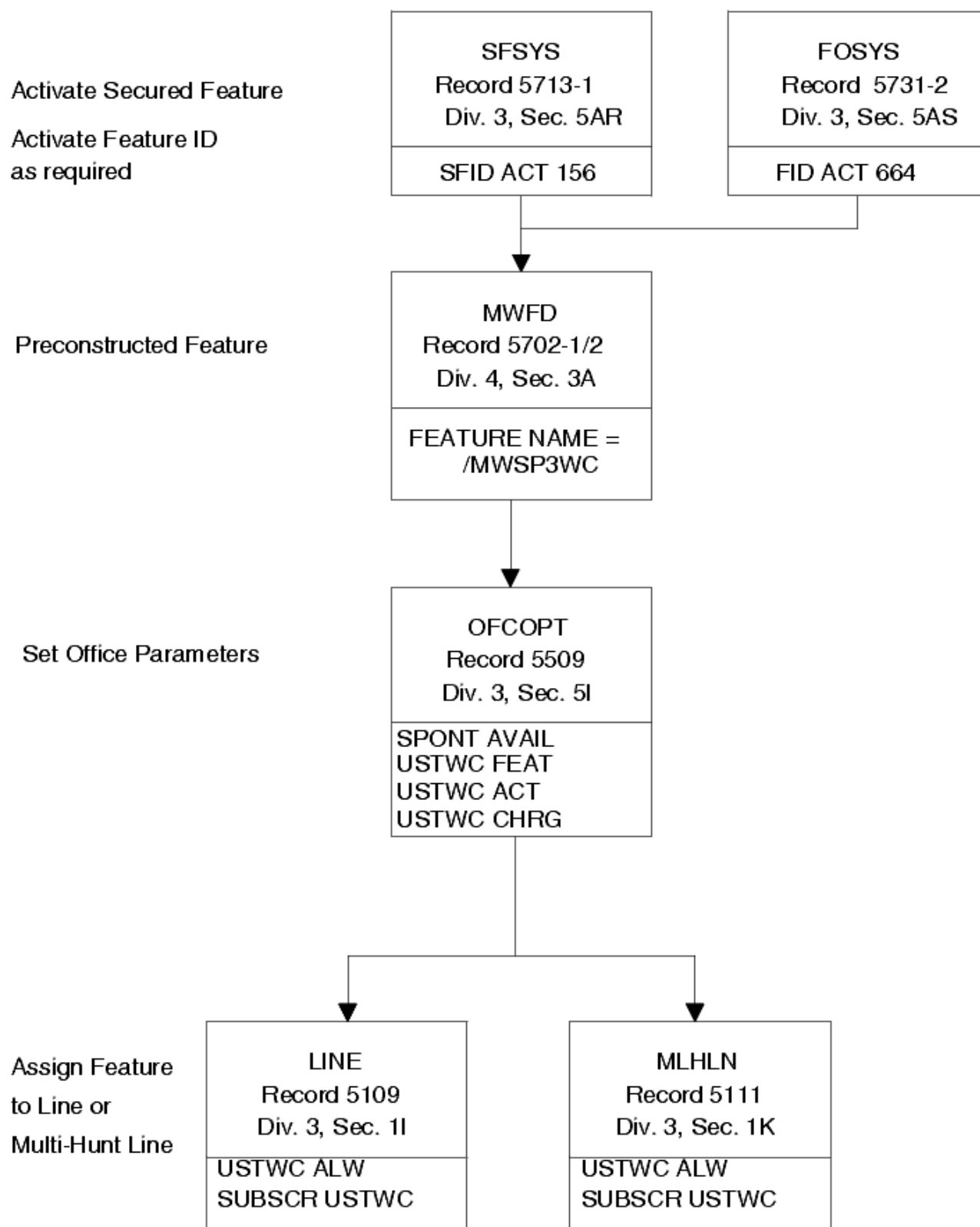


Figure 1 SPONTANEOUS USAGE SENSITIVE 3-WAY CALLING FORM FLOW

SEC. 4A158: TOLL-FREE TREATMENT FOR NPA 888 - PHASE 1

1. BACKGROUND

The quantity of 800 numbers which are either in use or unavailable has reached a point of exhausting the pool of 800 numbers. Therefore, additional telephone numbers are needed to support the growing usage of toll-free services.

2. FEATURE DESCRIPTION

Toll-Free Treatment for NPA 888 - Phase 1 feature is a secured feature using SFID 158, has feature number 99-CP-3042 and must be purchased before being activated.

Available with 5E9(2) and later, this feature provides the LEC (Local Exchange Carrier) network with an additional set of toll-free DN's (Directory Numbers) by expanding 800 toll-free service to include two more NPAs (Numbering Plan Areas), 888 and 877, besides 800. Dialed DN's with 888 and 877 NPAs are treated as toll-free calls.

This feature is built on the existing SSP800 (Service Switching Point 800) NS (Number Service) Feature platform. As a result, all current aspects of SSP800 functionality on the 5ESS-2000 Switch apply to this feature. This includes the querying process, billing, measurements, network management, test query message, send notification, event trapping, etc.

Consistent with SSP800 requiring an interface to an SCP (Service Control Point) database, the new 888 and 877 NPA DN's also need to query the database to obtain actual routing information for a call. The interface to the SCP database is handled by CCS7 TCAP (Common Channel Signaling System 7 - Transaction Capabilities Application Protocol) either in the AM (Administrative Module) or a DLN (Direct Link Node).

The querying process occurs at the SSP (Service Switching Point) office. The SSP office may be the same office where the call originates, such as an EO (End Office), or an intermediate office, such as an AT (Access Tandem), where the call must route over trunks in order to perform the querying process. The calls may be directed to intermediate, SSP offices from End Offices that are designated as:

- EA (Equal Access) EO
- non-conforming EO using traditional signaling or
- non-conforming EO using CAMA (Centralized Automatic Message Accounting) signaling.

The only signaling difference between SSP800 and this feature is that this feature does not support 00Y translation of an 888 or 877 NPA DN as the called DN, when signaled from a non-conforming EO using traditional signaling. The AT would be unable to interpret the 00Y code as an 888 or 877 NPA DN on the receiving end as well.

3. FEATURE ASSIGNMENT

Office data in end and intermediate offices must be provisioned similar to the current handling of 800 NPA DN's (except for 00Y translation) in order to recognize 888 and 877 NPA DN's as toll-free service calls when dialed, signaled, or received in an office. Other switching equipment interfacing with the 5ESS-2000 must be modified to support the new 888 and 877 NPA DN's. For example, the STP (Signaling Transfer Point) should add additional global title table entries to support 888 and 877 NPAs as part of valid global title digits; or, the SCP database should increase its number of database entries to accept and respond to 888 and 877 NPA DN

queries.

The AMA (Automatic Message Accounting) record for access charge billing is made at the SSP office, once the carrier information is provided, which is consistent with Number Services. This feature reuses the existing Number Service structure codes used for SSP800.

4. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

This feature is a secured feature and is activated by setting the ACT field for SFID 158 to "Y" on the SFSYS form (5713-1 Record).

5. GLOSSARY

AM	Administrative Module
AMA	Automatic Message Accounting
AT	Access Tandem
CAMA	Centralized Automatic Message Accounting
CCS7	Common Channel Signaling System 7
DLN	Direct Link Node
DN	Directory Numbers
EA	Equal Access
EO	End Office
LEC	Local Exchange Carrier
NPA	Numbering Plan Areas
NS	Number Service
SCP	Service Control Point
SSP800	Service Switching Point 800
STP	Signaling Transfer Point <i>TCAP</i> - Transaction Capabilities Application Protocol

SEC. 4A159: ADVANCED SERVICES PLATFORM TRUNK TRIGGER FOR TOLL

1. BACKGROUND

Prior to this feature, there was a need to provide ANI (Automatic Numbering Identification) based call processing for trunk originated equal access calls. This processing could include ANI based routing or screening. One way to screen these calls was to use an AIN SCP (Advanced Intelligent Network Service Control Point) and, for every call received by the 5ESS Switch on a trunk group with the ASP (Advanced Service Platform) Toll bit set, send an AIN Query to an SCP and let the SCP determine how the call is

handled.

2. FEATURE DESCRIPTION

Available with Software Release 5E9(1) and later, the ASP Trunk Trigger for Toll feature is a secured feature using SFID (Secured Feature ID) 159 and must be purchased before being activated. The feature number for this feature is 99-5E-3156.

Available with Software Release 5E9(1) and later, the ASP Trunk Trigger for Toll feature provides the ability to generate an SCP query for every call on a given trunk group designated as ASP TOLL.

The ASP TOLL field is entered on a trunk group basis on the TKGRP form (5202 Record, R/C View 5.1). When the ASP TOLL field is set to "Y", a valid ASP 0.1 trigger must be populated in the TRIG NBR field.

The ASP TOLL can be entered only for a two-way or incoming SS7 (Signaling System 7) trunk with trunk class of "TTOLLCON".

When the ASP TOLL is active on a trunk group, the 5ESS Switch generates an AIN 0.1 "INFO-Collected" OHD (Off-Hook Delay) query message for every call received on the trunk group (including IDDD (International Direct Distance Dialing), 1+, 0+ 0- calls).

For this feature, there is no ASP BRCS feature required on the trunk group or members.

3. FEATURE ASSIGNMENT

See Figure 1 for ASP Trunk Trigger for Toll form flow. This is a secured feature, therefore, before it can be activated the ACT field for SFID 159 on the SFSYS form (5713-1 Record) must be set to "Y". In addition, since this feature depends on SFID 126, the ASP Release 0.1B secured feature must be activated by setting the ACT field for SFID 126 on the SFSYS form to "Y". For more information concerning the ASP Release 0.1B feature, see Division 2, Section 4A126.

The ASP TOLL field on the TKGRP form (5202 Record) must also be set to "Y".

In addition, the Trunk Trigger for Toll feature translation environment (INDIT/LDIT) requires some specialized setup. This is necessary because digit translations occur on these calls prior to the SCP database query.

- All NPAs/NXXs should be built with a TYPE CI CALL of "NONCI". This prevents the 5ESS from attempting to use the office carrier information for carrier derivation on INTRA/INTERLATA calls.
- The digit 0 (zero) must be built in the INDIT as "NONCI". This is used in operator cases when SFID 154 changes the called party number to zero when the IAM's nature-of-number is operator.
- All country codes and international prefixes must be built in the IDD form (5307 Record) (RC 9.6 views).
- The 1NX codes for international must be built in the INDIT. The associated CDIM entries for 1NX & XXX must be defined. This is necessary because international calls deliver the carrier code in the TNS parameter and carrier type digit analysis occurs.
- All international XXX codes must be built in the ICF form (5305 Record) (RC view 10.3).

The ASP response uses the SCP DAS located in the OFCOPT form (5509 Record)(RC view 8.1). This must select a unique translation environment (PDIT/LDIT) for digit analysis of the response. Standard 5ESS translation techniques apply at this point. This means that

- NPA/NXX must be TYPE OF CI CALL and must be appropriately set to "INTRA", "INTER", "TOLL", ...
- All country codes and international prefixes must be built in the IDDD form (5307 Record) (RC 9.6 views).
- All possible XXX responses from the SCP must be built.
- Route Indexes built for all possible trunk groups return from the ASP response.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 159 to "Y". Before activating this feature, the base 5E9.1 ASP Rel 0.1B feature must be activated by setting the ACT field to "Y" for SFID 126 on the SFSYS form.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The ASP TOLL field was added to this form to support this feature. This field determines if all incoming calls over this toll trunk group will generate an SCP query.

5. GLOSSARY

AIN	Advanced Intelligent Network
ANI	Automatic Numbering Identification
ASP	Advanced Services Platform
CAP	Competitive Access Provider

IDDD International Direct Distance Dialing

OHD Off-hook Delay

SCP Service Control Point

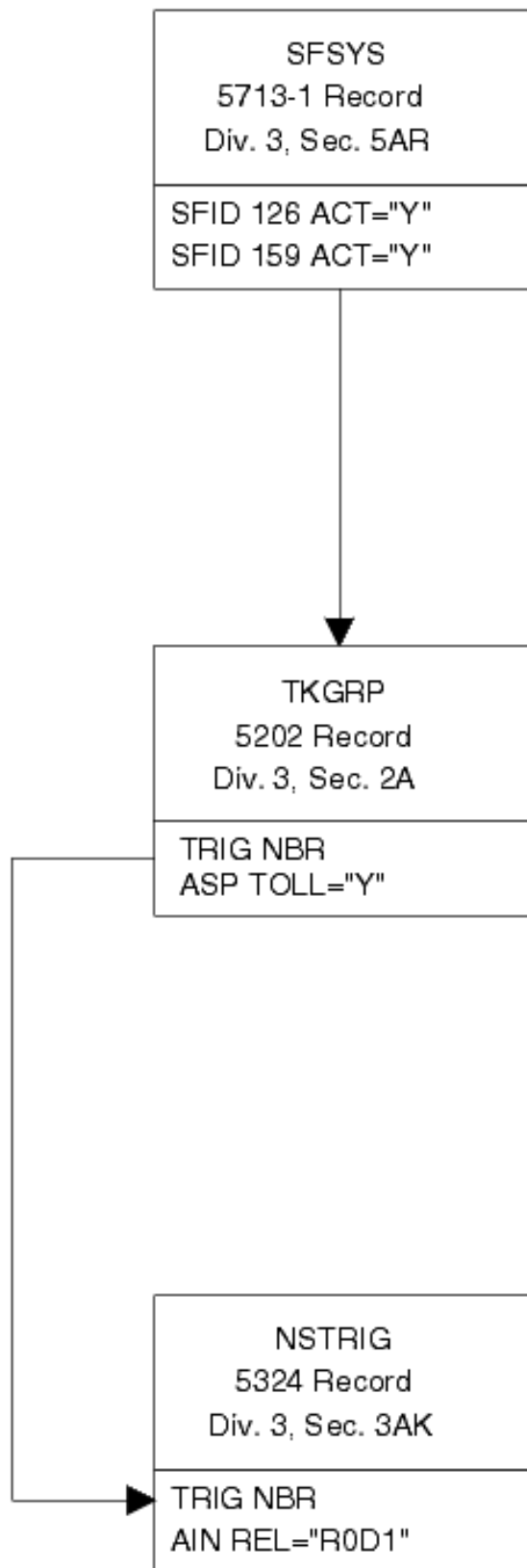


Figure 1 FORM FLOW FOR ASP TRUNK TRIGGER FOR TOLL**SEC. 4A160: TYPE 2A/2B CELLULAR MOBILE CARRIER INTERCONNECTION VIA COMMON CHANNEL SIGNALING****1. FEATURE DESCRIPTION**

The Type 2A/2B CMC (Cellular Mobile Carrier) Interconnection Via CCS (Common Channel Signaling) feature is available for the 5E9(1) and later Software Releases. The feature number is 99-5E-2540. The secured feature ID is 160. This feature is dependent on AMA (Automatic Message Accounting) capabilities for Type 2A Cellular Interconnections feature (SFID 128). Refer to Division 2, Section 4A128 for background information on SFID 128.

The Type 2A/2B CMC via CCS feature provides the land-based telephone company with the capability to specify whether CMC AMA records can be made on CMC calls originating and terminating (see Glossary) over CCS7 trunk interconnections. This allows the land-based telephone company to more accurately record the details for calls of this type. Type 2B interconnections provide connections only to and from terminals served by a particular telephone company's end office, including lines, private trunks and other CMCs having terminations within the switch itself (see Figure 1). These restrictions are provided only through digit analysis data in the switch.

Type 2B CMC AMA records are in addition to any AMA records currently being made for billing land-based telephone company customers or ICs (Inter-LATA Carriers). Some non-CMC AMA records (e.g., SSP/800 and originating IC) associated with a CMC call are also altered by this capability. This feature also provides CMC AMA records for Type 2B interface over CMC CCS7 or CMC MF (Multi-Frequency) interconnections.

The telephone company's RAO (Revenue Accounting Office) will receive additional detailed billing records for Type 2A and Type 2B interconnections when this feature is active and billing records have been requested for at least one CMC. If the switch has the current MF AMA capability (SFID 128) active, then the content of such records will change somewhat when this new feature is activated. In addition, some 800 Service AMA records and originating IC records associated with CMC calls will have their fields modified by this feature, specifically, the Originating Number and Service Feature fields. No other existing AMA records will be automatically replaced or modified by these detailed billing records.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5200-1/2/	3	2A	5.1

SFSYS form (5713 Record) - This form is used to enable secured features for an entire 5ESS Switch of selected Switching Modules. The ACT field for SFIDs 128 and 160 must be set to "Y".

TKGRP form (5200 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The fields ORIG CMC and TERM CMC must both be "2A" or "2B" to activate this feature. The CMC ID and CMC Billing Number must first be assigned on Recent Change View 10.16.

3. GLOSSARY

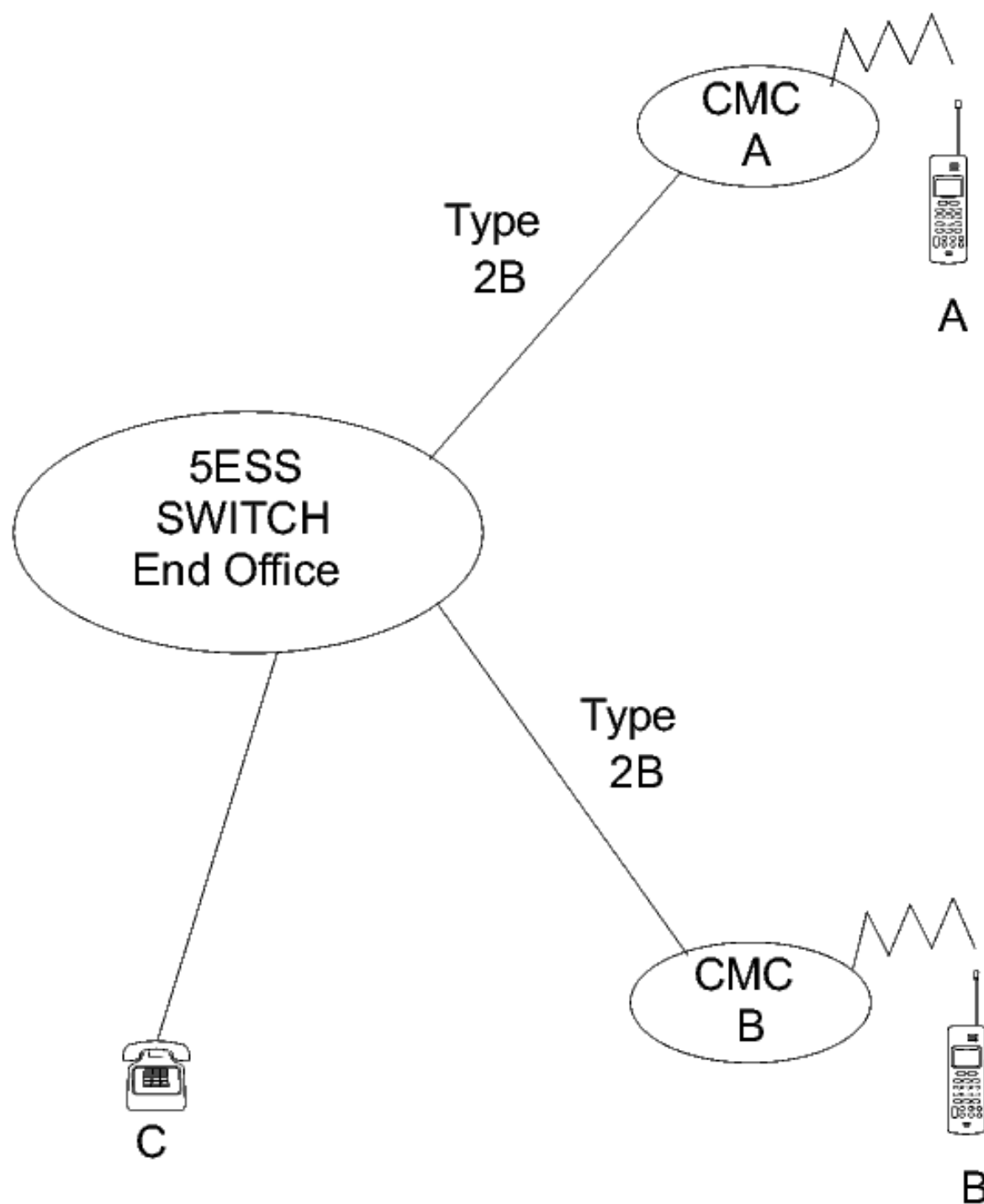
CMC Cellular Mobile Carrier.

Originating CMC Call/record A CMC Originating call is one that originates in or is received by the LEC network and is routed TO a CMC. CMC AMA records are made in the switch directly connected to the CMC Type 2A or Type 2B interface. Such CMC AMA records are called "Originating CMC" records but have Structure Codes (653/654) commonly associated with "Terminating IC" calls. This definition is based on Bellcore requirement GR-1504-CORE.

Terminating CMC Call/record A CMC Terminating call is one incoming FROM a CMC Type 2A or Type 2B interface, for completion in or via the LEC network. Such CMC AMA records are called "Termina CMC" records but have Structure Codes (625/627) commonly associat with "Originating IC" calls. This definition is based on Bellcore requirement GR-1504-CORE.

Type 2A Interconnection Connections to a land based tandem switch, LT (Local Tandem) or AT (Access Tandem). Type 2A interconne also provide connections to and from co-located lines in the tandem, inter-LATA carriers, and other CMCs having terminations within the LATA. This feature does NOT provide AMA billing support for the con between CMC and a Local Tandem Switch.

Type 2B Interconnection Connection to a telephone company end office. It provides connections only to and from terminals serve by that end office, including lines, private trunks and other CMCs having terminations within the switch itself.



CMC-A = Cellular Mobile Carrier A

CMC-B = Cellular Mobile Carrier B

C = Subscriber Line Served by the 5ESS Switch

Figure 1 TYPE 2B CELLULAR CONNECTIONS

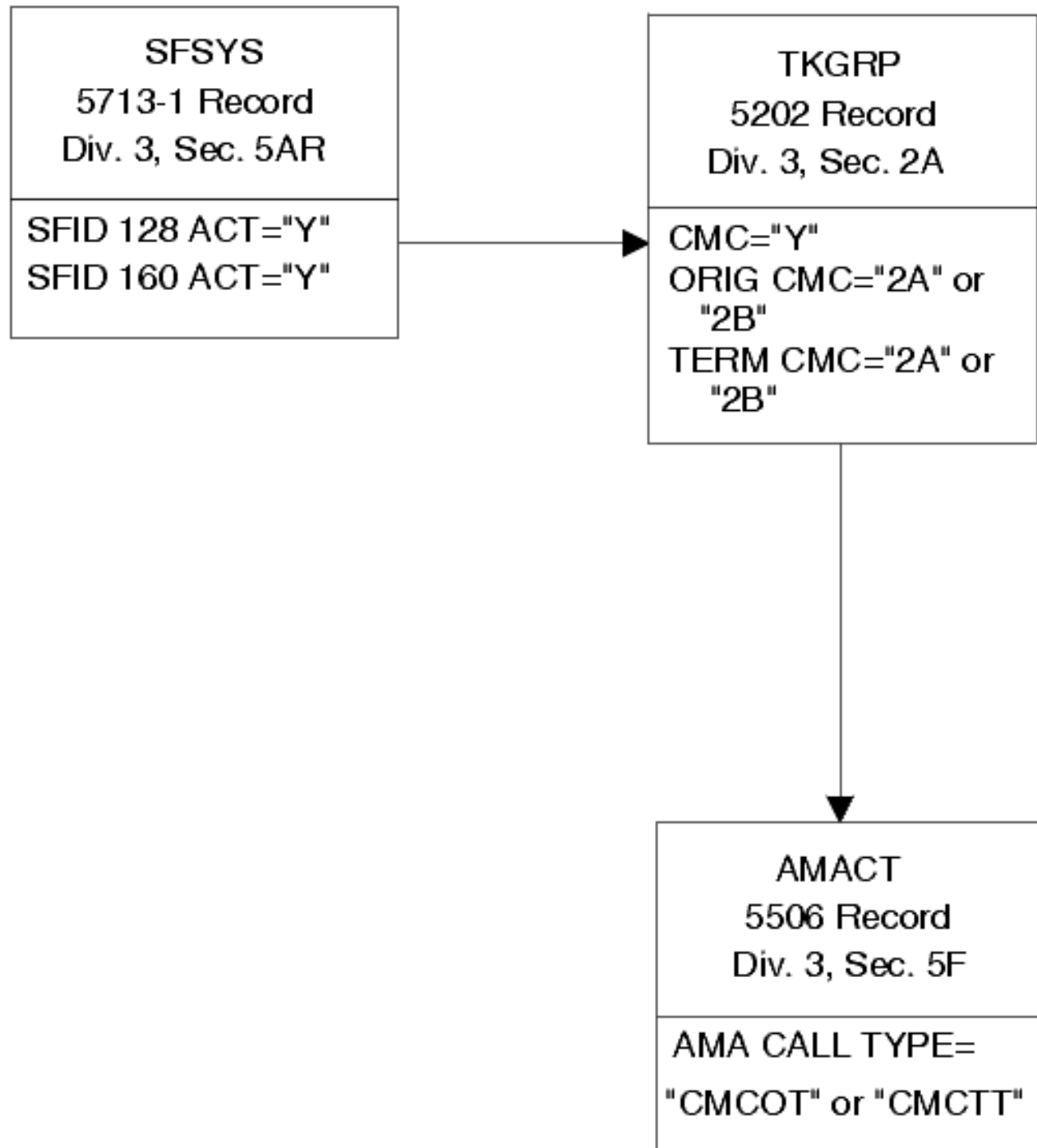


Figure 2 FORM FLOW FOR TYPE 2B CELLULAR INTERCONNECTIONS

SEC. 4A161: REDIRECTING NUMBER ON PRI

1. FEATURE DESCRIPTION

The Redirecting Number on PRI (ISDN (Integrated Services Digital Network) Primary Rate Interface) feature is a secured feature (SFID 161) and must be purchased before being activated. The feature number for this feature is 99-5E-3045.

Available with 5E9(1) and later, this feature maps the SS7 (Signaling System 7) redirection information in the SS7 OCN (SS7 Original Called Number parameter), RN (SS7 Redirecting Number parameter), and RI (SS7 Redirecting Information parameter) parameters into the RN IE(s) (ISDN Q.931 Information Element) for a terminating PRI. Furthermore the feature populates the terminating RN IE(s) for calls redirected from lines on the same switch to a PRI.

This feature is operational on SMs (Switching Module) as well as SM-2000.

This feature is provided on a per PRI B-channel trunk group basis for AT&T custom and AT&T national ISDN PRIs.

1.1 User Perspective

In the following scenarios, the RN on PRI feature is subscribed to on a CO (Central Office) #3 on the PRI that terminates on PBX #3, the customer's CPE (Customer Premise Equipment). Field UUI on the TKGRP form (5202 Record) for MAUUI (Message Associated User-to-User Information) transport is set to "Y" on the terminating PRI B-channel trunk group.

NOTE: Please refer to the Limitations section for the description of User-to-User information that's discarded when the RN on PRI feature is active.

Scenario 1 - SS7 Origination to PRI Termination (with 2 previous forwardings). (See Figure 1)

- Caller D originates a call on PBX #1 (connected to CO #1 via PRI) to station E on CO #2. PBX #1 includes User-to-User information in the call setup request to CO #1. CO #1 routes the call over the SS7 network to CO #2. The User-to-User information is passed over the SS7 network to CO #2 in the SS7 ATP (SS7 Access Transport Parameter). Switch CO #2 routes the call to called party E. Party E is busy and CO #2 forwards the call to station F, a station on CO #2. Party F does not answer and CO #2 forwards the call to party K (connected to PBX #3 off of CO #3). CO #2 forwards the call over SS7 facilities to CO #3, and includes call redirection information (SS7 OCN, RN and RI parameters) as well as the User-to-User information in SS7 ATP parameter.

When the call is received at CO #3 and terminated at the PRI to PBX #3:

- With the RN on PRI feature turned on, the redirection information is populated from the OCN, RN and RI parameters of SS7 IAM (SS7 Initial Address Message) but the User-to-User information is discarded.
- Without the RN on PRI feature turned on, the redirection information is populated from ATP parameter (not Bellcore compliant) of the SS7 IAM message and User-to-User information is retained.

Scenario 2 - CO #3 Line Originated Call with 3 forwardings. Lines G, A, H, and I are located on CO #3. (See Figure 1)

- BRI (ISDN Basic Rate Interface) G originates a call to analog station A, A forwards to BRI H, H forwards

to analog station I, I forwards to K on PBX #3:

- With the RN on PRI feature turned on, the redirection information is populated from the internal call forwarding information structures. The User-to-User information doesn't exist.
- Without the RN on PRI feature turned on, the redirection information is NOT populated. The User-to-User information doesn't exist.

1.2 Interactions

- Metro Hub Special Feature

- For 5E9 (1) only: when the Metro Hub feature (SFID 60) is active in an SM or switch, it treats as private the Redirecting Number associated with the last call forwarding (second RN) that is not a member of the same Terminal Group as the called PRI.
- For 5E9(2) and later: when the Metro Hub feature is active in an SM or switch, it treats as private Redirecting Numbers associated with the first as well as the last call forwarding (first and second RN) that is not a member of the same Terminal Group as the called PRI.

- CNIGI (CNIS Intra-Group Delivery Option Feature)

- For 5E10 and later: CNIGI can also restrict delivery of forwarding party information to intra-group calls. If the forwarding number (either first or last) is not a member of the same terminal group as the called PRI trunk, the switch will block the number delivery.

NOTE: Metro Hub is required for CNIGI in that Metro Hub allows a Terminal Group to be assigned to a PRI B-channel trunk group.

- Intra/Inter Switch CPN/BND (Calling Party Number/Billing Number Delivery)

- When a call's forwarding number is marked private, the switch delivers the forwarding number (either first or last) address digits if the per-PRI trunk group "Privacy Over-ride" option is active.

NOTE: CNIGI takes precedence over privacy override, i.e. if CNIGI restrictions apply, the address digits are not be delivered.

1.3 Limitations

MAUUI generally refers to the following ISDN Information Elements: Connected Number, user-to-user Information, Low-Layer Compatibility, Codeset 7 information and Redirecting Number (from SS7 IAM's ATP parameter). It's referred to as User-to-User information in the scenarios of the USER PERSPECTIVE section.

WARNING: When a PRI B-channel trunk group is subscribed to the RN on PRI feature, MAUUI will be discarded for calls that terminate to such a trunk group. Redirection information received from a PRI is currently treated by the 5ESS-2000 Switch as MAUUI, so it will not be available.

2. FEATURE ASSIGNMENT

On the SFSYS form (5713-1 Record), SFID 161 must have the ACT field set to "Y".

On the TKGRP form (5202 Record), the UUI and STD RN SRC fields must be set to "Y".

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to enable the feature for the operating company. SFID 161 must have the field ACT set to "Y" to enable the feature.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS switch. The STD RN SRC field was added to support this feature.

4. GLOSSARY

ATP	SS7 Access Transport Parameter
BND	Billing Number Delivery
BRI	ISDN Basic Rate Interface
CNIGI	CNIS Intra-Group Delivery Option
CNIS	ISDN Calling Number Identification Services
CPE	Customer Premise Equipment
CPN	Calling Party Number
IAM	Initial Address Message
IE	ISDN Q.931 Information Element
ISDN	Integrated Services Digital Network
MAUUI	Message Associated User-to-user Information
OCN	SS7 Original Called Number parameter
PRI	ISDN Primary Rate Interface
RN	SS7 Redirecting Number parameter
SFID	Secured Feature ID
SM	Switching Module
SS7	Signaling System 7

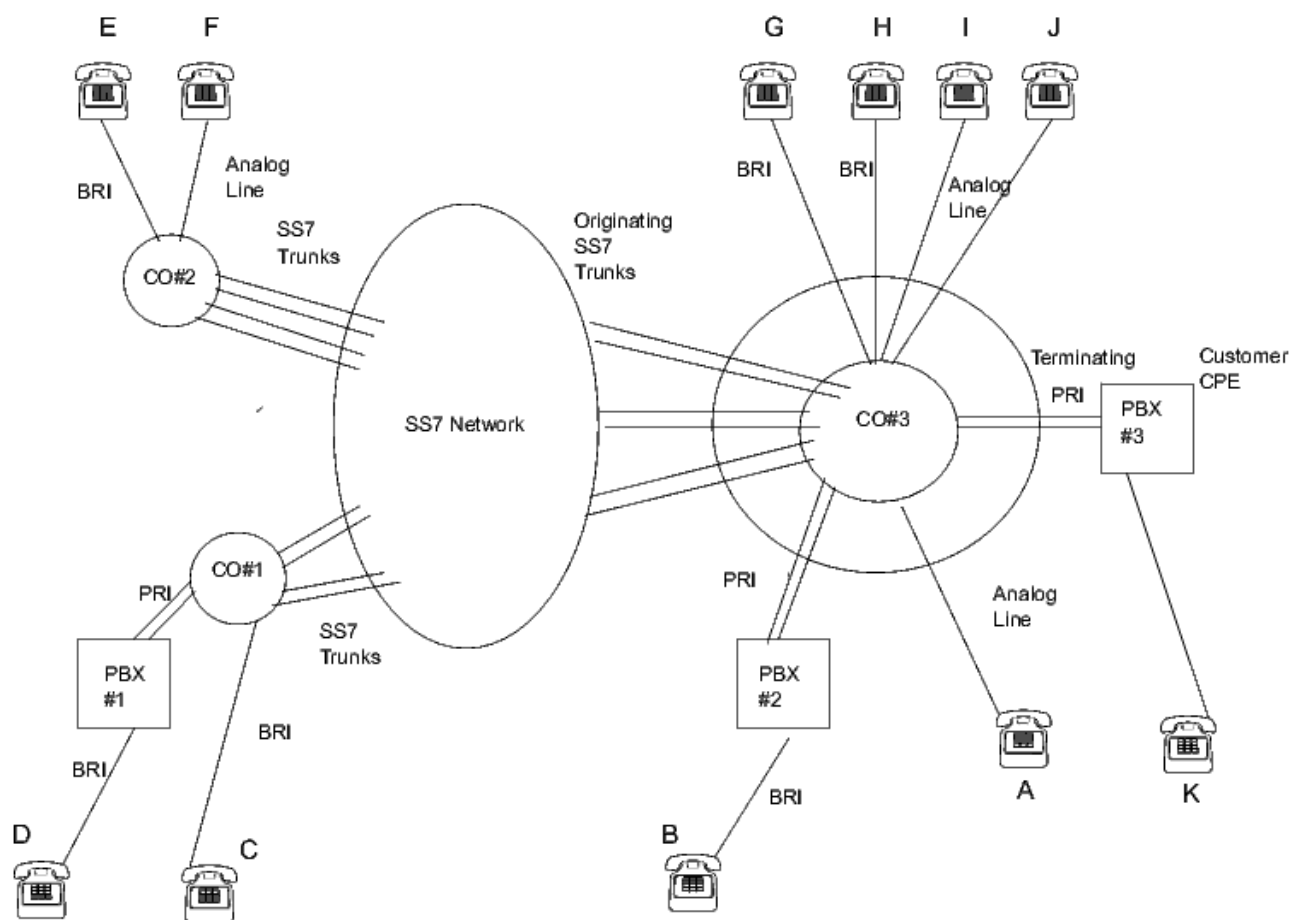


Figure 1 CONFIGURATION FOR END - USER SCENARIOS

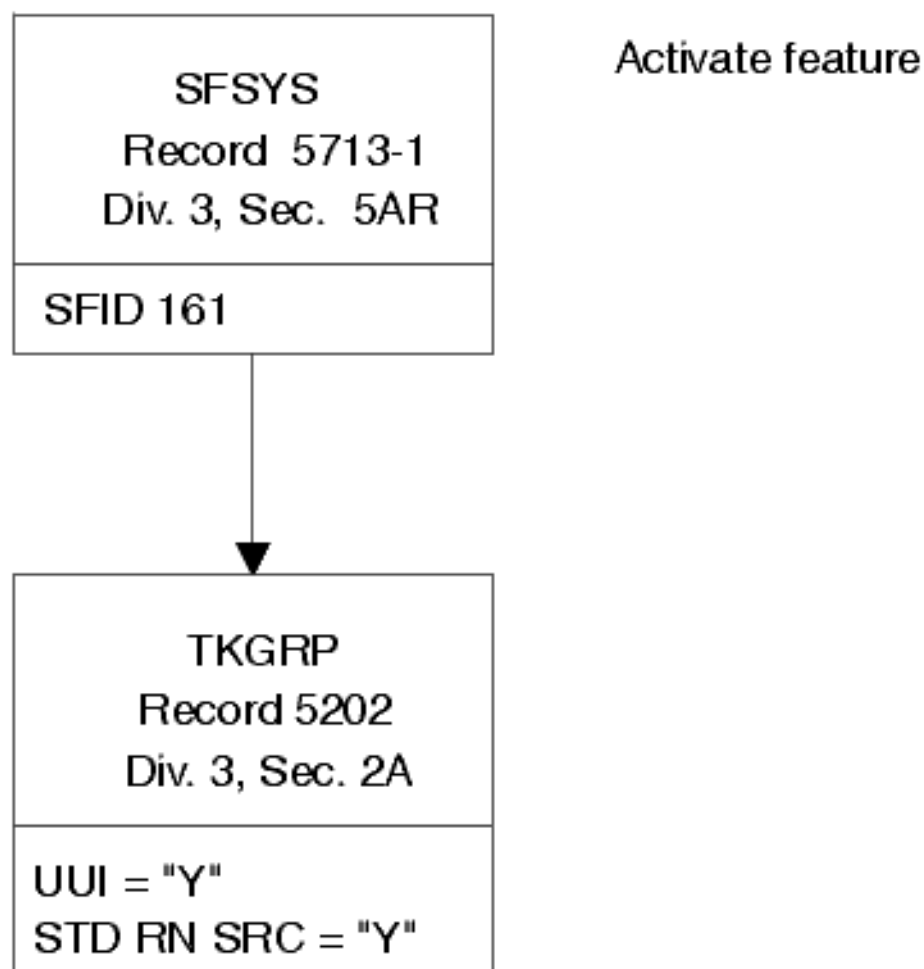


Figure 2 REDIRECTION NUMBER ON PRI FORM FLOW

SEC. 4A162: ADVANCED SERVICES PLATFORM MULTIPLE RATE CENTER SUPPORT

1. FEATURE DESCRIPTION

The ASP (Advanced Service Platform) Multiple Rate Center Support feature is a secured feature (SFID (Secured Feature ID) 162) and must be purchased before being activated. The feature number for this feature is 99-5E-3192. This feature applies to both ASP Release 0 and ASP Release 0.1 protocol.

Available with 5E9(1) and later, this feature provides the ability to use the SCP (Service Control Point) DAS (Digit Analysis Selector) or the originator's DAS for originating subscribed triggers on calls that originated from lines and line-like interfaces. Also, this feature provides the ability to use the TAT (Termination Attempt Trigger) subscriber's DAS or the SCP DAS for all types of originations to TATs for post query translation of the routing DN (Directory Number).

2. FEATURE ASSIGNMENT

To enable the feature, SFID 162 must have the field ACT set to "Y".

The office parameters ARS FCD CDP (Automatic Route Selection Feature Code Dialing Customized Dialing

Plan) and OHI OHD TAT (Off Hook Immediate Off Hook Delayed Termination Attempt Trigger) were added on the OFCOPT form (5509 Record) for this feature.

When the ARS FCD CDP originating DAS parameter on the OFCOPT form is set to "Y", routing numbers returned from the SCP due to line, PRI (Primary Rate Interface), and PF (Private Facility) trunk-originated calls encountering CDP, FCD, and Release 0 ARS triggers will be translated in the ODP associated with the originating facility. In particular, for the Release 0 ARS trigger, the originator's ODP (Office Dialing Plan) will be used rather than the ARS dialing plan.

When the ARS FCD CDP originating DAS parameter is set to "N", routing numbers for CDP, FCD, and Release 0 ARS triggers will be translated in the SCP DAS as is currently done.

When the OHI OHD TAT originating DAS parameter is set to "Y", a Called Party ID returned from the SCP due to encountering OHI and OHD triggers is translated in the ODP associated with the originating facility. When the OHD OHI TAT originating DAS field is "Y", a Called Party ID returned from the SCP due to encountering a TAT is translated in the ODP associated with the TAT line.

When the OHI OHD TAT originating DAS parameter is set to "N", routing numbers for these subscribed triggers (OHI, OHD, and TAT) will be translated in the SCP DAS as is currently done.

Calls encountering the SIT (Shared Interoffice Trunks (non-dedicated trunks)) trigger, or calls originating on any type of facility and encountering 3/6/10 digit trigger will translate in the SCP DAS regardless of the value of the ARS FCD CDP and OHI OHD TAT office parameters.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Two office parameters, ARS FCD CDP for the originating DAS and OHI OHD TAT for the originating DAS were added. The first parameter controls the feature's capability for CDP, FCD, and Release 0 ARS triggers, while the other parameter controls the remaining subscribed triggers (OHI, OHD, and TAT).

SFSYS form (5713-1 Record) - This form is used to enable the feature for the operating company. SFID 162 must have the field ACT set to "Y" to enable the feature.

4. GLOSSARY

ARS	Automatic Route Selection
ASP	Advanced Services Platform
CDP	Custom Dialing Plan
FCD	Feature Code Dialing
ODP	Office Dialing Plan
OHD	Off-hook Delay
OHI	Off-hook Immediate

PF	Private Facility
PRI	Primary Rate Interface
SCP	Service Control Point
SFID	Secured Feature ID
SIT	Shared Interoffice Trunk
TAT	Termination Attempt Trigger

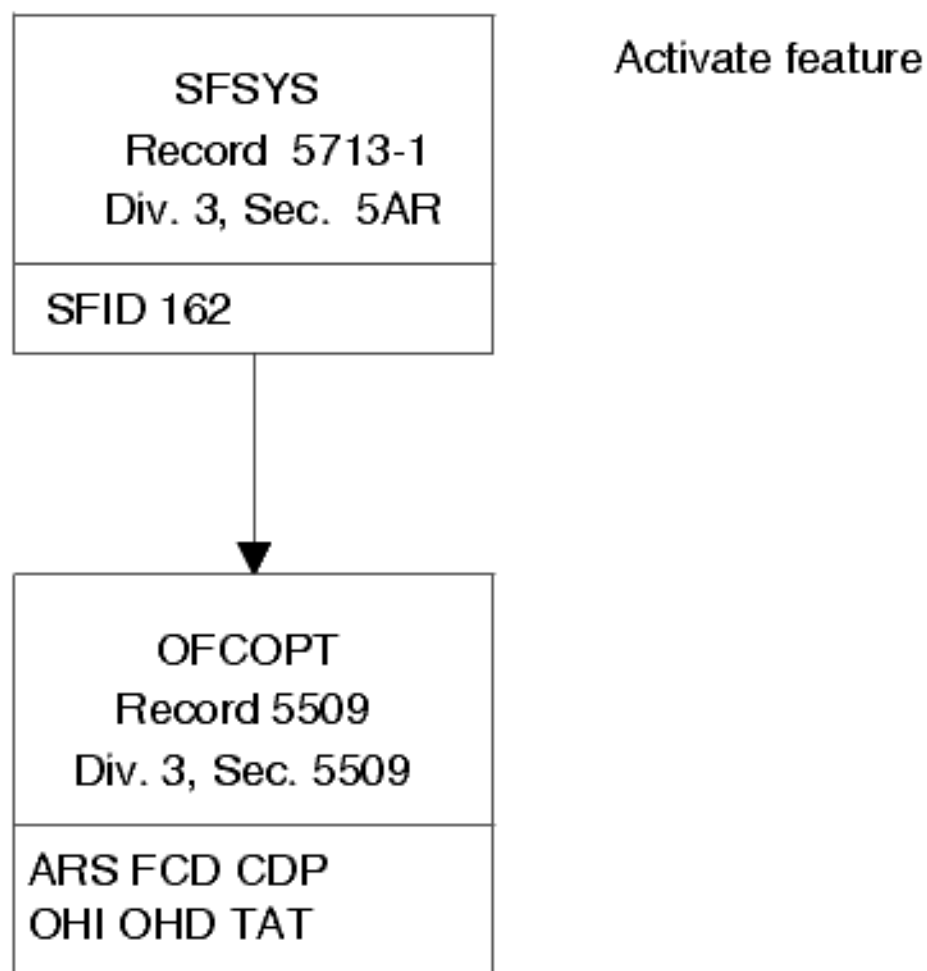


Figure 1 ASP MULTIPLE RATE CENTER SUPPORT FEATURE FORM FLOW

SEC. 4A163: ISUP MESSAGE LOOP DETECTION

1. FEATURE DESCRIPTION

The ISUP Message Loop Detection feature is a secured feature (SFID 163) and must be purchased before

being activated. The feature number for this feature is 99-CP-3053.

Available with 5E11 and later, this feature provides for inclusion of an additional ISUP (Integrated Services Digital Network User Part) parameter to be signaled between switching offices via the SS7 (Signaling System Number 7) network. The new optional ISUP parameter is named Hop Counter and contains information that indicates the number of switches or hops this message has traversed. The Hop Counter parameter may be included in the IAM (Initial Address Message) at an intermediate switch and is initialized with a configurable number of allowed hops for this message. As the call progresses through the network, the hop count is decremented by one by the intermediate switch and, if the counter reaches zero, the SS7 message is rejected by the intermediate switch. The Hop Counter parameter is defined for only the IAM message.

The main purpose for this additional parameter is to stop an SS7 signaled call from entering an infinite loop in the signaling network. When a Hop Counter parameter is included in the message, the message terminates after a specified number of hops and the looping of the SS7 IAM is avoided.

2. FEATURE ASSIGNMENT

On the SFSYS form (5713-1 Record), SFID 163 must have the ACT field set to "Y".

On the TKGRP form (5202 Record), the ISUP MLD field must be set to "Y". If the MAX HOP COUNT field is left blank it will default to 20.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS - 2000 Switch. The ISUP MLD and MAX HOP CNT fields are added to support this feature.

4. GLOSSARY

IAM - Initial Address Message

ISUP Integrated Services Digital Network User Part

SS7 Signaling System 7

SEC. 4A165: TOLL DIGITAL EXCHANGE BASIC CALL PROCESSING FOR TOLL 5ESS SWITCH

1. FEATURE DESCRIPTION

The LDP (Long Distance Platform) Feature Set, 5E10 and later:

- TDX (Toll Digital Exchange) Basic Call Processing.
- TDX ANI (Automatic Number Identification) Table Processing.
- TDX ASP (Advanced Services Platform) Interface.

- TDX 15-Digit Account Code (in ANI Table).
- ANI Table Line Class Code Special Feature. This feature is deployed on the 5ESS Switch in a software update for the 5E10 and 5E11 Software Release. This feature has NO RTU (Right to Use) fee.

The above features are deployed on the 5ESS Switch in a software update for the 5E10 Software Release. The first four features have a RTU (Right to Use) fee. These features are secured features. The Lucent Technologies feature number for each feature is shown in the following table.

LDP Feature Set (5E10 and later)		
Feature Name	Feature No.	Security tag
TDX Basic Call Processing	99-5E-3127	SFID 165
TDX ANI Table Processing (5E10 through 5E12)	99-5E-3032	SFID 235
TDX ASP Interface	99-5E-3033	SFID 126*
TDX 15 Digit Accnt Code	99-5E-3034	SFID 235
ANI Table Line Class Code Special Feature	99-5E-3993	This feature has NO RTU fee

* part of the more general ASP functionality of the switch

The 5E10 and later LDP feature set is composed of 5 subfeatures:

- 99-5E-3127 - TDX Basic Call Processing - this is the BASE feature and is required by the other features. It contains the basic TDX offering.
- 99-5E-3032 - TDX ANI Table Processing - this contains the data base for customer specific toll call processing.
- 99-5E-3033 - TDX ASP Interface - this feature handles the interface to the SCP (Service Control Point).
- 99-5E-3034 - TDX 15 Digit Account Codes - this feature is different from the BRCS (Business/Residential Customer Services) Account Code feature. It introduces new interfaces to the RAF (Recorded Announcement Frame) Controller code in 5E11.
- 99-5E-3993 - ANI Table Line Class Code Special Feature - this feature interacts with the LDP Basic call processing capability (99-5E-3127) and ANI Table processing capability (99-5E-3032). This Special Feature builds upon those features by allowing increased flexibility in defining the screening code for a call with a given ANI. This feature has a dependency upon existing features 99-5E-3127 (Basic LDP Processing - SFID 165) and feature 99-5E-3032 (LDP ANI Table Processing - SFID 235). The Basic LDP Processing Feature (SFID 165) must be purchased before the Default ANI Table changes take effect and the LDP ANI Table Processing Feature (SFID 235) must be purchased before the ANI Table modifications will take effect.

Each are available for 5E10 and later Software Releases.

These features give the switch the ability to handle basic POTS (Plain Old Telephone Service) toll calls, along with the ability to apply specialized feature processing on a per customer basis. The customer is identified by the incoming ANI associated with the call. The specialized features that will be available to the customer with the introduction of these features will be per call account codes, interactions with an A-I-Net (Advanced Intelligent Network) SCP, switch based Network Call Denial, and Fixed Carrier Routing.

The operation of these features can apply to either the classic or SM2K processors.

The above features are provided on both a per-office (5ESS Switch) and per-trunk group basis. Certain data items apply to the whole switch and other data items govern how this processing is done on calls which are associated with the given trunk group.

The LDP Feature Set, 5E11 and later:

- LDP Multiple CIC (Carrier Identification Code) Support.
- LDP AMA Enhancements.
- LDP Data Capabilities.

The above features are deployed on the 5ESS Switch in a software update for the 5E11 Software Release. These features have a RTU (Right to Use) fee. These features are secured features. The Lucent Technologies feature number for each feature is shown in the following table.

LDP Feature Set (5E11 and later)		
Feature Name	Feature No.	Security tag
LDP Multiple CIC Support	99-5E-3133	SFID 202
LDP AMA Enhancements	99-5E-3675	SFID 202
LDP Data Calls	99-5E-3379	SFID 203

The 5E11 and later LDP feature set is composed of 3 subfeatures:

- 99-5E-3133 - LDP Multiple CIC (Carrier Identification Code) Support - provides custom routing to calls that have been associated with different carriers.
- 99-5E-3675 - LDP AMA Enhancements - AMA records for toll calls are enhanced.
- 99-5E-3379 - LDP Data Calls - this feature provides for incoming 56Kbps, 64Kbps, and wideband CSD (Circuit Switched Data) calls.

The LDP Feature Set, 5E12 and later:

The Lucent Technologies feature numbers are shown in the following table.

LDP Feature Set (5E12 and later)		
Feature Name	Feature No.	Security tag
LDP Multiple ANI	99-5E-3939	SFID 207
7-Digit DN Handling	99-5E-4429	This feature has NO RTU fee
ANI Table Expansion - 3-Digit and 6-Digit	99-5E-4221	This feature has NO RTU fee
ANI Table - NPA NXX Expansion	99-5E-4219	This feature has NO RTU fee

- 99-5E-3939 - LDP Multiple ANI - A single customer may subscribe to up to 8 carriers.
- 99-5E-4429 - 7-Digit DN Handling feature - This feature provides the ability for the Long Distance Platform to prefix an NPA (Numbering Plan Area) to a 7-digit destination number.
- 99-5E-4221 - ANI Table Expansion, 3-Digit / 6-Digit feature - This feature allows for partial matching of an ANI to an entry in the ANITBL (5E12 and earlier) form / ANITABLE (5E13 and later) .
- 99-5E-4219 - ANI Table, NPA NXX Expansion - This feature increases the size of the NPA-NXX table from 14,000 to 64,000.

Primary documentation for all LDP features is shown in a new subsection of the 235-200-110 (Long Distance

Platform) document.

The LDP Feature Set, 5E13 and later:

- FGD Cutthrough Trigger.
- Multistage 2-Way FGD.
- AIN (Advanced Intelligent Network) LDP Support for High Speed Data.

The above features are deployed on the 5ESS Switch as a 5E13 Software Update. The feature numbers for these feature are as follows:

LDP Feature Set (5E13 and later)		
Feature Name	Feature No.	Security tag
FGD Cutthrough Trigger	99-5E-4269	This feature has NO RTU fee
Multistage 2-Way FGD	99-5E-4301	This feature has NO RTU fee
400 HZ Carrier Tone	99-5E-4300	This feature has NO RTU fee
ANI Table Index	99-5E-4528	SFID 235
AIN LDP Support for High Speed Data	99-5E-4582	This feature has NO RTU fee

- 99-5E-4269 - FGD Cutthrough Trigger - Allows for ASP (Advanced Services Platform) triggering on FGD (Feature Group D) calls for a given trunk group.
- 99-5E-4301 - Multistage 2-Way FGD - Allows the ANI (Automatic Number Identification) to be sent to LECs (Local Exchange Carriers) or PBXs (Private Branch Exchanges) on calls egressing the LDP (Long Distance Platform) network on a LATA (Local area Transport Area) MF (Multi-Frequency) trunk.

99-5E-4300 - This feature adds a 400Hz tone, called Carrier Tone to the Long distance Platform.

99-5E-4528 - This feature is an evolution of the LDP ANI Table Processing (99-5E-3032) feature implemented in 5E10 and is secured using the same SFID 235.

- 99-5E-4582 - AIN LDP Support for High Speed Data - This feature provides support for high speed CSD (Circuit-Switched Data) calls and allows them to launch an ASP (Advanced Services Platform) query to the SCP Service Control Point.

1.1 TDX Basic Call Processing (5E10 and later)

The TDX Basic Call Processing capability is summarized as follows:

- Route Calls.
 - Routing by carrier ID and call type.
 - Routing of calls to other networks.
 - Routing of operator calls to an operator service provider switch.
- Provide AMA records at specific points in the toll network.

- Provide specialized signal interworking to other networks.
- Provide toll cut-through processing for callers that want a second dial tone from the TDX Switch.
- Provide special called party number processing (DNTs (Dialed Number Trigger) from LATA Trunks).
- Provide time of Day/Day of Week routing from OTDX (Originating Toll Digital Exchange) Switch.
- Provide DNTs on LATA (Local Area Transport Area) Trunks.

The TDX Basic Call Processing feature is a secured feature with SFID 165 and is associated with the TDX field on the TKGRP form, (5202 Record, RC/V 5.1).

1.2 TDX ANI Table Processing (5E10 and later)

With the ANI Table Processing feature, custom call processing specifications can be specified for each subscriber at the point where the call enters the TDX network.

The TDX ANI Table Processing feature is summarized as follows:

- Custom Routing by carrier ID and call type.
 - Number Screening (DAS (Digit Analysis Selector) Selection) optioned for each customer, e.g. a line DAS).
 - Routing by call type optioned for each customer.
 - Ability to declare SCPNs (Special Called Party Number) exempt from custom routing specifications.
- Network Call Denial for selected customers.

The TDX ANI Table Processing feature is secured with an SFID 235 and is associated with ANI PROCESS field on the TKGRP form, (5202 Record, RC/V 5.1). See (Section 1.16) for more information.

1.3 TDX ASP Interface (5E10 and later)

The TDX ASP Interface feature provides for integration of TDX functionality with the Advanced Intelligent Network interface and with centralized data bases.

The TDX ASP Interface feature is summarized as:

- Toll call handling may be done based on results of an ASP (Advanced Services Platform) query. The stimulus to do call handling in this way may be specified on a per customer basis. The DNT number is provisioned in the switch for each billing number. (Note that billing number can either be the charge number or the calling party number as determined by the existing algorithm to determine the ANI for the call.)

SFID 126 must be active to use the ASP part of this feature. (See below.)

1.4 TDX 15-digit Account Code (5E10 and later)

The TDX 15 Digit Account Code recording feature allows the TDX Switch to collect up to 15 digits of account code for each call at the point of entry into the TDX network. The account code will then appear in billing records.

The TDX 15-digit Account Code feature is summarized as follows:

- Custom Billing (Account Code Collection)
 - In 5E10, collection of account code digits is done similar to the collection authorization codes for Leased Network trunks, i.e., return BEEP2 tone to indicate to the user to begin dialing the account code digits. A billing record will be provided which contains the Account Code.
 - In 5E11 and later, the SAS (Service Announcement System) capability can be used to collect digits. An announcement will be played requesting the user to enter his/her Account Code. The office may be provisioned to use the 5E10 version of the account code feature if desired by the switch owner. A billing record will be provided which contains the Account Code, if applicable.

SFID 235 is used to secure the account code feature.

1.5 ANI Table Line Class Code Special Feature (5E10 and later)

ANI Table Line Class Code Special Feature will allow the provisioning of a different screening index than the one specified on the trunk group for an LDP toll call with the given ANI information.

With the ANI Table Line Class Code feature activated, the switch reads the ANI of the incoming call and looks it up in the ANI Table. Based on the information in the ANI Table entry, the switch determines how to process the call.

If there is an entry in the ANI table that matches the ANI of the incoming call, the switch uses the screening code associated with the ANI to process the call.

If there is an entry in the ANI table associated with the incoming call, but the entry does not contain a screening index value, the switch uses the default ANI table screening.

If there is no entry in the ANI table associated with the incoming call's ANI or if the switch does not have a default ANI table, the switch uses the trunk group information to process the call.

1.6 LDP Multiple CIC Support (5E11 and later)

The Multiple CIC Support for LDP feature allows the 5ESS Switch LDP to recognize and process calls for up to 20 different carriers. Each carrier is assigned a Separate CIC.

For the 5E11 software release only, this is a secured feature (SFID 202).

For the 5E12 and later software releases, the Multiple CIC Support for LDP feature is incorporated into the Basic Long Distance Platform features (99-5E-3032 and 99-5E-3127) and does not require a separate SFID to enable the feature.

The switch owner creates a Long Distance Platform Carrier Table using the LDPCTBL form, (5562 record, RC/V View 8.52), which can define up to 20 CICs. Each subscriber also has a default CIC, which is stored in the ANI table.

If a subscriber dials a call and does not select an alternate carrier, the default carrier (from the ANI table) is used to process the call. If a subscriber dials a call and selects an alternate carrier, the feature examines the LDP carrier table to verify that the carrier is valid.

When the ANI PROCESS field on the TKGRP form is set to "N" the following applies. Incoming calls are associated with a carrier identifier. The call's carrier id is then compared with the home carrier ANITBL (5E12 and earlier) form, (5561 record, RC/V View 8.51) / ANITABLE (5E13 and later) form (5575 record, RC/V View 8.58) LDP CARRID field and entries in the LDPCTBL form (5562 record, RC/V View 8.52). If a match is found, then specifications for that carrier (either the LDPCTBL entry or the Default ANI table for the home carrier) are used to process the call. If the carrier does not match then the call is routed using carrier routing and the call's carrier.

When the ANI PROCESS field on the TKGRP form is set to "Y" the following applies. Incoming calls are associated with a carrier identifier. The caller's entry in the ANI table is retrieved. The carrier id of the call is then compared to the subscribed carrier id. If a match occurs, the specifications for that ANI (ANI table entry) are used to process the call. In the case that the call's carrier does not match the subscribed carrier id, then the processing of the call depends on how the call's carrier id matches with either the home carrier or the LDPCTBL entries. If the carrier does not match then the call is routed using carrier routing and the call's carrier.

1.7 LDP AMA Enhancements (5E11 and later)

The LDP AMA Enhancement feature provides additional AMA billing or routing information, which is appended to the AMA billing record. This information allows service providers to more easily perform reconciliation of usage charges.

During call processing of LDP calls, the switch stores certain billing information, such as routing and billing numbers, class of service, and whether the call is an originating toll call. When the call ends, this billing information is appended to the AMA billing record for the call.

For the 5E11 software release only, this is a secured feature (SFID 202).

For the 5E12 and later software releases, the LDP AMA Enhancements for LDP feature is incorporated into the Basic Long Distance Platform features (99-5E-3032 and 99-5E-3127) and does not require a separate SFID to enable the feature.

1.8 LDP Data Calls (5E11 and later)

The LDP Data Capabilities Feature allows the 5ESS Switch to be used for data calls by suppressing certain call processing functions.

The following data calls are supported:

- 56Kbit/s
- 64Kbit/s
- 384Kbit/s
- 1472Kbit/s
- 1536Kbit/s
- Multi-rate

The switch first determines whether or not the incoming call is a data call, as follows. If the call arrives on an MF trunk group which has an assigned data rate, then the trunk group is considered to be dedicated to data traffic and all calls are assigned the data rate of the trunk group. Otherwise, the CCS7 user service information in the IAM (Initial Address Message) will indicate that it is a data call.

If a call is determined to be a data call, the switch chooses an outgoing route for the call based on the fact that it is a data call. Data calls are routed over the same or separate trunk groups as voice calls, depending on the engineering requirements of the office.

ANI table processing applies to data calls, as follows. If the NCD (Network Call Denial) indicator is set for the incoming ANI, the call will be denied without playing an announcement before disconnect. Fixed carrier routing operates the same for data calls as it does with non-data calls. Also, the switch ignores account code processing even when the LDP Account Code field is set for the incoming ANI.

Special toll billing considerations apply to data calls. AMA records for wideband data calls are formatted with structure code 645. Module 70/71 is used to describe the data rate of the call. AMA records for single channel data calls are formatted with structure code 625.

This is a secured feature (SFID 203).

1.9 LDP Multiple ANI (5E12 and later)

The LDP Carrier Table and the Default LDP Carrier Table, LDPCTBL form, are enhanced to allow a distinction in call handling specifications between calls where the carrier was presubscribed and calls where the carrier was not presubscribed.

This is a secured feature (SFID 207).

1.10 7-Digit DN Handling (5E12 and later)

The feature number for the 7-Digit DN Handling feature is 99-5E-4429. This feature is being deployed as a 5E12 Software Update. No SFID is required to enable this feature.

This feature provides the ability for the Long Distance Platform to prefix an NPA (Numbering Plan Area) to a 7-digit destination number incoming to the switch on a LATA (Local Area Transport Access) class trunk group. The prefixing is done prior to digit analysis. The service provider is able to choose whether to prefix the NPA designated on the incoming trunk group or the NPA of the incoming ANI (Automatic Numbering Identification).

1.11 ANI Table Expansion - 3-Digit and 6-Digit (5E12 and later)

The feature number for the ANI Table Expansion - 3-Digit and 6-Digit feature is 99-5E-4221. This feature is being deployed as a 5E12 Software Update. No SFID is required to enable this feature.

This feature allows for partial matching of an ANI to an entry in the ANITBL (5E12 and earlier) form / ANITABLE (5E13 and later) form (5575 Record, RC/V View 8.58). Before implementation of this feature, an ANI matched an entry in the ANITBL / ANITABLE only if all 10 digits of the incoming ANI matched an entry in the ANITBL / ANITABLE.

On a trunk group with LDP set to "Y" and ANI PROCESS set to "Y", the Toll 5ESS Switch shall search the ANI table for a match. If a match is found, information for that entry in the ANITBL / ANITABLE will be used. The search occurs as follows:

- Search for an entry that matches on both the call's 10-digit ANI (NPA NXX XXXX) and the LDP CARRIER.
- Not finding the above entry, search for an entry that matches the call's 10-digit ANI and has the LDP CARRIER set to :
 - For 5E12: "10004" for the wild card LDP Carrier.
 - For 5E13 and later: "ANY" for the wild card LDP Carrier.
- Not finding the above entry, search for a 6-digit ANI entry (NPA NXX ANY) that matches the call's NPA-NXX and the call's LDP CARRIER.
- Not finding the above entry, search for a 6 digit ANI entry (NPA NXX ANY) that matches the call's NPA-NXX and has the LDP CARRIER set to :
 - For 5E12: "10004" for the wild card LDP Carrier.
 - For 5E13 and later: "ANY" for the wild card LDP Carrier.
- Not finding the above entry search for a 3-digit ANI entry (NPA-000-0000) that matches the call's NPA and the call's LDP CARRIER.
- Not finding the above entry search for a 3-digit ANI entry (NPA-000-0000) that matches the call's NPA and has the LDP CARRIER set to :
 - For 5E12: "10004" for the wild card LDP Carrier.
 - For 5E13 and later: "ANY" for the wild card LDP Carrier.

If no entry is found, then there is no match for the call in the ANITBL / ANITABLE.

1.12 ANI Table - NPA NXX Expansion (5E12 and later)

The feature number for the ANI Table - NPA NXX Expansion feature is 99-5E-4219. This feature is being deployed as a 5E12 Software Update. No SFID is required to enable this feature.

This feature increases the size of the NPA-NXX table from 14,000 to 64,000. The table is stored on all SMs and is used to point to the SM containing the ANI Table to be used for a given NPA-NXX number.

The ten-digit ANI tables are divided among different SMs.

No forms are added or changed to support this feature.

1.13 FGD Cutthrough Trigger (5E13 and later)

The feature number for the FGD Cutthrough Trigger feature is 99-5E-4269. This feature is being deployed as a 5E13 Software Update.

This feature provides the ability to set a trigger to trigger on FGD cut-through calls on a per trunk group basis.

1.14 Multistage 2-Way FGD (5E13 and later)

The feature number for the Multistage 2-Way FGD feature is 99-5E-4301. This feature is being deployed as a 5E13 Software Update.

The 5ESS Long Distance Switch supports direct access for business customers to the Toll Switch via the DAL (Direct Access Line) trunk class. Prior to this feature this was available only over one-way trunks. This feature extends the capability to two-way trunks (the type of trunk typically connecting a PBX and a Toll Switch).

1.15 400 HZ Carrier Tone (5E13 and later)

The feature number for the 400 Hz Carrier Tone feature is 99-5E-4300. This feature is being deployed as a 5E13 Software Update.

Many IECs (Inter-Exchange Carriers) have elected to use a steady, 400Hz signal (known as Carrier Tone) in the voice path for communicating with end customer equipment. Carrier Tone lets CPE (Customer Premise Equipment) know that it has reached an IEC and that additional dialed digits will be needed. Carrier Tone has become a "de facto" standard in the long distance marketplace. An existing IEC wanting to put a new toll switch into its network, will require that Carrier Tone be an alternative to the standard tones or announcements, so that it will not have to ask its customers to re-program their CPE. Prior to this feature, the 5ESS Switch did not offer a 400Hz tone.

This feature adds a 400Hz tone, called Carrier Tone, to the Long Distance Platform. As an option, either Standard Tones and Announcements, or Carrier Tone can be used during various Long Distance call scenarios. This feature adds Carrier Tone to the list of possible options.

This feature will not require a security mechanism for itself. This feature is providing basic enhancements to the Long Distance Platform. It relies on the condition that SFID 165 (for Long Distance Platform) is unlocked.

1.16 ANI Table Index (5E13 and later)

The feature number for ANI Table Index is 99-5E-4528. This feature is being deployed as a 5E13 Software Update. This feature is an evolution of the LDP ANI Table Processing (99-5E-3032) feature implemented in 5E10 and is secured using the same SFID 235.

Before implementing this feature if the LDP administrator wants to group a set of ANIs together (have the same values in the ANI table for these ANIs), the administrator would have to populate the above seven fields in the same way for each ANI in the group. Similarly, if the administrator wants to change how the switch handles this group of ANIs, the administrator would have to go to each ANI entry and change it. There is a high administrative overhead when they are dealing with groups of ANIs in the millions.

What this feature does is break the ANI tables (ANITBL) into a header part (ANITABLE) and a data part (LDPINDEX). The header part contains the keys fields and an index to the data table. This index field will point to a new table that will contain the same key fields that were in the previous ANITBL.

If the LDP administrator wants to group a set of ANIs together, the administrator need only give this group the same index and then populate that index in the LDPINDEX INDEX field. If later, the administrator wants to change how calls are handled for this group of ANIs, the administrator need only change one entry in the LDPINDEX form.

1.17 AIN LDP Support for High Speed Data (5E13 and later)

The feature number for the AIN (Advanced Intelligent Network) LDP Support for High Speed Data feature is

99-5E-4582. This feature is being deployed as a Software Update.

Currently, if a CSD (Circuit Switched Data) call with a data rate greater than 64 Kbps comes into a 5ESS Switch LDP and encounters an ASP (Advanced Services Platform) trigger, the ASP trigger is ignored and no ASP R0.1 query is launched to the SCP (Service Control Point). AIN supports CSD calls for data rates of 56Kbps and 64 Kbps, but does not support high speed CSD calls with data rates greater than 64 Kbps.

This feature provides support for high speed CSD calls and allows them to launch an ASP query to the SCP. These calls can now be re-routed based on the reply from the SCP. For high speed CSD calls, the bearer capability field in the ASP R0.1 query is fixed at 64 Kbps by this feature, as this is the maximum allowable data rate for AIN CSD calls.

There is no new SFID (Secured Feature ID) required for this feature and no forms are added or changed to support this feature.

1.17.1 Call Processing

This feature is only supported for LATA trunk, VPN, and DAL originations on the 5ESS Switch LDP. A brief description of each of these valid originations is as follows:

For LATA service class on the LDP, VPN (Virtual Private Network) calls and DAL (Direct Access Links) trunk originations, if the SERVICE ALWD field on the NSTRIG form is equal to "CSD" or "BOTH", high speed CSD calls are allowed to proceed. If, however, the SERVICE ALWD field is equal to "VOICE", the high speed CSD call ignores the ASP trigger.

For all calls other than LATA trunk originations, VPN calls and DAL trunk originations on the LDP, if the SERVICE ALWD field on the NSTRIG form is equal to "CSD" or "BOTH", high speed CSD calls ignore the ASP trigger. If, however, the SERVICE ALWD field is equal to "VOICE", the high speed CSD call ignores the ASP trigger.

If the call originates on a non-LDP trunk group, high speed calls ignore the ASP triggers and no query is launched to the SCP.

ASP triggers that can be hit for high speed data calls for LATA trunk, VPN, and DAL originations include the following:

DNT (Dialed Number Triggers)

ANI (Automatic Number Identification) Table Triggers

ANI II (Identification Information) Table Triggers

Carrier Table Triggers

VPN Access Triggers

DAL Access Triggers

1.17.2 Restrictions

This feature:

is intended for ASP R0.1; ASP R0 does not support CSD calls.

is limited to high speed CSD LATA, DAL, and VPN originations on the 5ESS Switch LDP. All other types of high speed CSD originations on the 5ESS Switch LDP do not encounter ASP triggers.

involves the ASPTQ (ASP Test Query) which is a switch-based tool that allows the user to build and launch ASP test queries. As this feature fixes the bearer capability field in the ASP query to 64 Kbps, no changes are needed for the ASP Test Query tool. The desired result can be obtained by the input of the bearer capability equal to 64 Kbps. The generated ASP test query has bearer capability equal to 64 Kbps.

1.17.3 Scenarios

1.17.3.1 Pre-application

Provision a DNT for a high speed CSD call coming in on a LATA trunk with the LDP field on the TKGRP form set to "Y". (Make sure the trigger assigned is an ASP R0.1 trigger and can support the CSD, NSTRIG form.)

Make the call such that the provisioned DNT should get hit.

Although the digits dialed correspond to the provisioned ASP R0.1 trigger, no ASP query is generated. ASP functionality is totally bypassed and the call proceeds as a non-ASP high speed CSD call. It goes through digit analysis and routes to the destination it derived from digit analysis.

Finally, without the SU (Software Update) applied, ASP does not support high speed CSD calls.

1.17.3.2 Post-application

Apply the SU containing the AIN LDP Support for High Speed Data feature (99-5E-4582) and make the call again as described in the first two items listed in the Pre-application section of this document.

An Info_Analyzed ASP R0.1 query should be generated for the high speed data call. Note that the bearer capability field in this query is fixed at 64 Kbps regardless of the data rate of the high speed CSD call. The SCP is now able to respond to the ASP R0.1 query and possibly redirect the call.

Finally, after the SU is applied, ASP supports high speed CSD calls and generates ASP R0.1 queries with the bearer capability field in the query fixed at 64 Kbps.

1.18 Network Configurations

Many network configurations are possible with the LDP Feature. Four basic configurations are discussed in Figures 1, 2, 3, and 4.

1.19 Interactions

The LDP feature set is not dependent on any other 5E10 external features.

The full LDP feature set is dependent on the following base features:

- ASP DNT - The DNT query mechanism is used when a trigger number is specified in the ANI TABLE.

- EAMF (Equal Access Multi Frequency) Signaling FGD (Feature Group D) - EA/MF FGD signaling functionality is used to signal calls from an OLDP switch to another network.
- CCS-NI (Common Channel Signaling - Network Interconnect) Signaling - EA/ISUP7 FGD signaling functionality is used to signal calls from an OLDP switch to another network.
- Multi-Party Lines - These features may be used to make calls to the LDP network. Three digit ANI is delivered to the LDP network when such calls are made.
- AMA Record Formatting - Specialized AMA records are provided for LDP calls. The generation of these records does not disrupt the generation of billing records at existing points in the network.
- CDX (Compact Digital Exchange) LDP calls are provided on a CDX Switch.
- VCDX (Very Compact Digital Exchange) - LDP calls are provided at a VCDX Switch.
- International Dialing (including 15-digits) - LDP calls must be made with the IDDD15 feature.
- Network Management strategies must work in the LDP switch.

1.20 Engineering Considerations

The assignment of a processor for storage of customer processing information (ANI Table entries) for each NPA-NXX combination may either be engineered or allocated at random by the software. See the 235-040-100 for more details.

2. FEATURE ASSIGNMENT

2.1 The LDP Feature Set (5E10 and later)

The following is the suggested provisioning sequence assuming all 5 features in this LDP Feature set are to be provisioned. Users who wish to only use a subset of these features can shorten one or more of these steps. Provisioning the LDP Feature (Figure 5) requires the following:

- Make sure the Basic TDX Call Processing Feature is turned on by setting the SFID ACT 165 field on the SFSYS form, (5713-1 Record, RC/V View 8.22) to "Y".
- Make sure the ANI Table Processing Feature is turned on by setting the SFID ACT 235 field on the SFSYS form, (5713-1 record RC/V View 8.22) to "Y".
- Create the default ANI Table using the ANITBL (5E12 and earlier) form, (5561 Record, RC/V View 8.51) / ANITABLE (5E13 and later) form (5575 Record, RC/V View 8.58).
- Plan which of the SMs will be resident for all customer data for each possible NPA-NXX combination. Align this with the placement of trunk groups from which traffic will be presented. Enter this data using the ANIMOD form, (5560 Record, RC/V View 8.50).
- Use the ANITBL (5E12 and earlier) form (5561 Record, RC/V View 8.51) / ANITABLE form (5575 Record, RC/V View 8.58)(5E13 and later) to create additional ANI Table entries for each ANI value which desires custom processing specifications.
- After the ANI Table Line Class Code Special Feature has been loaded, the screening index can be updated by entering a value in the SCR field of the ANITBL (5E12 and earlier) form, (5561 Record, RC

View 8.51) / LDPINDEX (5E13 and later) form (5576 Record, RC View 8.59). If it is desirable to enter an SCR value for the Default ANI Table, then enter an SCR value on the ANITBL / LDPINDEX form when the key is : NPA equals 000, NXX equals 000, XXXX equals 0000. If no SCR value is entered on the ANITBL / LDPINDEX form, for a given ANI and there is no SCR value in the Default ANITBL / LDPINDEX SCR field, the screening index on the TKGRP form (5202 Record, RC View 5.1) is used.

- Decide how many calls are to be routed out of the OTDX switch using FGD vs. TRAD signaling.
- Use the DAS, PDIT, and SMLDIT forms (5300-1, 5300-2, 5315 Records, RC/V Views 9.1, 9.2, and 9.25) to provision appropriate DAS data. Include desired DNTs and specifications for BYPASS equals "Y" for some numbers.
- Use the ICF form, (5305 Record, RC/V View 10.3) to populate appropriate carrier routing data. Provision appropriate TRIG NBR data using the NSTRIG form, (5324 Record, RC/V View 9.35).
- For calls that go to particular carriers, use the CDIM form (5300-6 Record, RC/V 9.7) to specify tandem routing and carrier routing when DIG ROUTING is "Y" on the ICF form, (5305 Record, RC/V View 10.3).
- Set the TDX field to "Y" and/or the ANI PROC field to "Y" for appropriate trunk groups using the TKGRP form, (5202 Record, RC/V 5.1).

2.2 LDP Feature Set (5E11 and later)

The following is the suggested provisioning sequence assuming all 3 features in this LDP Feature set are to be provisioned. Also, assume that the user has provisioned the switch for the Basic LDP call processing feature and activated SFID165. The Users who wish to use a subset of these features can shorten one or more of these steps.

- Make sure the Basic TDX Call Processing Feature is turned on by setting the SFID ACT 165 field on the SFSYS form, (5713-1 Record, RC/V View 8.22) to "Y".
- Make sure the ANI Table Processing Feature is turned on by setting the SFID ACT 235 field on the SFSYS form (5713-1 Record RC/V View 8.22) to "Y".
- Turn on the 5E11 LDP feature set by setting the SFID ACT 202 and 203 fields on the SFSYS form (5713-1 Record RC/V View 8.22) to "Y".
- Create the default ANI Table using the ANITBL (5E12 and earlier) form (5561 Record, RC/V View 8.51) / ANITABLE (5E13 and later) form (5575 Record, RC/V View 8.58).
- Create the default LDP Carrier Table using the LDPCTBL form (5562 Record, RC/V View 8.52). Provide 1 entry for each carrier other than the home carrier for which custom processing is desired.
- Create the LDP Carrier Table using LDPCTBL form (5562 Record, RC/V View 8.52).
- Use ANITBL (5E12 and earlier) form / ANITABLE (5E13 and later) form to create ANI Table entries for each ANI value which desires custom processing specifications.
- Process calls for multiple carriers.

2.3 LDP Feature Set (5E12 and later)

- Make sure the Basic LDP Call Processing Feature (SFID165) and the LDP Multiple CIC feature (SFID202) is turned on with SFSYS form (5713-1 Record, RC/V View 8.22).
- Make sure the ANI Table Processing Feature is turned on by setting the SFID ACT 235 field on the SFSYS form (5713-1 Record RC/V View 8.22) to "Y".
- Create the default ANI Table using ANITBL (5E12 and earlier) form (5561 Record, RC/V View 8.51) /ANITABLE (5E13 and later) form (5575 Record, RC/V View 8.58).
- Create the default LDP Carrier Table using LDPCTBL form (5562 Record, RC/V View 8.52). Provide 1 entry for each carrier other than the home carrier for which custom processing is desired.
- Create the LDP Carrier Table using LDPCTBL form (5562 Record, RC/V View 8.52). Up to 64 entries may be entered. One of these entries corresponds to the home carrier id LDP CARRIER. Separate entries are made for CARRIER PRESUBSCD equal to "Y" and CARRIER PRESUBSCD equal to "N".
- Use ANITBL / ANITABLE form to create ANI Table entries for each ANI value which desires custom processing specifications. Each entry includes a carrier id to which the customer has subscribed.
- Process calls for multiple carriers.

2.4 LDP Feature Set (5E13 and later)

For provisioning of these features:

- For all features listed below, make sure the Basic LDP Call Processing Feature (SFID165) is turned on by setting the ACT field on the SFSYS form (5713-1 Record) to "Y".
- For FGD Cutthrough Trigger feature (99-5E-4269):
 - On the NSTRIG form (5324 Record), set the APPLICATION field to "ASP" and the AIN REL field to "ROD1".
 - Set CUT THRU TRIG on the TKGRP form (5200 Record) to "Y".
- For Multistage 2-Way FGD feature (99-5E-4301):
 - Set PASS ANI to "Y" on the TKGRP form.

For 400 HZ Carrier Tone feature (99-5E-4300). See Figure 8.

- Set CARRIER TONE to "Y" on the OFCOPT form.
- For Carrier Tone as a Network Announcement prompt, set TONE TYPE on the SSPANN form to "CARRIER".
- For Carrier Tone as a prompt tone for collecting account codes and other information:

For trunk group option, set ACCT PROMPT to "CARRIER" and CT FOR DT to "Y" on the TKGRP form.

For switch wide option, set ACCT PROMPT to "GLOBAL" on the TKGRP form and set ACCT PROMPT to "CARRIER" on the OFCOPT form.

For the AIN LDP Support for High Speed Data feature (99-5E-4582), the following is a list of valid originations:

- LATA Originations - Set the LDP field to "Y" on the TKGRP form (5202 Record). (This implies that SFID 165 is activated.)
- VPN Originations - Activate the VPN LDP feature (SFID 242) by setting the ACT field on the SFSYS form (5713-1) to "Y". On the TKGRP form, set the VPN ACCESS field to "Y".
- DAL Originations - Activate the DAL feature (SFID 272) by setting the ACT field on the SFSYS form to "Y". On the TKGRP form, set the DAL ACCESS field to "Y".

3. TRANSLATION REQUIREMENTS

3.1 The LDP Feature Set (5E10 and later)

TABLE 3.1

New and Modified ODA Forms (5E10 and later)				
Form Name	Record Number	Division	Section	RC View
ANIMOD	5560	3	5BD	8.50
ANITBL	5561	3	5BE	8.51
IDDD	5307	3	3T	9.6
LDIT	5300-3	3	3C	9.3
MLDIT	5300-5	3	3C	9.3
OFCOPT	5509	3	5I	8.1
PDIT	5300-2	3	3B	9.2
RDIT	5300-7/8	3	3H	9.9
TKGRP	5202	3	2A	5.1

ANIMOD form (5560 Record) - The 5560 Record is used to define the SM (Switch Module) which contains further Outbound Services data for the given ANI (Automatic Number Identification).

This new form supports the TDX ANI Table Special Feature.

ANITBL form (5561 Record) - The 5561 Record contains the switch based ANI (Automatic Number Identification) table. The ANI table contains ANIs designating special treatment when a match occurs with an ANI associated with an incoming TDX (Toll Digital Exchange) Call based on the option set, which is defined on this form. With 5E13 and later this form is replaced by the ANITABLE and LDPINDEX forms.

For 5E10 and later, this new form was added to support the TDX ANI Table Special Feature. Also the SCR field was added to support the ANI Table Line Class Code feature.

IDDD form (5307 Record) - The 5307 Record is used for IDDD (International Direct Distance Dialing) Country Access Codes.

For 5E10 and later, the ANI BYPASS field was added to support TDX ANI Table Processing, SFID 235.

LDIT form (5300-3 Record) - The 5300-3 and 5300-5 Records are used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Any code from 1 - 15 digits in length may be defined. The

LDIT serves as both a "local" and "foreign" area translator.

For 5E10 and later, the ANI BYPASS field was added to support TDX ANI Table Processing, SFID 235.

MLDIT form (5300-5 Record) - The 5300-3 and 5300-5 Records are used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Any code from 1 - 15 digits in length may be defined. The MLDIT serves as both a "local" and "foreign" area translator.

For 5E10 and later, the ANI BYPASS field was added to support TDX ANI Table Processing, SFID 235.

OFCOPT form (5509 Record) - The 5509 Record is used to supply various miscellaneous office options and parameters.

For 5E10 and later, the TDX CARRID field was added to support TDX Basic Call Processing, SFID 165.

PDIT form (5300-2 Record) - The 5300-2 Record is used to define the Prefix/Feature Digit Interpreter in a 5ESS Switch. The purpose of PDIT is to provide information defining feature and operator access and to provide prefix information for dialed codes which are analyzed in the LDIT (Local Digit Interpreter Table). Digit analysis for all line originated calls in a 5ESS Switch start in PDIT. At least the first digit of every valid dialable code must be represented in PDIT.

For 5E10 and later, the ANI BYPASS field was added to support TDX ANI Table Processing, SFID 235.

RDIT form (5300-7/8 Record) - The RDIT input form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request.

For 5E10 and later, the ANI BYPASS field was added to support TDX ANI Table Processing, SFID 235.

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

For 5E10 and later, the TDX, ANI PROCESS, and TERM BILL fields were added to support TDX Basic Call Processing (SFID 165) and TDX ANI Table Processing (SFID 235).

3.2 LDP Feature Set (5E11 and later)

TABLE 3.2 New and Modified ODA Forms (5E11 and later)				
Form Name	Record Number	Division	Section	RC View
ANITBL	5561	3	5BE	8.51
LDPCTBL	5562	3	5BF	8.52

ANITBL form (5561 Record) - The 5561 Record contains the switch based ANI (Automatic Number Identification) table. The ANI table contains ANIs designating special treatment when a match occurs with an ANI associated with an incoming TDX (Toll Digital Exchange) Call based on the option set, which is defined on this form. With 5E13 and later this form is replaced by the ANITABLE and LDPINDEX forms.

For 5E11 and later, the LDP CARRIER field was added to support LDP Multiple CIC Support, SFID 165.

LDPCTBL form (5562 Record) - The 5562 Record provides a LDP Carrier Table and Default Carrier Table.

This new form supports the LDP Multiple CIC Special Feature.

3.3 LDP feature set (5E12 and later)

TABLE 3.3

New and Modified ODA Forms (5E12 and later)				
Form Name	Record Number	Division	Section	RC View
ANITBL	5561	3	5BE	8.51
LDPCTBL	5562	3	5BF	8.52
TKGRP	5202	3	2A	5.1

ANITBL form (5561 Record) - The 5561 Record contains the switch-based ANI (Automatic Number Identification) table. The ANI table contains ANIs designating special treatment when a match occurs with an ANI associated with an incoming TDX (Toll Digital Exchange) Call based on the option set, which is defined on this form. With 5E13 and later this form is replaced by the ANITABLE and LDPINDEX forms.

For 5E12 and later, the valid entries for the LINE and LDP CARRIER fields are changed to support the ANI Table Expansion - 3-Digit and 6-Digit feature.

LDPCTBL form (5562 Record) - The 5562 Record provides a LDP Carrier Table and Default Carrier Table.

For 5E12 and later, the CARRIER PRESUBSCD field was added to support LDP Multiple ANI, SFID 207.

TKGRP form (5202 Record) - The 5202 Record is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on this record is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

For 5E12 and later, the PREF NPA was added to support the 7-Digit DN Handling feature.

For 5E12 and later, a data rule was added to the TDX field.

3.4 LDP feature set (5E13 and later)

TABLE 3.4

New and Modified ODA Forms (5E13 and later)				
Form Name	Record Number	Division	Section	RC View
ANITABLE	5575	3	5BP	8.58
LDPINDEX	5576	3	5BQ	8.59
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22
SSPANN	5535	3	5AI	10.17
TKGRP	5202	3	2A	5.1

ANITABLE form (5575 Record) - The 5575 Record contains the ANI's designating special treatment when a match occurs with an incoming LDP (Long Distance Platform) Call based on an index-defined option set, which is defined on the LDPINDEX form. This form was added to support the ANI Table Index feature.

LDPINDEX form (5576 Record) - The 5576 Record contains the option set for the ANITABLE form. This form was added to support the ANI Table Index feature.

OFCOPT form (5509 Record) - The 5509 Record is used to supply various miscellaneous office options and parameters. For 5E13 and later, the ACCT PROMPT and CARRIER TONE fields were added to support the 400Hz Carrier Tone Feature. For 5E13 the LDP ANI field was added to indicate which ANI table to use for populating ANI data. This field was added to support the ANI Table Index feature and only exists in 5E13.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 165 to "Y".

SSPANN form (5535 Record) - This form is used to specify an announcement code and either the route index to an announcement trunk group to be used to supply the appropriate message or pointers to customized header and trailer announcements. For 5E13 and later, the TONE TYPE field was added to support the 400Hz Carrier Tone Feature.

TKGRP form (5202 Record) - The 5202 Record is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on this record is information that is common to the entire group.

For 5E13 and later, the CUT THRU TRIG field was added to support the FGD Cutthrough Trigger feature and the PASS ANI field was added to support the Multistage 2-Way FGD feature.

For 5E13 and later, the ACCT PROMPT and CT FOR DT fields were added to support the 400Hz Carrier Tone feature.

4. GLOSSARY

AIN	Advanced Intelligent Network
ANI	Automatic Numbering Identification
ASP	Advance Services Platform
BRCS	Business/Residential Customer Services
CCS	Common Channel Signaling
CDX	Compact Digital Exchange
CIC	Carrier Identification Code
DAL	Direct Access Line
DAS	Digit Analysis Selector
DNT	Dialed Number Trigger
EA	Equal Access
FGD	Feature Group D
ISUP	Integrated Services - User Part
LATA	Local Area Transport Area
LDP	Long Distance Platform
LEC	Local Exchange Carrier
MF	Multi-Frequency
NI	National ISDN or Network Interconnect
NPA	Numbering Plan Area

ODA	Office Data Assembler
OTDX	Originating Toll Digital Exchange
PBX	Private Branch Exchange
RAF	Recorded Announcement Frame/Function
RC	Recent Change Subsystem
RTU	Right to Use
SCP	Service Control Point
SCPN	Special Called Party Number
SM	Switching Module
SM2K	Switching Module 2000
TDX	Toll Digital Exchange
VCDX	Very Compact Digital Exchange

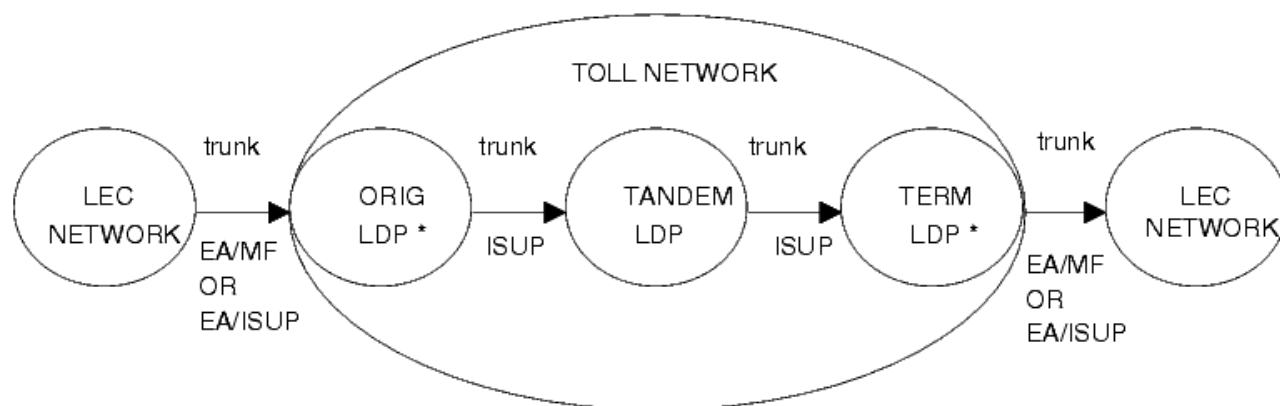


Figure 1 LDP CONFIGURATION 1

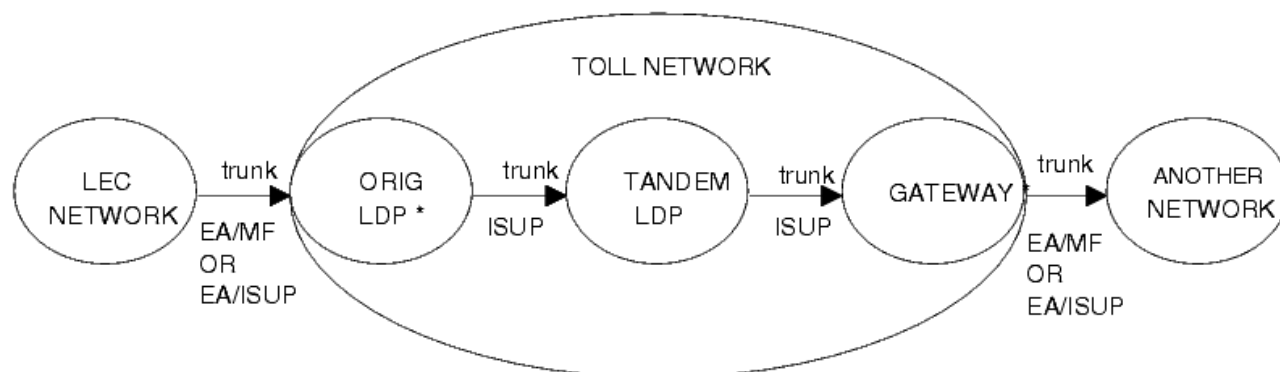
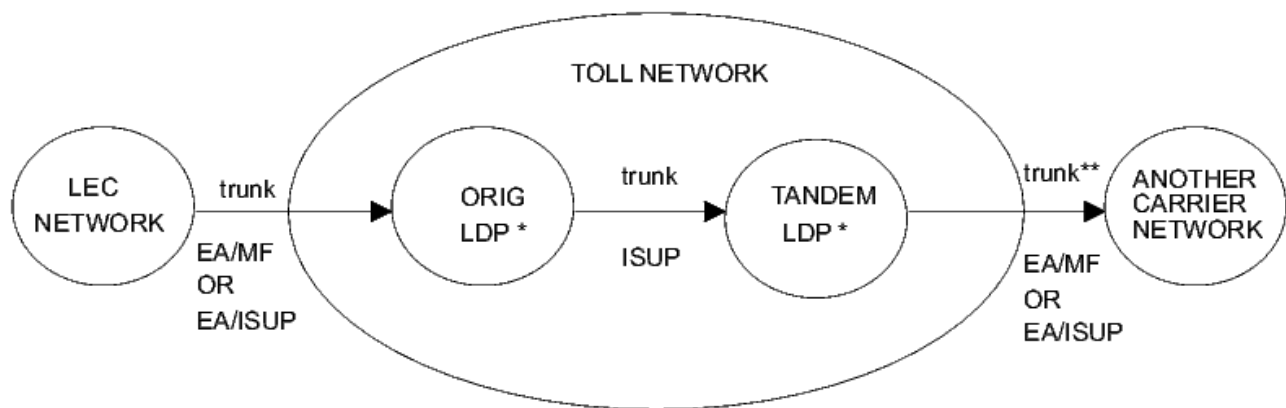
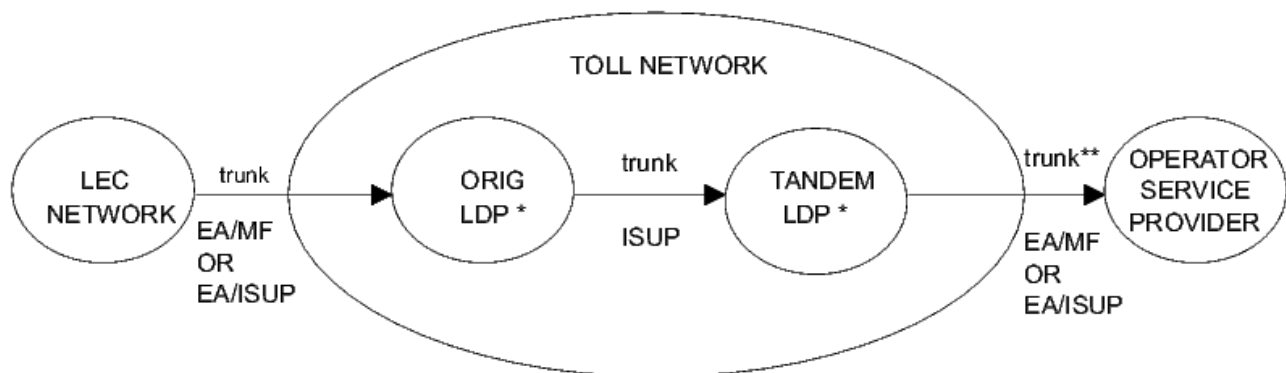


Figure 2 LDP CONFIGURATION 2

**Figure 3 LDP CONFIGURATION 3****Figure 4 LDP CONFIGURATION 4**

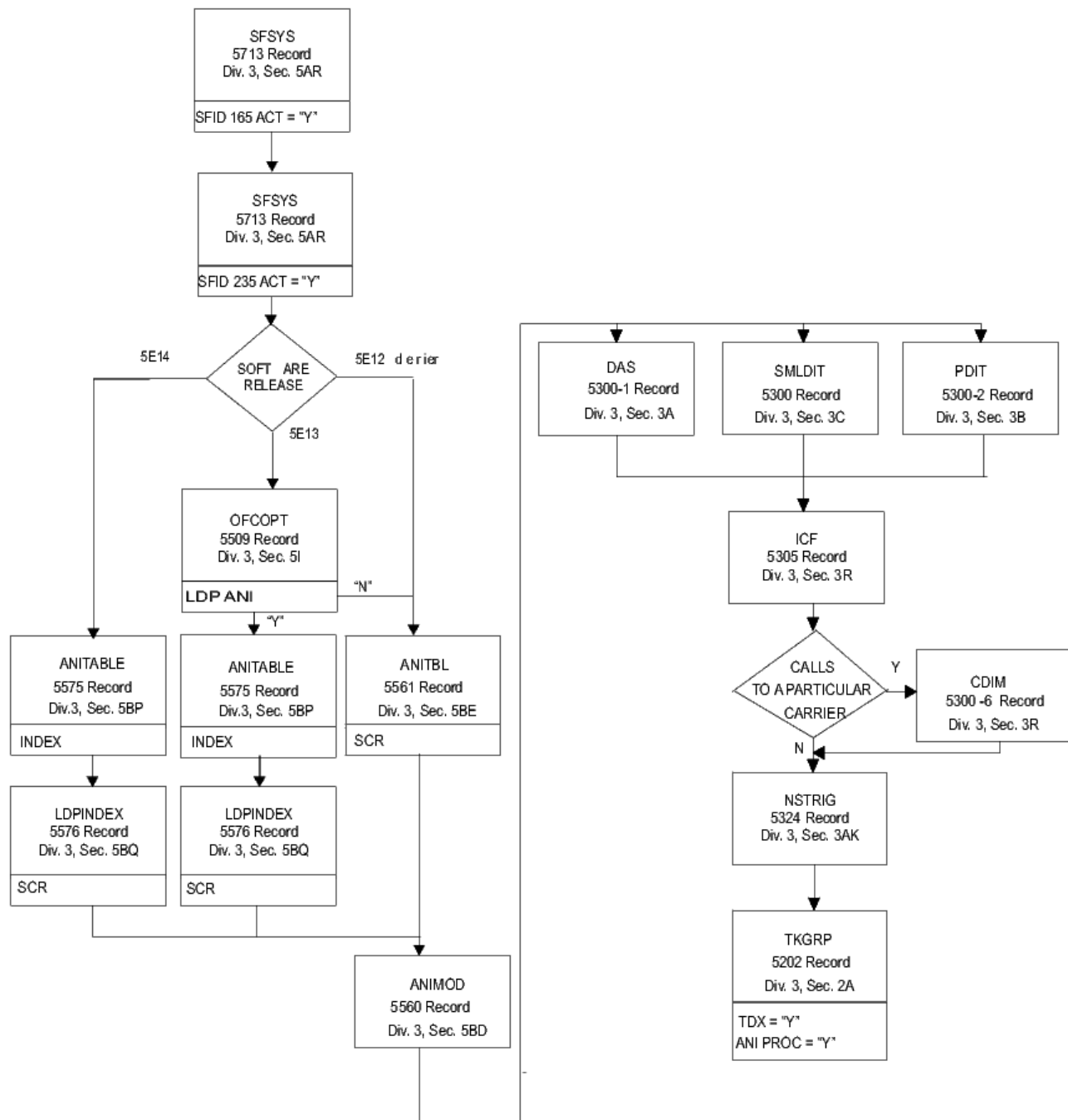


Figure 5 FORM FLOW FOR 5E10 AND LATER LDP FEATURE SET

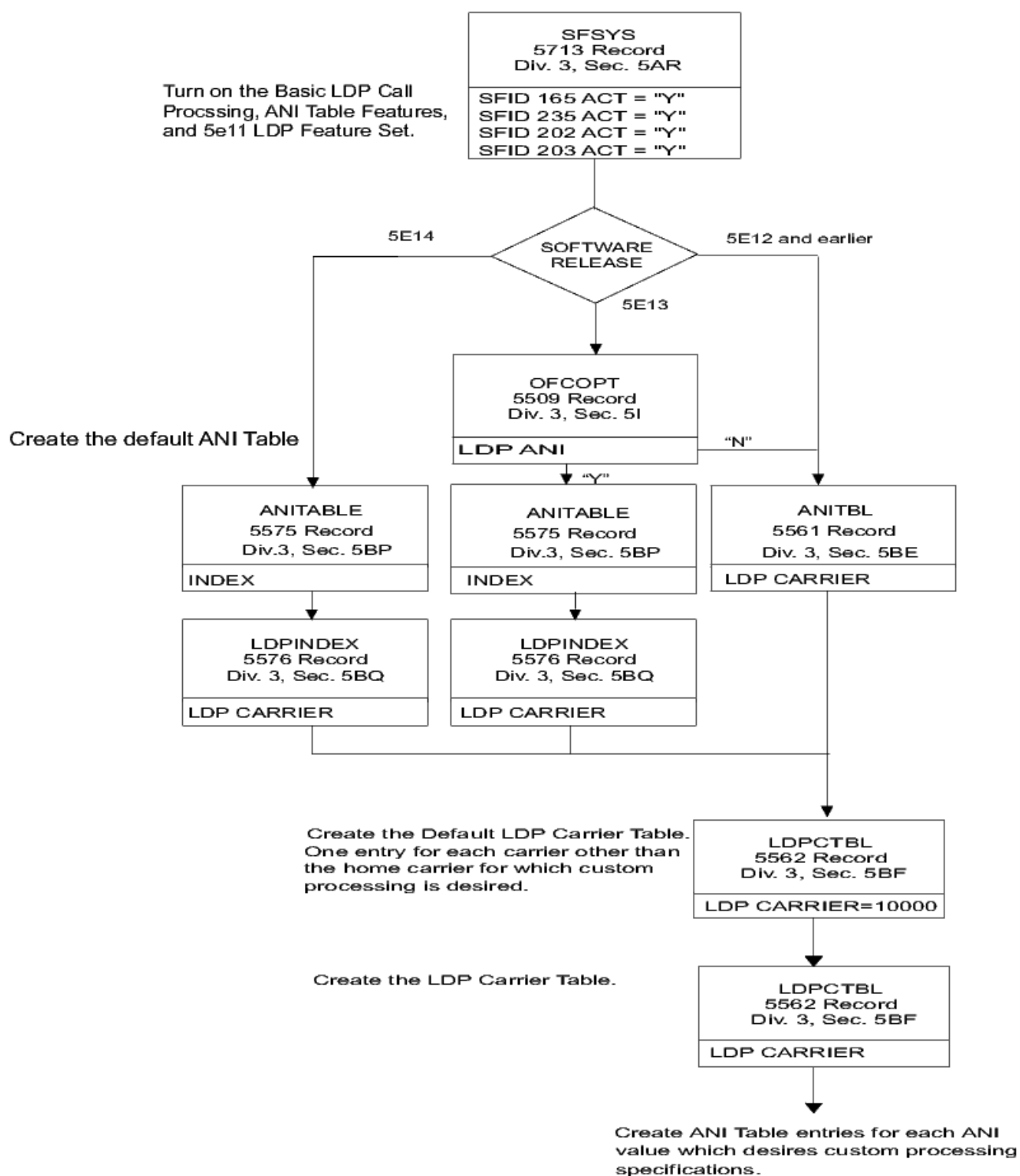


Figure 6 FORM FLOW FOR 5E11 AND LATER LDP FEATURE SET

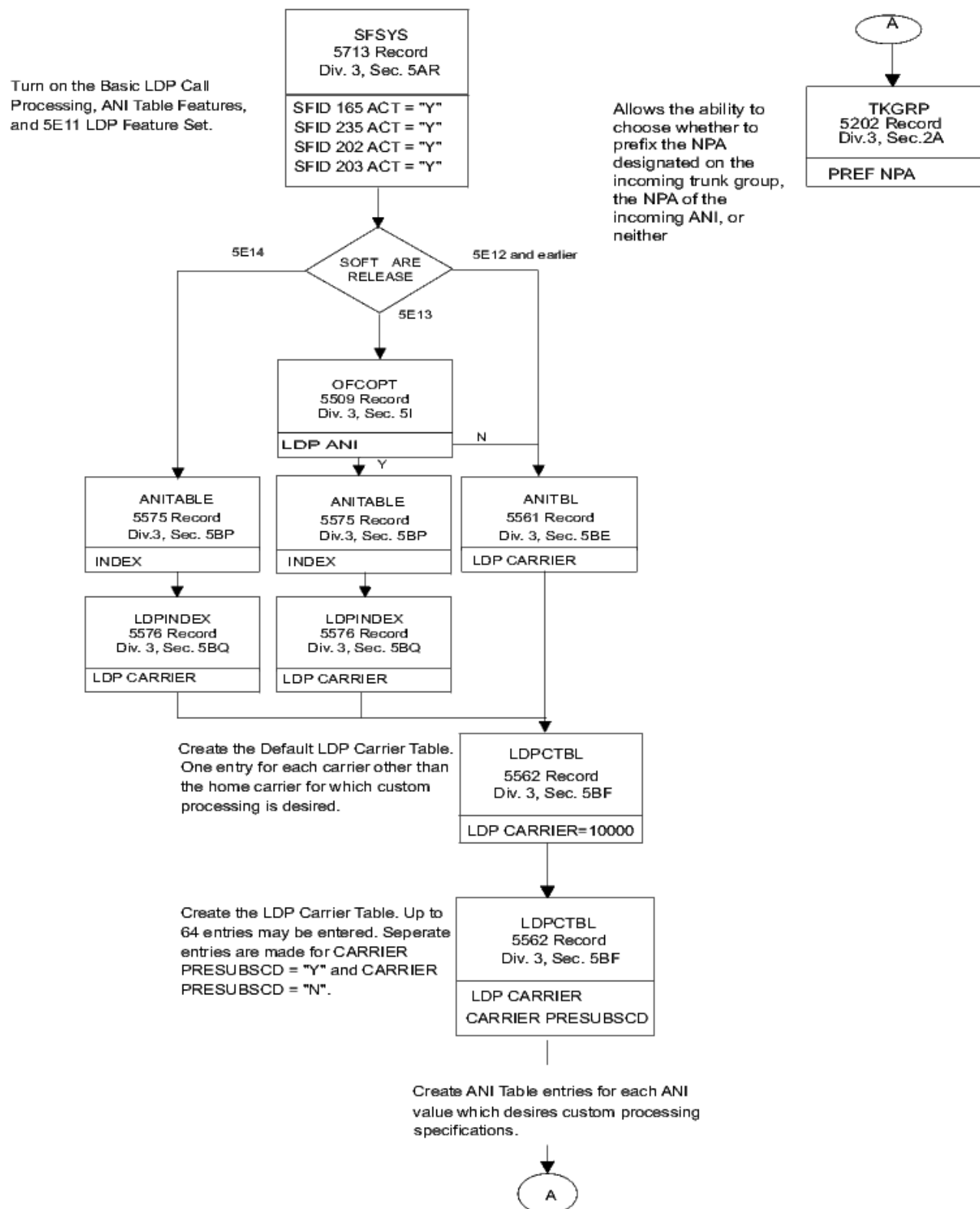


Figure 7 FORM FLOW FOR 5E12 AND LATER LDP FEATURE SET

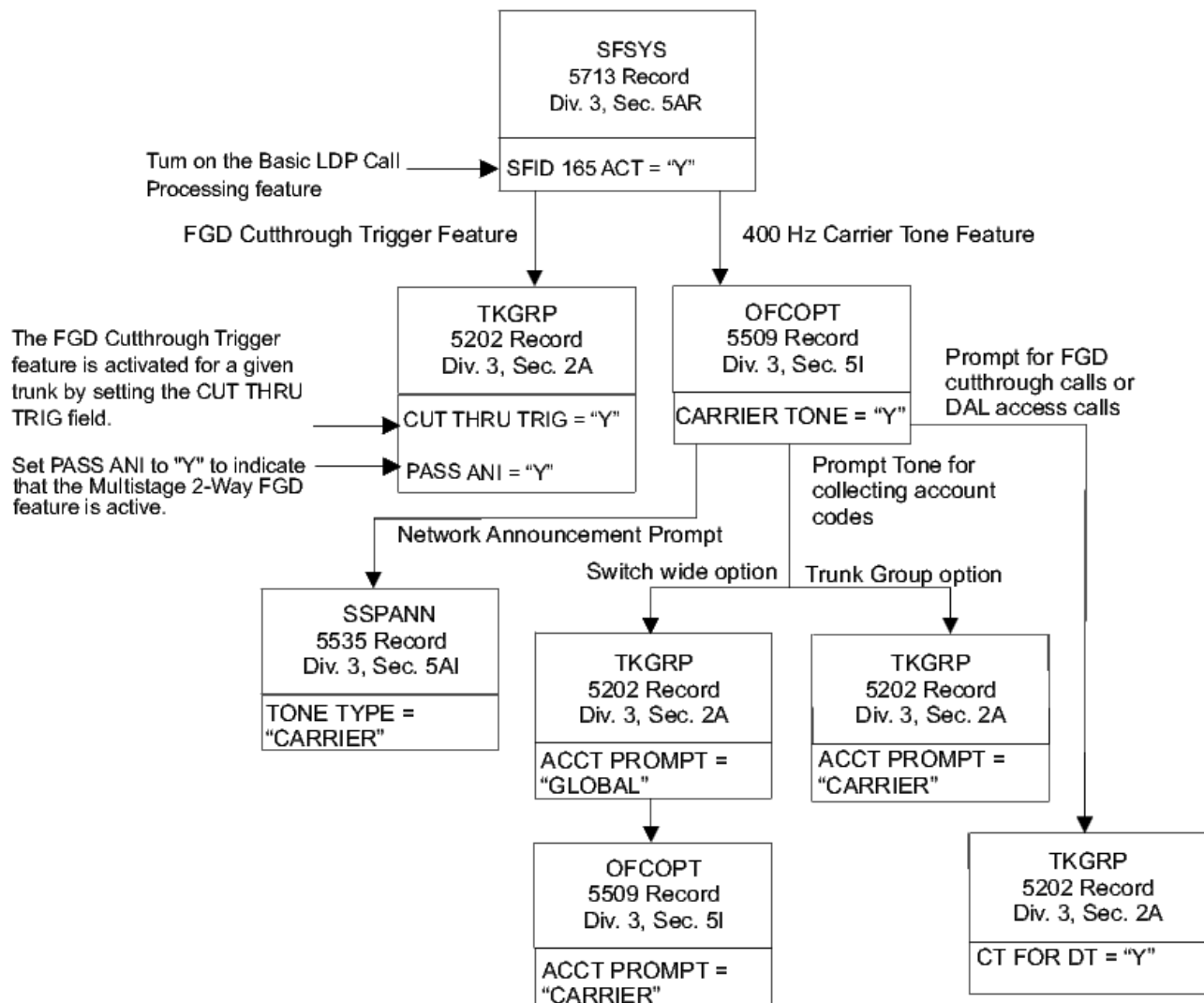


Figure 8 FORM FLOW FOR 5E13 AND LATER LDP FEATURE SET

SEC. 4A166: AMA RECORDING FOR AIN BUSY AND DON'T ANSWER CALLS

1. BACKGROUND

Prior to this feature, AMA (Automatic Message Accounting) provided treatment for unanswered calls but only applied to calls which reach set-up complete state. This feature, which is consistent with the current functionality, includes busy calls and calls that abandon prior to set-up complete state.

2. FEATURE DESCRIPTION

The AMA Recording for AIN (Advanced Intelligent Network) Busy and Don't Answer Calls is a secured feature using SFID (Secured Feature ID) 166 and must be purchased before being activated. The feature number for this feature is 99-5E-3152. Activation of this feature also requires the base ASP secured feature (SFID 126). For more information regarding this feature, see Division 2, Section 4A126.

Available with 5E10 and later, this feature provides the ability to provide AMA recording for an unanswered or

busy ASP (Advanced Services Platform) call or ASP call leg which used the AIN 0.1 protocol and has a pending AMA record. The determination for AMA treatment is based on the AMA AIN BUSY NA field on the OFCOPT form (5509 Record). When this field is set to "N", busy ASP calls with a pending AMA record will not generate a record. Existing AMA functionality determines whether abandoned or unanswered ASP calls with a pending AMA record will generate a record. When this field is set to "Y", a busy or abandoned ASP call with a pending AMA record will generate an XX220 or XX221 record.

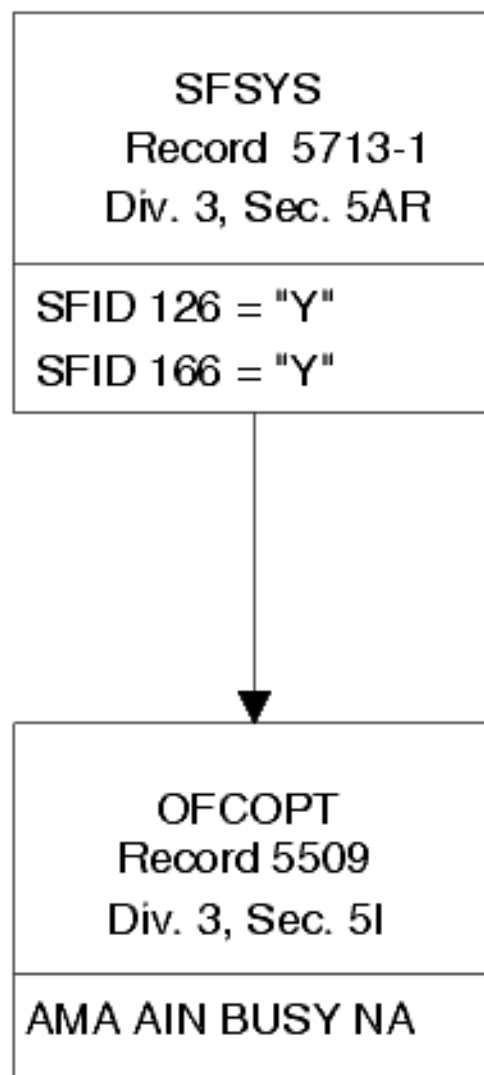
3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office and parameters. The field AMA AIN BUSY NA was added to this form.

SFSYS form (5713-1 Record) - This form is used to enable the feature for the operating company. SFID 166 (and SFID 126) must have the field ACT set to "Y" to enable and use the feature.

Activate AMA AIN - Busy and
Don't Answer Secured Feature



Determine AMA Treatment

Figure 1 AMA RECORDING FOR AIN BUSY AND DON'T ANSWER CALLS FORM FLOW

SEC. 4A167: AMA CAPABILITIES FOR TYPE 1 CELLULAR ACCESS

1. FEATURE DESCRIPTION

The AMA Capabilities for Type 1 Cellular Access is available with the 5E10 Software Release. This feature generates AMA records for the purpose of providing billing information concerning the WSP (Wireless Service Provider) using a Type 1 interface and the time the WSP is connected to the LEC (Local Exchange Carrier) network. These records do not replace any currently generated AMA records; they are in addition to the records. The Type 1 interface is a PF (Private Facilities) trunk using traditional MF (Multi-Frequency) signaling. The feature number for this capability is 99-5E-2725.a.

2. FEATURE ASSIGNMENT

To activate this secured feature, "Y" must be entered in the ACT field for SFID 167 on the SFSYS form (5713-1 Record).

AMACT form 5506 Record:

Assign an AMA CALL TYPE on the AMACT form. For an originating tandem form, AMA CALL TYPE is "CMCBOT". For a terminating tandem, the AMA CALL TYPE is "CMCBTT".

TKGRP form 5202 Record:

Assign the CMC ID and CMC trunk billing number (BILLING DN and BILL TRKGRP).

Assign a trunk group as a WSP trunk group with a CMC ID but leave the ORIG CMC and TERM CMC fields blank. This will not generate any WSP terminating/originating records for all calls originated from or terminated to the WSP.

Data Example:

Trunk Data	
Field	Entry
TGN	562
TRK DIR	TWOWAY
TRK CLASS	PF
INPLS	MF
OUTPLS	MF
LATA/TTOLL	
CMC	Y
CMC ID	1
ORIG CMC	
TERM CMC	

Assign a trunk group as a WSP trunk group with a CMC ID, the ORIG CMC field set to "T1" and the TERM CMC field left blank. This generates Type 1 WSP originating records for all calls terminating to the WSP.

Data Example:

Trunk Data	
Field	Entry
TGN	562
TRK DIR	TWOWAY
TRK CLASS	PF
INPLS	MF
OUTPLS	MF
LATA/TTOLL	
CMC	Y
CMC ID	1
ORIG CMC	T1
TERM CMC	

Assign a trunk group as a WSP trunk group with a CMC ID, the TERM CMC field set to "T1" and the ORIG CMC field left blank. This generates a Type 1 WSP terminating records for all calls terminating to the WSP.

Data Example:

Trunk Data	
Field	Entry
TGN	562
TRK DIR	TWOWAY
TRK CLASS	PF
INPLS	MF
OUTPLS	MF
LATA/TTOLL	
CMC	Y
CMC ID	1
ORIG CMC	
TERM CMC	T1

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 167 must be set to "Y"

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The value "T1" was added to the ORIG CMC and TERM CMC fields to indicate AMA for Type 1 Cellular interconnection.

4. GLOSSARY

MF Multi-Frequency

Originating WSP Call/record A WSP Originating call is one that originates in or is received by the LEC network and is routed to a WSP. WSP AMA records are made in the switch directly connect to the WSP Type 1 interface. Such WSP AMA records are called "Originating WSP" records but have a Structure Code (653) commonly associated with "Terminating IC" calls.

PF Private Facilities

Terminating WSP Call/record A WSP Terminating call is one incoming from a WSP Type 1, for completion in or via the LEC network WSP AMA records are called "Terminating WSP" records but have a Structure Code (625) commonly associated with "Originating IC" calls.

Type 1 Interconnection Connection to a telephone company end office. It provides connections only to and from terminals served by that end office, including lines, private trunks and other WSPs having terminations within the switch itself. These restrictions are provided only through digit analysis data in the switch, since the specific restrictions would be difficult to determine for every case.

WSP Wireless Service Provider, previously known as a CMC (Cellular Mobile Carrier).

SEC. 4A169: INCREASE COLLECTION UNIT FOR ROP - SECTION 144

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-070-100 for TRFC30 Section 144 - Switch Group Measurements Feature Document*.

SEC. 4A170: Subsystem Number Capacity Increase

1. BACKGROUND

Prior to the introduction of this feature, remote subsystem numbers in the range of 8 to 231 received by the 5ESS-2000 Switch would not be correctly returned to the remote node. This occurred because SSN's in the range of 8 to 231 were not considered valid which caused values in that range not to be maintained correctly. With the introduction of this feature, ASP (Advanced Services Platform) R0.1 SCCP (Signaling Connection

Control Part) and TCAP (Translation Capabilities Application Protocol) messages containing a remote subsystem number in the range of 8 to 231, will be returned to the destination node as received.

2. FEATURE DESCRIPTION

The SSNCI (Subsystem Number Capacity Increase) is a secured feature using SFID (Secured Feature ID) 170 and must be purchased before being activated. The feature number for this feature is 99-5E-3183.

This feature is being deployed on the 5ESS-2000 Switch in a Software Update for the 5E10 and later Software Releases.

The SSNCI special feature provides unaltered remote subsystem numbers in the range of 8 to 231 for all ASP R0.1 messages returned by the 5ESS-2000 Switch to the SCP (Service Control Point). This feature does not alter the processing of local subsystem numbers.

When the 5ESS-2000 Switch receives an SCCP or a TCAP message initiated by another node, both the local and remote subsystem numbers are contained in this message. The local subsystem number is used by the switch to specify the application to process the SCCP message. In response to this message, a message is sent to the destination node and includes the remote subsystem number. This remote subsystem number is used by the remote node to identify the application to process this message.

■ **NOTE:** Monitoring of remote subsystem numbers in the range of 8 to 231 will not be performed by the 5ESS-2000 Switch.

■ **NOTE:** This feature does not work for remote subsystem numbers in ASP R0 TCAP messages.

FEATURE ASSIGNMENT

The activation of this feature is dependent on the ASP Protocol 0.1 feature (99-5E-3033), SFID 126. See Division 2, Section 4a126 for more information.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713 Record) - This form is used to activate secured features. Before the SSNCI feature can be activated, the feature ASP R0.1 must be activated by setting the ACT field for SFID 126 to "Y" on the SFSYS form (5713-1 Record).

The SSNCI feature can then be enabled by setting the ACT field for SFID 170 to "Y" on the SFSYS form (5713-1 Record).

SEC. 4A171: TCAP IMPROVEMENTS FOR A SWITCH SPANNING MULTIPLE LATAs

1. FEATURE DESCRIPTION

The TCAP (Transaction Capabilities Application Part) Improvements for a Switch Spanning Multiple LATAs (Local Access And Transport Areas) feature is available with the 5E11 Software Release. The feature number is 99-5E-2708 which includes the functionality of the InterLATA 800 Service feature (99-5E-2302). This is a secured feature (SFID 171) which must be activated to use this feature.

1.1 Background

The original design of the LASS (Local Area Signaling Services) and SSP (Service Switching Point) 800 capabilities assumed that all lines served by one End Office would reside in one LATA as defined by the LATA NUMBER on the OFCOPT form (5509 Record). Prior to this feature, LASS TCAP queries from any line resulted in queries to the STP (Signaling Transfer Point) which corresponded to the LATA NUMBER on the OFCOPT form. Similarly, prior to this feature, SSP 800 calls from any line resulted in queries to the 800 database that included the LATA NUMBER from the OFCOPT form. Such calls received over trunks were allowed to designate another LATA NUMBER based on the TKGRP form (5202 Record) using the FAR END LATA field.

1.2 Multiple LATAs

With this feature, the customer can associate a LATA with a subscriber. An additional LATA number is used to select the appropriate signaling link based on the STP for LASS services or be used to populate the SSP 800 TCAP query to the SCP (Service Control Point). This feature provides switch capability to serve geographically dispersed territories where, through the use of RSMs (Remote Switching Modules), some ORM/RSM/EXM-2000 lines may exist in LATAs which are different from the host switch. This feature permits lines (or groups of lines) to be assigned a LATA NUMBER different from the default LATA NUMBER associated with the office as defined on the OFCOPT form.

This feature allows LASS TCAP queries to route to the correct STP A-link for lines in a different LATA than the default LATA. For SSP 800 toll-free calls, inquiries to the SCP database for SSP 800 calls can query using the same A-link regardless of the LATA, but the TCAP query specifies the LATA of the originating subscriber (the SSP 800 capability assumes that one end office serves one LATA). With this feature, the switch is able to associate a LATA with a set of lines and this LATA is used to formulate the SSP 800 query.

2. FEATURE ASSIGNMENT

To use this feature, SFID 171 must be activated on the SFSYS form (5713 Record). To provide this feature, a new LATA field was added to the LCC form (5306 Record). When creating a new Line Class in a Rate Area outside the default LATA, the provider enters the LATA number associated with that Rate Area on the LCC form. If no LATA number is entered on the LCC Form, the LATA NUMBER defined on the OFCOPT form is used for LASS TCAP query routing or in the formulation of the 800 SSP query. For the LASS TCAP query routing only, the service provider must specify a pair of DPCs (Destination Point Codes) associated with the LATA and APPLIC (Application) fields on the DSAPP form (5537 Record). This allows the service provider the means to send TCAP traffic to different STPs based on the LATA/Application. It should be noted that DPCs are not required for the 800 SSP query as the switch is able to associate a LATA for the SSP 800 query.

Lines within the host switch LATA need not have a LATA number directly associated with them - the LATA NUMBER from the OFCOPT form would continue to be used for such lines as a default. Lines that are resident in different LATAs but on the same switching system are also supported by the 5ESS-2000 Switch and the CDX (Compact Digital Exchange) Switch.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSAPP	5537	3	5AK	8.17
LCC	5306	3	3S	4.1
SFSYS	5713-1	3	5AR	8.22

DSAPP form (5537 Record) - This form is used to define the Direct Signaling Application type, the

Transaction Type, and the Subsystem Number. For this feature, the LATA, DPC 1, and DPC 2 fields were added. If LATA is entered on this form, there must be an associated DSAPP form with the LATA field blank.

LCC form (5306 Record) - This form is used to define each LCC (Line Class Code) in a 5ESS-2000 Switch. For this feature, the LATA field was added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. Secured Feature ID 171 must be set to "Y".

SEC. 4A172: INCREASE NUMBER OF TRUNK GROUPS TO 4000

1. FEATURE DESCRIPTION

Available with 5E11 and later, the Increase Number of Trunk Groups to 4000 secured feature has feature number 99-5E-2487 (formerly 97-5E-2487) and uses SFID (Secured Feature ID) 172. This feature provides for increasing the maximum number of trunk groups of trunks carrying voice traffic from 2000 to 4000. Also the maximum number of route indexes is increased from 3617 to 4095.

- WARNING:** This feature can not be used with any EDAS (Engineering Administration Data Acquisition System) type OSS (Operational Support System) as it will disrupt Traffic 30 Measurements. Only non EDAS type OSSs that have been modified to handle 4000 trunk group measurements will work with this feature. For a description see: "EDAS Interface", 235-070-100, Traffic and Plant Measurements Descriptions.

2. FEATURE ASSIGNMENT

2.1 Feature Activation/Deactivation

To activate this feature, the ACT field for SFID 172 must be "Y" on the SFSYS form (5713-1 Record). In addition, MAX TGN and MAX RTIDX fields on the OFCOPT form must be set to the maximum value.

3. TRANSLATION REQUIREMENTS

TABLE 3
New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ACCTGP	5623-2	4	24B	4.21
ACCTTPA	5623-6	4	24F	5.42
ACDCTP	5412	3	4M	26.9
ACDVCT	5643	4	32H	6.7
ACVTFD	5967-1	6	10A	12.46
ACVTGP	5967-2	6	10B	4.46
ACVTLPA	5967-3	6	10C	1.46
ACVTMPA	5967-4	6	10D	1.46
APGFP	5620-2	4	21B	24.4
APHSS	5620-4	4	21D	24.12
APXANNC	5051	7	1B	10.38
ARSGPA	5608-2	4	9B	10.5
ARSSCRN	5608-6	4	9F	10.6
ARSSIG	5608-9	4	9I	10.7
ARSTPA	5608-5	4	9E	5.21
ASIGP	5630-4	4	30D	4.61
ASPTPA	5632-4	4	31D	5.64
ATHGP	5619-2	4	20B	4.17
ATHTPA	5619-7	4	20G	5.41
ATSDATA	5052	7	1C	14.9
BFG	5625	4	26A	12.9

CCSRTI	5313	3	3Z	10.26
CDIM	5300-6	3	3E	9.7
COTH	5513	3	5M	11.2
CQPARM	5640	4	32E	6.4
CVDSTTN	5459	3	4BG	21.42
CVECT	5460	3	4BH	21.41
CWTTTPA	5603-4	4	4D	5.24
DSLUSR	5908	5	1I	23.2 23.8
EMRNM	5108	3	1H	4.9
EMROFC	5116	3	1P	4.9
HGRPAS	5115	3	1O	4.14
IBMRNGS	5471	3	4BW	21.58
ICF	5305	3	3R	10.3
ICIPF	5903	5	1D	3.43
IDDD	5307	3	3T	9.6
IDPTPA	5601-8	4	2H	5.26
IMINFO	5510	3	5J	18.1 11.1
IMTRK	5210	3	2L	5.46
INDIT	5309	3	3V	9.5
INFLDEST	5448	3	4AW	21.27
INFLTADP	5452	3	4BA	27.52
INFLTAP	5451	3	4AZ	27.51
IPFDCA	5969	6	12	12.7
LASSOP	5945	5	5F	8.21
LDIT	5300-3 AB/5	3	3C	9.3
LINE	5109-1/2/3	3	1I	1.6
MCRTIDX	5304	3	3Q	10.4
MDRTPA	5624-6	4	25F	5.33
MLHG	5110	3	1J	3.5
MLHLN	5111	3	1K	1.6
MSUSP	5530	3	5AD	8.13
MWTPA	5602-5	4	3D	5.27
NOC	5501	3	5A	8.2
NPAMAP	5414	3	4O	26.1
ODAOP	5524	3	5W	NA
OFCOPT	5509	3	5I	8.1 8.15
OPCTO	5407	3	4H	21.23
OPRTK	5417	3	4R	26.26
OSPSCT	5404	3	4E	21.22
PDIT	5300-2	3	3B	9.2
PFA GPA	5609-5	4	10E	7.1
PFAINWT	5609-4	4	10D	7.4
PFA SFG	5609-3	4	10C	7.3
PFA TG	5609-2	4	10B	7.2
PFA TPA	5609-8	4	10H	5.28
PNDP	5608-10/11	4	9J	9.21
PPPOLY	5618-7	4	19G	10.34
PPSCRN	5618-2	4	19B	10.31
PROPBID	5325	3	3AL	10.37
PSDNICRI	5921	5	3B	10.35
PULPA	5605-3	4	6C	1.23
PUMPA	5605-4	4	6D	1.23
PUOFD	5605-1	4	6A	12.13
QUFD	5617-1/2	4	18A	12.40
QUGPA	5617-3/4	4	18B	3.40 7.12
RAR	5301	3	3F	10.10
RASRTI	5538	3	5AL	10.19
RBVRTI	5950	5	5K	4.63
RDIT	5300-7/8	3	3H	9.9
RSMCAR	5421	3	4V	26.22
SCFD	5627-1	4	27A	12.51
SCLIST	5627-5	4	27E	4.2
SCLPA	5627-2	4	27B	1.51
SCMPA	5627-3	4	27C	1.51
SCRNCODE	5415	3	4P	26.3
SCTPA	5627-4	4	27D	5.51
SERV DATA	5466	3	4BS	21.54
SERVDEST	5467	3	4BT	21.53
SHTN	5902	5	1C	23.20

SSPANN	5535	3	5AI	10.17
STINFO	5402	3	4C	21.2
TCITG	5422	3	4W	26.23
TGATTD	5611	4	12A	4.4
TGNLEC	5443	3	4AR	27.21
TGSRFD	5607-1/2	4	8A	12.21
TGSRLPA	5607-3	4	8B	1.29
TGSRMPA	5607-4	4	8C	1.29
TGSRTPA	5607-5	4	8D	5.29
TKEDSLD	5209	3	2K	5.34
TKGRP	5202	3	2A	5.1
TKGRPFA	5206	3	2E	5.4
TODTPA	5610-5	4	11E	5.30
TREAT	5461-4	3	4BL	26.33
TRUNK	5204	3	2C	5.5
TRUNKFA	5205	3	2D	5.11
UTTKGRP	5215	3	2R	5.16
UTTKGRP	5215	3	2R	5.16
VALOFFC	5423	3	4X	26.24
X75PVC	5926	5	3G	5.13

ACCTGP form (5623-2) - The 5623-2 Record contains information needed to describe the Account Code group parameters. For 5E11 and later, changed valid entries for ANNC INDEX.

ACCTTPA form (5623-6) - The 5623-6 Record contains information needed to describe the Account Code trunk parameters. For 5E11 and later, changed valid entries for TGN.

ACDCTP/ACDPOL form (5412) - The 5412 Record is used to supply OSPS ACD call type information. For 5E11 and later, changed valid entries for TGN/CDI.

ACDVCT form (5643) - The 5643 Record defines the Call Vectoring steps that determine how an incoming call is to be treated while waiting for a ACD (Automatic Call Distributor) agent. This is a new form for 5E11.

ACVTFD form (5967-1) - The 5967-1 Record defines the Attendant Control constructed Feature. For 5E11 and later, changed valid entries for ROUTE INDEX.

ACVTGP form (5967-2) - The 5967-2 Record defines the per group parameter data associated with an Attendant Control Constructed Feature. For 5E11 and later, changed valid entries for ROUTE INDEX.

ACVTLPA form (5967) - The 5967 Record defines the per port data associated with the Attendant Control Constructed Feature. For 5E11 and later, changed valid entries for ROUTE INDEX.

ACVTMPA form (5967-4) - The 5967-4 Record defines the per port data associated with the Attendant Control Constructed Feature. For 5E11 and later, changed valid entries for ROUTE INDEX.

APGFP form (5620-2) - The 5620-2 Record indicates if the customer has Trunks measurement specified. This also indicates what group types are using Facilities Management and/or Traffic Data to Customer Location capabilities. For 5E11 and later, changed data rules for GROUP NO/GROUP NAME.

APHSS form (5620-4) - The 5620-4 Record defines whether or not the 100 second scan activation feature has been turned on for the customer. For 5E11 and later, changed valid entries for GROUP NBR. Changed data rule for GROUP NBR.

APXANNC form (5051) - The 5051 Record provides mapping between ECP (Executive Control Processor) announcement identification numbers and 5ESS-2000 Switch route indices. For 5E11 and later, changed valid entries for BARGE IN RTI, and NON BARGE IN RTI. Added data rule for BARGE IN RTI.

ARSGPA form (5608-2) - The 5608-2 Record provides ARS (Automatic Route Selection) Group parameter

data for each ARS Group Name which is used in SM for Automatic Route Selection Feature. For 5E11 and later, changed valid entries for BAD NUMBER ANNOUNCEMENT RTI.

ARSSCRN form (5608-6) - The 5608-6 Record is used to determine the initial route of a route list for ARS groups. For 5E11 and later, changed valid entries for ARS INDEX, and MCRTI.

ARSSIG form (5608-9) - The 5608-9 Record contains the segmented signaling pause length and corresponding digit position for on-network numbers. For 5E11 and later, changed valid entries for MC ROUTE INDEX.

ARSTPA form (5608-5) - The 5608-5 Record provides a mean to create an ARS Trunk (keyed by TGN/MEMB) form which overwrites the Default Parameters on the corresponding ARSFD forms. For 5E11 and later, changed valid entries for TGN.

ASIGP form (5630-4) - The 5630-4 Record contains information needed to define the trunk and signaling characteristics of an Advanced Service Interface group. For 5E11 and later, changed valid entries for RTI.

ASPTPA form (5632-4) - The 5632-4 Record defines the trunk data associated with the Advanced Services Platform Feature. For 5E11 and later, changed valid entries for TGN.

ATHGP form (5619-2) - The 5619-2 Record contains information needed to describe the Authorization Code group parameters. For 5E11 and later, changed valid entries for ANNC ROUTE INDEX.

ATHTPA form (5619-7) - The 5619-7 Record contains information needed to describe the Authorization Code trunk parameters. For 5E11 and later, changed valid entries for TGN.

ATSDATA form (5052) - The 5052 Record provides data that defines a test session in a certain test schedule to be invoked by ATTS (Automatic Trunk Testing Scheduler) for the purpose of performing automated trunk testing over a specified range of equipped members of a specified trunk group. For 5E11 and later, changed valid entries for TGN.

BFG form (5625) - The 5625 Record contains information for the BRCS (Business And Residential Customer Services) Feature. For 5E11 and later, changed valid entries for ORIGINATING and TERMINATING.

CCSRTI form (5313) - The 5313 Record defines a new route index value for incoming CCS (Common Channel Signaling) calls into a 5ESS -2000 Switch that need to be rerouted onto an outgoing or 2-way Trunk Group whose chosen route does not meet per call restrictions identified in the CCS IAM message. For 5E11 and later, changed valid entries for ROUTE INDEX.

CDIM form (5300-6) - The 5300-6 Record is used for defining carrier destination index used in the routing of interLATA call when 5ESS-2000 Switch serves as an Access Tandem. For 5E11 and later, changed valid entries for CARRIER RTI.

COTH form (5513) - The 5513 Record is used to gather and build data associated with Cutover by thousands group. For 5E11 and later, changed valid entries for ALT CUTOVER RTI.

CQPARM form (5640) - The 5640 Record is used to assign administrative data to be applied to call queues. This is a new form for 5E11.

CVDSTTN form (5459) - The 5459 Record is used to define and administer remote telephone numbers. For 5E11 and later, changed valid entries for RI.

CVECT form (5460) - The 5460 Record defines call vector definitions. For 5E11 and later, changed valid entries for CMD CD and ARG1.

CWTTTPA form (5603-4) - The 5603-4 Record is used to allow call waiting parameters (other than the defaults) to be assigned. For 5E11 and later, changed valid entries for TGN.

DSLUSR form (5908) - The 5908 Record is used to collect data for digital subscriber lines. For 5E11 and later, changed valid entries for RBV TGN.

EMRNM form (5108) - The 5108 Record is used to define the remote site and/or local SM emergency TN assignments for remote site stand-alone or SM isolation operation. For 5E11 and later, changed valid entries for RI.

EMROFC form (5116) - The 5116 Record is used to define the AM (Administrative Module) emergency TN alternate routing assignments for isolation or stand-alone operation of SM(s) or remote site(s) that contain the called Emergency TN(s). For 5E11 and later, changed valid entries for EMERGENCY.

HGRPAS form (5108) - The 5108 Record provides hundreds groups assignment of the routing SM to support Distributed Line Terminations for Phase 1 of Distributed Call Processing or of the route index (which defines the block of 100 TNs reserved for a particular special Route Index). For 5E11 and later, changed valid entries for ROUTE INDEX.

IBMRNGS form (5471-1) - The 5471-1 Record allows the OSPS owner to obtain IBM position IDs for each of the ARU (Audio/Audible Response Unit) trunk group members (ports) associated with the IBM DAS (Directory Assistance System). For 5E11 and later, changed valid entries for DAS1 TGN, DAS2 TGN, DAS3 TGN, and DAS4 TGN.

ICF form (5305) - The 5305 Record is used to allow the craft to assigning elements for interLata carriers. For 5E11 and later, changed valid entries for FGB RTI, DOMES RTI, ZMINUS RTI, CI CUT RTI, ZPLUS RTI, INTL OP RTI, NS RTI, and ASP RTI.

ICIPF form (5903) - The 5903 Record defines ICIs for a specific MLHG or terminal group. For 5E11 and later, changed valid entries for TGN.

IDDD form (5307) - The 5307 Record defines IDDD (International Direct Distance Dialing) country access codes. For 5E11 and later, changed valid entries for ROUTE INDEX.

IDPTPA form (5601-8) - The 5601-8 Record is used for assigning IDP (Individualized Dialing Plan) to trunks. For 5E11 and later, changed valid entries for TRUNK GROUP, and TGN.

IMINFO form (5510) - The 5510 Record is used to gather and build miscellaneous data related to a given SM. For 5E11 and later, changed valid entries for DCTU ROUTE INDEX, SLIM ROUTE INDEX, ALIT ROUTE INDEX, MAJ ROUTE INDEX, CSTL ROUTE INDEX, LTD ROUTE INDEX, and ALT CUTOVER RTI.

IMTRK form (5210) - The 5210 Record defines each terminating end for inter-module trunk group members. For 5E11 and later, changed valid entries for TGN, and MATE TGN.

INDIT form (5309) - The 5309 Record provides information pertaining to the disposition of incoming calls. That is, it directs incoming calls based on the trunks directing codes to appropriate translators for either local terminating or tandem treatment. For 5E11 and later, changed valid entries for ROUTE INDEX.

INFLDEST form (5448) - The 5448 Record is used for assigning an outgoing destination index based on incoming destination index, trunk group number and a destination office ID. For 5E11 and later, changed valid entries for TGN.

INFLTADP form (5452) - The 5452 Record provides interflow serving team parameters and status

information. For 5E11 and later, changed valid entries for BCHTGN and DCHTGN.

INFLTAP form (5451) - The 5451 Record is a ODA (Office Data Administration) input form that is used for Interflow (incoming) Serving Team information for OSPS. For 5E11 and later, changed valid entries for BCHTGN and DCHTGN.

IPFDCA form (5969) - The 5969 Record provides means to enter dial codes and Information for ISDN attendant groups. For 5E11 and later, changed valid entries for GRPNUM. Added data rule for GRPNUM.

LASSOP form (5945) - The 5945 Record is used for RC (Recent Change) of LASS (Local Area Signaling Services) office parameter data. For 5E11 and later, changed valid entries for ACTIVATE RTI, TRC NA RTI, NO RESRC RTI, AC CNFRM RTI, AR CNFRM RTI, CF ACTIVE DNY RTI, LNG TRM DNY RTI, AC CNCL RTI, AR CNCL RTI, PTY BUSY RTI, AC BLOCK RTI, SCA REJ RTI, CAR REJ RTI, HARSH RTI, GENTLE RTI, and ERROR TREAT RTI.

LDIT form (5300-3A/3B/5) - The 5300-3A/3B/5 Record defines valid dialed or in pulsed digits. For 5E11 and later, changed valid entries for ROUTE INDEX.

LINE form (5109) - The 5109 Record is used to define OE numbers and features for each TN. For 5E11 and later, changed valid entries for RTI and RBV TGN.

MCRTIDX form (5304) - The 5304 Record contains options for MC (Modular Customization) route index expansion. For 5E11 and later, changed valid entries for NEXT ROUTE, NEXT MC ROUTE INDEX, MC ROUTE INDEX, TRUNK GROUP NUMBER, and SFG NUMBER.

MDRTPA form (5624-6) - The 5624-6 Record provides a means to create a MDR (Message Detail Recording) trunk (keyed by TGN/MEMB) data which overwrites the default parameters on the corresponding MDRFD form. For 5E11 and later, changed valid entries for TGN.

MLHG form (5110) - The 5110 Record is used define Multiline Hunt Groups. For 5E11 and later, changed valid entries for RBV TGN.

MLHLN form (5111) - The 5111 Record is used to define individual terminal numbers assigned to a specific MLHG. For 5E11 and later, changed valid entries for RBV TGN.

MSUSP form (5530) - The 5530 Record contains information needed for scan point assignments. For 5E11 and later, changed valid entries for TGN.

MWTPA form (5602-5) - The 5602-5 Record contains trunk parameters for Multiway calling feature. For 5E11 and later, changed valid entries for TGN.

NOC form (5501) - The 5501 Record is used to assign NOCs (Normalized Office Code) and route indices and charge indices for regular intercept, blank number intercept, out-of-service intercept and denied intercept for each local office code. For 5E11 and later, changed valid entries for REG ICPT RTI.

NPAMAP form (5414) - The 5414 Record is used to assign a switching module, a trunk group, an exception area index, and a LATA (Local Access And Transport Area) number to a NPA (Numbering Plan Area) - NXX (Office Code (Part Of Dialed Number)) combination. For 5E11 and later, changed valid entries for TGN.

ODAOP form (5524) - The 5524 Record is used to supply miscellaneous ODA options and parameters for retrofits or large terminal growth. For 5E11 and later, changed valid entries for ASP DEFAULT ROUTE INDEX.

OFCOPT form (5509) - The 5509 Record provides the office option global parameters residing in the CP (Central Processor). For 5E11 and later, changed valid entries for SES, E911 LN SFG, and E911 TRK SFG. Added the MAX TGN and MAX RTIDX fields.

OPCTO form (5407) - The 5407 Record provides the OSPS call type and BST (Basic Services Terminal) display index depending on the OSPS Pre-call ID and trunk group number. For 5E11 and later, changed valid entries for TGN.

OPRTK form (5417) - The 5417 Record defines the incoming trunk groups for an OSPS Administrative office. For 5E11 and later, changed valid entries for TGN.

OSPSCT form (5404) - The 5404 Record is used to supply call type information. For 5E11 and later, changed valid entries for 1ST ANNC RTI, 2ND ANNC RTI, 3RD ANNC RTI, CLOSE DOWN RTI, and BACK ANNC RTI.

PDIT form (5300-2) - The 5300-2 Record is used for defining prefix, operator and feature access codes. For 5E11 and later, changed valid entries for ROUTE INDEX.

PFAGPA form (5609-51) - The 5609-51 Record is used to assign a private facility access group. For 5E11 and later, changed valid entries for ROUTE INDEX.

PFAINWT form (5609-4) - The 5609-4 Record is used to assign an MLHG INWATS TN to an SFG (Simulated Facility Group) via an MC route index on the the MCRTIDX and PFASFG forms. For 5E11 and later, changed valid entries for MC ROUTE INDEX.

PFASFG form (5609-3A/B) - The 5609-3A/B Record defines PFA (Private Facilities Access) SFG (Simulated Facility Group). For 5E11 and later, changed valid entries for RTI.

PFATG form (5609-2) - The 5609-2 Record defines PFA terminal group and associates ESSX (Private Facilities Feature Which Emulates A PBX In The 5ESS-2000 Switch) terminating and/or originating MC route indexes, CCSA (Common Control Switching Arrangement) terminating and/or originating MC route indexes, and/or SDN (Software Defined Network) MC route indexes, and SFG numbers required for SFG conference facilities, all to a Terminal Group ID. For 5E11 and later, changed valid entries for ORIG MC ROUTE INDEX, TERM MC ROUTE INDEX, CCSA ORIG MC RTI, CCSA TERM MC RTI, SDN MC ROUTE INDEX, ORIG MC ROUTE INDEX, TERM MC ROUTE INDEX, CCSA ORIG MC RTI, and CCSA TERM MC RTI.

PFATPA form (5609-8) - The 5609-8 Record provides a means to create a PFA Trunk (keyed by TGN/MEMB) form which overwrites the default parameters on the corresponding PFAFD form. For 5E11 and later, changed valid entries for TGN.

PNDP form (5608-10/11) - The 5608-10/11 Record is used to provide private digit analysis on both public and private numbers. For 5E11 and later, changed valid entries for ARS INDEX.

PPPOLY form (5618-7) - The 5618-7 Record contains AUTOVON (Automatic Voice Network) information for polygrid routing data. For 5E11 and later, changed valid entries for POLY RT NUM, and ROUTE INDEX.

PPSCRN form (5618-2) - The 5618-2 Record contains screening information for Precedence & Preemption features. For 5E11 and later, changed valid entries for MC ROUTE INDEX, REGL ROUTE INDEX, and ROUTE INDEX.

PROPBID form (5325) - The 5325 Record defines information for proportionate bidding route indices, including carriers, proportion of calls to be handled by each carrier, and the route index to be used for each carrier. Up to four carriers can be specified for each proportionate bidding route index. For 5E11 and later,

changed valid entries for CARRIER RTI.

PSDNICRI form (5921) - The 5921 Record is used to assign a route index, that routes to a packet switching trunk, and then outside the 5ESS-2000 Switch to another packet network and its associated DNIC (Data Network Identification Code). For 5E11 and later, changed valid entries for ROUTE INDEX.

PULPA form (5605-3) - The 5605-3 Record contains line parameters to construct a Call - Pick - Up feature. For 5E11 and later, changed valid entries for TGN.

PUMPA form (5605-4) - The 5605-4 Record contains MLH line parameters to construct a Call - Pick - Up feature. For 5E11 and later, changed valid entries for TGN.

PUOFD form (5605-1A/B) - The 5605-1A/B Record contains feature options and default parameters to construct a Call Pickup Originating feature. For 5E11 and later, changed valid entries for TGN.

QUFD form (5617-1) - The 5617-1 Record contains feature options and default parameters to construct a Modular Queuing feature. For 5E11 and later, changed valid entries for TGN.

QUGPA form (5617-3) - The 5617-3 Record contains group parameters for Modular Queuing feature. For 5E11 and later, changed valid entries for GROUP NUMBER, and TGN.

RAR form (5301) - The 5301 Record provides the data for the screening matrix. For 5E11 and later, changed valid entries for RTI.

RASRTI form (5538) - The 5538 Record associates a route index with remote access service. For 5E11 and later, changed valid entries for ANNC RTI.

RBVRTI form (5950) - The 5950 Record defines the remote busy verify route index to be used by an ISAT (ISDN Attendant) attendant when doing remote busy verify for the key route index. Used to associate a remote route index with an ISAT MLHG and digit analysis route index combination. For 5E11 and later, changed valid entries for RTI, REMOTE RTI.

RDIT form (5300I-7/8) - The 5300I-7/8 Record defines valid dialed or impulsed digits. For 5E11 and later, changed valid entries for ROUTE INDEX.

RSMCAR form (5421) - The 5421 Record provides RSM (Remote Switching Module)/carrier data. For 5E11 and later, changed valid entries for FGB RTI, DOMES RTI, TRANS RTI, INTL RTI, SAC RTI, and NS RTI.

RTIDX form (5303) - The 5303 Record defines characteristics of the route index. For 5E11 and later, changed valid entries for ROUTE INDEX, TRUNK GROUP NUMBER, NEXT ROUTE, SPEECH ALT RI, 56K, R64K, 64K, 384K, 1536K, and MULTIRATE.

SCFD form (5627-1) - The 5627-1 Record defines Speed Call features. For 5E11 and later, changed valid entries for SC LIST.

SCLIST form (5627-9) - The 5627-9 Record defines subscriber speed call lists. For 5E11 and later, changed data rule for SC LIST.

SCLPA form (5627-2) - The 5627-2 Record is used for assigning SC (Speed Call) feature parameters to non MLHG lines. For 5E11 and later, changed valid entries for SC LIST.

SCMPA form (5627-3) - The 5627-3 Record is used for assigning speed call parameters to MLHG lines. For 5E11 and later, changed valid entries for SC LIST.

SCRNCODE form (5415) - The 5415 Record defines screen code number and the billing restrictions. For 5E11 and later, changed valid entries for ACD TRK NUMBER.

SCTPA form (5627-4) - The 5627-4 Record is used for assigning speed call parameters to trunks. For 5E11 and later, changed valid entries for TGN, and SC LIST.

SERVDATA form (5466) - The 5466 Record provides the customer with service parameters as defined by the 5ESS-2000 Switch owner. For 5E11 and later, changed valid entries for TURN BACK RI, and CALL PROG RI.

SERVDEST form (5467) - The 5467 Record provides a mapping of a service destination to a 5ESS-2000 Switch routing type and associated routing code such as a route index. For 5E11 and later, changed valid entries for RTE CODE.

SHTN form (5902) - The 5902 Record is used to specify primary or secondary TN that is shared by several other TNs. For 5E11 and later, changed valid entries for RBV TGN.

SSPANN form (5535) - The 5535 Record defines SSP (Service Switching Point) announcement codes. These codes are used by call processing to determine failure announcement route. For 5E11 and later, changed valid entries for ANNC RTI.

STINFO form (5402) - The 5402 Record provides information about a serving team. For 5E11 and later, changed valid entries for MUSIC RI.

TCITG form (5422) - The 5422 Record provides data Associated with CAMA (Centralized Automatic Message Accounting) transfer trunks. For 5E11 and later, changed valid entries for TGN.

TGATTD form (5611) - The 5611 Record defines Terminal Group Attendant and Data Information. For 5E11 and later, changed valid entries for TGN.

TGNLEC form (5443) - The 5443 Record provides software release with information for mapping a TGN to the appropriate text to be displayed to an operator when a call comes to an OSPA operator position. The text is specified by/for the LEC (Local Exchange Carrier) whose traffic the trunk carries. For 5E11 and later, changed valid entries for TGN.

TGSRFD form (5607-1) - The 5607-1 Record contains information needed to describe the Terminal Group And Station Restriction feature definition. For 5E11 and later, changed valid entries for ORIGINATING, and TERMINATING.

TGSRIPA form (5607-3) - The 5607-3 Record is used to define a terminal group and station restriction line parameter. For 5E11 and later, changed valid entries for ORIGINATING, and TERMINATING.

TGSRMPA form (5607-4) - The 5607-4 Record defines TGSR parameters for a line MLHG/MEMB parameter view. For 5E11 and later, changed valid entries for ORIGINATING, and TERMINATING.

TGSRTPA form (5607-5) - The 5607-5 Record defines TGSR parameters for trunk parameters. For 5E11 and later, changed valid entries for TGN, ORIGINATING, and TERMINATING.

TKEDSLD form (5902) - The 5902 Record defines data for the EDSL (Extended Digital Subscriber Line) call by Call Service Selection feature. For 5E11 and later, changed valid entries for TGN, and MC RTI.

TKGRP form (5202-1) - The 5202-1 Record provides general trunk group information for all trunk members in a group. For 5E11 and later, changed valid entries for TGN, GL ANN TG, and OVFL MC RTIDX.

TKGRPFA form (5206) - The 5206 Record assigns information for feature assignment to trunk groups. For 5E11 and later, changed valid entries for TRUNK GROUP.

TODTPA form (5610-5) - The 5610-5 Record assigns a TOD (Time Of Day) code list to a TGN/MEMB. For 5E11 and later, changed valid entries for TGN.

TREAT form (5461-4) - The 5461-4 Record assigns the special and normal Time Set ID. For 5E11 and later, changed valid entries for BEGIN TGN, and END TGN.

TRUNK form (5204) - The 5204 Record is used to define characteristics of individual trunks. For 5E11 and later, changed valid entries for TGN, KEYING TRUNK TGN, and TALKING TRUNK TGN.

TRUNKFA form (5205) - The 5205 Record defines information for Feature Assignment keyed by TRKGRP and TKMEMB. For 5E11 and later, changed valid entries for TGN.

UTTKGRP form (5215) - The 5215 Record defines the parameters for a Utility Telemetry Trunk Group. For 5E11 and later, changed valid entries for TGN.

VALOFFC form (5423) - The 5423 Record defines data associated with ISP (Intermediate Switching Point) Operator Trunks for which the OSPA Operator can enter billing number. For 5E11 and later, changed valid entries for TGN.

X75PVC form (5926) - The 5926 Record is used to assign PVC (Permanent Virtual Circuit) logical channel numbers to X.75/X.75 trunks. For 5E11 and later, changed valid entries for TGN.

4. GLOSSARY

ACD - Automatic Call Distributor

AM - Administrative Module

ARS Automatic Route Selection

ARU Audio/Audible Response Unit

ATTS Automatic Trunk Testing Scheduler

AUTOVON Automatic Voice Network

BRCS Business And Residential Customer Services

BST Basic Services Terminal

CAMA Centralized Automatic Message Accounting

CCS Common Channel Signaling

CCSA Common Control Switching Arrangement

CP Central Processor

DNIC Data Network Identification Code

ECP Executive Control Processor

EDSL	Extended Digital Subscriber Line
ESSX	Private facilities feature which emulates a pbx in the
IDDD	International Direct Distance Dialing
IDP	Individualized Dialing Plan
ISAT	ISDN Attendant
ISP	Intermediate Switching Point
LASS	Local Area Signaling Services
LATA	Local Access And Transport Area
LEC	Local Exchange Carrier
MC	Modular Customization
MDR	Message Detail Recording
NOC	Normalized Office Code
NPA	Numbering Plan Area
NXX	Office Code (Part Of Dialed Number)
PFA	Private Facilities Access
RC	Recent Change Subsystem
RSM	Remote Switching Module
SC	Speed Call
SDN	Software Defined Network
SFG	Simulated Facility Group
SSP	Service Switching Point
TN	Telephone Number
TOD	Time Of Day

SEC. 4A173: AIN TOLL FREE SERVICE PHASE 2

1. FEATURE DESCRIPTION

Available with 5E11 and later, the AIN (Advanced Intelligent Network) Toll Free Service Phase 2 has feature number 99-5E-3260 and SFID (Secured Feature ID) number 173.

The AIN Toll Free Service features (Phase 1 and Phase 2) provide "toll free" services based on an AIN architecture. The features allow for end user and IXC (Inter Exchange Carriers) transparency between the

existing SSP/800 feature and AIN-based toll free services using either the existing 800 code or new codes designated for toll free services such as 888. The AIN Toll Free Service Phase 2 feature is dependent on the AIN Toll Free Service Phase 1 feature (99-5E-3151). For more information on the AIN Toll Free Service Phase 1 feature, see Division 2, Section 4A236.

The AIN Toll Free Service Phase 2 feature provides the following items, incremental to the functionality provided by the AIN 0.1B feature (99-5E-1150) (for information on this feature, see Division 2, Section 4A126):

- ACG (Automatic Call Gap) List Size Increase.

Increases the size of the two ASP ACG lists to 256 entries in each list, for a total of 512 entries in both.

- Measurements.

The following new measurement appears on the existing Section 232 of the 30-minute Traffic Report:

— Announcement Number Unavailable.

This count is pegged whenever the Announcement Number included in an STR (Send To Resource) message is not defined:

- when the received Announcement ID is not defined on the View.
- when the STR message is for an interactive announcement, and the Announcement ID is defined but is associated with a Route Index rather than a RAF/SAS (Recorded Announcement Facility / Service Announcement Service) Header and Trailer.

A separate portion of the existing Section 118 is provided which contains the same measurements as those currently existing in Section 118 and a newly defined portion for section 118. The counts on this new section are to be generated under the same criteria as the existing section /can118 counts and new counts provided by this feature only when the ASP call encountered a DNT (Dialed Number Trigger) which is marked as an ASP Toll Free trigger. General ASP counts are also pegged for such calls; thus, the call pegs both sets of measurements under appropriate criteria. The following three new ASP "Base" (Total Office) counts are provided on a new 5-minute traffic package:

Total Completed ASP Calls

The total number of ASP calls which are successfully completed within the 5-minute interval.

Total SCP (Service Control Point) Overload List Overflow.

This count measures the number of times that a request to install an SCP Overload ACG control cannot be honored due to list overflow.

Total SMS (Service Management System)-Initiated List Overflow.

This count measures the number of times that a request to install an SMS-Initiated ACG control cannot be honored due to list overflow.

This package can be scheduled independent of the ASP Toll Free Phase 2 being locked or unlocked (i.e., the ACT field for SFID 173 is set to "N" or "Y" on the SFSYS form (Record 5713-1), respectively).

The following ASP Toll Free specific counts are provided on a new 5-minute package:

Total ASP Toll Free Call Attempts.

This count measures the number of calls (both originating and incoming) which encountered a DNT marked for Toll Free within the 5-minute interval.

Total Completed ASP Toll Free Calls.

The total number of ASP calls which are successfully completed within the 5-minute interval.

Total ASP Toll Free Calls Blocked by SCP Overload Controls.

This count measures the number of calls encountering a DNT marked for Toll Free which have the Query blocked due to an SCP Overload ACG control in the 5-minute interval.

Total ASP Toll Free Calls Blocked by SMS-Initiated Controls.

This count measures the number of calls encountering a DNT marked for Toll Free which have the Query blocked due to an SMS-Initiated ACG control in the 5-minute interval.

This package can be scheduled only if the ASP Toll Free Phase 2 is unlocked (i.e., the feature is enabled by setting the ACT field for SFID 173 to "Y" on the SFSYS form). If it is requested, and the feature is locked, the request shall be refused with an informative explanation.

A new 30-second discrete, the "Toll Free Service SCP-Initiated Control Discrete" is used to indicate whenever one or more ASP calls which encountered a Toll Free DNT could not be completed because the resulting Query was blocked by an ACG control during the 30-second interval.

This discrete shall be "on" whenever a Query resulting from a Toll Free DNT is blocked due to ACG control.

The discrete remains on until a Remote Network Management Center polls for it. After the poll, the discrete is "off" until the next time a Toll Free DNT Query is blocked.

2. TRANSLATION REQUIREMENTS

No new ODA forms, fields, or enumerations added for this feature.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) -This form is used to enable secured features. The SFID ACT 173 field must be set to "Y" to activate this secured feature. In addition, since this feature depends on AIN Toll Free Service Phase 1, the ACT field for SFID 236 must be set to "Y" before activating the AIN Toll Free Service Phase 2 feature.

SEC. 4A174: NUMBER PORTABILITY

1. FEATURE DESCRIPTION

The NP (Number Portability) feature is a secured feature (SFID 174) and must be purchased before being

activated. Available with 5E11 and later Software Releases, the feature number for this feature is 99-CP-3169.

Number Portability gives the end-user the ability to move from one switch to another and keep his/her original DN (Directory Number). There are 3 types of Number Portability:

- Service Portability allows an end user to retain his/her DN after changing services and only on an inter-switch basis.
- Service Provider Portability allows an end user to retain his/her DN after changing service providers.
- Location Portability, also known as Geographic Portability, allows an end user to retain his/her DN after changing physical locations. In this case, the subscriber may or may not change service providers.

For the 5E11 Software Release, Location Portability will be limited to portability within a LATA (Local Access Transport Area).

The basic Number Portability feature offered in the 5E11 Software Release is built on the ASP (Advanced Services Platform) Release 0.1B base and follows the AIN (Advanced Intelligent Network) Release 0.1 protocol. This feature introduces a new trigger that supports all three types of portability in the 5E11 Software Release.

When an NPA-NXX (Numbering Plan Area Office Code) is defined as portable, the SCP's (Service Control Point's) service logic is defined to return an LRN (Location Routing Number) of the serving switch, or rate center within a switch, for the DNs that have been ported. A query is not required for intra-switch calls. Information obtained from the terminating line data and switch data are used to route the call.

When the switch receives an LRN from the SCP, the LRN is used to route the call to its correct destination. The LRN is populated in the IAM's (Initial Address Message's) Called Party Number parameter. The actual dialed digits are in the GAP (Generic Address Parameter). The FCI (Forward Call Indicator) parameter in the ISUP (ISDN User Part) IAM is used to determine whether the Called Party Number is translated or not. This FCI parameter can be set based on information from the query response or from switch translations. This is accomplished by an LNP query for inter-switch calls or by reading the switch data translations for intra-switch calls. The FCI parameter is used as a fail-safe mechanism to prevent more than one LNP query from being launched on a call. Note that for this feature, FCI refers to the translated number indicator.

For Location Portability, it is desirable that a unique LRN (unique in its NPA-NXX) be mapped to each Rate Center within a switch. The option, LRN screening, is provided which allows the type CI call and code index to be obtained from analysis of the LRN. If LRN screening is not set, the information is used from the original analysis of the dialed digits.

If an NPA-NXX has been geographically ported and a call is being made to that NPA-NXX, it cannot be assumed that intra-LATA Local calls can be distinguished from intra-LATA Toll calls. It is necessary to analyze the LRN to determine whether the call is intra-LATA Local or intra-LATA Toll.

If the call is ICLATA (Inter-LATA Carrier's Intra-LATA Capability), i.e., intra-LATA Toll, then the call is routed to the dialed carrier or PTC (Pre-subscribed Toll Carrier). For non-geographically ported calls, this can be determined pre-LNP query. For geographically ported calls it may or may not be determined pre-query depending on the data provisioning. If it can be determined pre-query, the call can be routed to the carrier without an LNP query being made. See Figure 1 for the different options.

NOTE: The NP - Basic AMA and NP - AMA Access Billing features do not support inter-rate center Location Portability. Therefore, the AMA record may be inadequate to rate and bill a call to/from an

inter-rate center ported subscriber. For more information, see the 235-190-127 document, Number Portability User's Guide.

Queries for non-ported DN's will cause the SCP to return the actual dialed DN or CONTINUE and not the LRN. In this case, the call is routed using the information returned from the original call to digit analysis.

Default routing for LNP triggers is available when the LNP query fails. The default routing capabilities available for LNP are built on the default routing capabilities provided by ASP for the ASP 3/6/10-digit triggers (For more information concerning this feature (SFID 153), see Division 2, Section 4A153). When assigned to the LNP trigger, default routing allows the craft to select whether to allow the call to be sent to a single office-wide announcement or to allow the call to proceed as if an Analyze_Route message were received with the CalledPartyID being the same as the pre-query CalledPartyID value. Without default routing assigned, the call is sent to final treatment if the query fails. With default routing provisioned (and unlocked), the craft can specify whether calls encountering LNP triggers receive announcement treatment or continue to route in the event that the LNP query fails.

Switches that do not have LNP-SCP access capabilities route the call to the incumbent switch (the switch the DN was initially ported from) or a tandem switch that has LNP-SCP access capabilities, and the incumbent or tandem switch launches the query to determine routing.

No TCAP (Transaction Capability Application Part) protocol changes are required for the AIN Release 0.1 messages in this software release. This feature builds on the ASP Release 0.1B platform capabilities. The LNP triggers make use of the existing AIN Release 0.1 TCAP protocols. This feature does not use the AIN Release 0 TCAP protocols. In addition, the ASP Release 0 platform capabilities are not modified to support LNP.

For inter-switch calls, the functionality provided by the basic Number Portability feature, is only applicable to calls encountering the LNP trigger. This functionality allows the switch to create an LNP GAP for use in inter-switch ISUP signaling and for LNP call routing operations. This feature is not applicable to inter-LATA calls. For intra-switch calls, an LNP trigger is not necessary, but may be provisioned if the dialed NPA-NXX involves terminating DN's that have been ported to other switches. For geographical portability an LNP trigger is always required.

1.1 ASP Capabilities and Number Portability

The following pertain to the Number Portability feature and ASP capabilities:

- This feature is dependent on the ASP 0.1B Platform (SFID 126).
- This feature specifies a new ASP trigger operation which can be encountered within an SSP either prior to routing or during initial call routing.
- The feature specifies a new LRN DAS for ISUP trunks to analyze the LRN. The ASP post-query DAS or SCP DAS supported by other features can also be used to analyze the LRN for lines and trunks obtained from query response or the LRN table. The LRN Table is the form LRNINDEX which assigns an index number to each Home LRN. For more information, see the 235-190-127 document, Number Portability User's Guide.
- The post-query DAS used by this feature is defined by the ASP Multiple Rate Center Features (99-5E-3192 and 99-5E-3426). For more information concerning this feature, see Division 2, Section 4A190.
- This feature specifies assignment of the LNP trigger, using the new LNP trigger number, based on the

current 3/6/10-digit trigger assignments, and/or the Ported In bit.

- Receipt of an SCP "Continue" in response to an LNP query shall be treated using existing ASP procedures. The SCP can respond with an Analyze_Route for both non-portable (with the actual DN) and portable (with the LRN) numbers for LNP triggers.
- Office equipment (an OE) does not need to be associated with the LNP trigger assignment.
- The LNP trigger will be encountered based on analysis of the dialed/received digits; however, the LNP query will be conditionally sent based on additional call routing determinations and checks (e.g. line resident on the switch).
- When the LNP trigger is assigned, the following feature interactions will be supported:
 - CNAM (Calling Name Display) will be operational when the LNP trigger is encountered.
 - LASS (Local Area Signaling Services) Automatic Callback and Automatic Recall features will be operational when the LNP trigger is encountered.
 - LASS SLE (Screen List Editing) will be operational when the LNP trigger is encountered.
 - The ISVM (Inter-Switch Voice Messaging) feature will be operational when the LNP trigger is encountered.
 - Circuit Switched Data will be operational when the LNP trigger is encountered.
 - Intra-LATA PIC (Presubscribed Inter-LATA Carrier) will be operational when the LNP trigger is encountered.

NOTE: For additional information, see the 235-190-127 document, Number Portability User's Guide. Unless noted, the interactions between the LNP trigger operation and switch-based features, including other ASP capabilities, will be identical to the feature interactions specified for the existing ASP Release 0.1B 3/6/10-Digit Triggers.

- Location Routing Numbers (LRNs) will be provisioned to uniquely identify each switch in the Number Portability network at a minimum for Service Provider and Service portability.
- LRNs can be provisioned per rate center/switch for Location Portability and is recommended.
- Default routing will be available for the LNP triggers to allow the call to continue in the event that the SCP is unavailable or a fatal signaling error occurs.
- The Recent Change impact of this feature provides for the LNP trigger capability to be identified through the use of the LNP trigger number assignments.
- The LNP trigger will follow the existing ASP serial triggering, and persistent transaction rules. That is, the LNP trigger can be encountered following an ASP trigger resulting in the serial trigger count being incremented, and the serial triggering threshold being checked. With respect to persistent transactions, if an ASP originating trigger or ASP non-subscribed trigger is initiated, a second non-subscribed (namely, an LNP trigger in this case) trigger on the same leg of the call cannot be launched until the transaction associated with the initial trigger has been closed.
- The 3/6/10-digit trigger has precedence over an LNP trigger in an event that there is an LNP trigger with

digits that coincide with 3/6/10-digit trigger.

- The secured feature lock for the Basic LRN feature is SFID 174 (Secured Feature ID).

1.2 Feature Scenarios

The following scenarios illustrate the call flows for the basic types of LNP calls within a network of LRN and non-LRN switches. The Figure 1 depicts the entire network. Each scenario shows only the involved switches, trunks, and lines pertaining to that scenario. The forms shown are the LDIT (RC/V 9.3) forms of interest for the given scenario. Each LDIT form belongs to a switch as indicated. The RDIT form could have also been used. The new LNP fields are not provisioned on PDIT form, since PDIT is not usually used to terminate calls. The LNP fields are not supported on the INDIT form for an LNP trigger number since the dialed number is expected to always be a 7- or 10-digit number, and LRNs are always analyzed via the LDIT form.

The purpose of the scenarios is to show some basic call flows. In the last few scenarios, carriers are involved in the call. The ICF form (RC/V 10.3) is shown for these scenarios. The trunk numbers, route index numbers, DAS numbers, and LDIT numbers generally match each other when related.

1.3 Scenario 1 - Call to Non-Ported DN in Portable NPA-NXX on Originating Switch

See Figure 2 for call flow.

Switch B - Line to Line, DNTRAN found, Non-Geographically Ported DN

- Line 708-636-7144 on Switch B calls 312-612-3456.
- Digit Analysis detects an LNP trigger, 89. (This NPA-NXX is portable.) No IC is derived.
- An office code (612) exists on LDIT. (This is the incumbent exchange.)
- A DNTRAN tuple is found. (This is the home switch.)
- The DNTRAN tuple has an LRN Index of 0. (The called DN was not geographically ported.)
- The call terminates to the terminating line using the LDIT view with office code (612).

1.4 Scenario 2 - Call to Non-Ported DN in Portable NPA-NXX on Remote Switch

See Figure 3 for call flow.

Switch B - Line to Trunk, PORTED IN is "N", Non-Ported DN

- Line 708-416-9200 on Switch B calls 708-979-1115.
- Digit Analysis detects an LNP trigger, 11. (This NPA-NXX is portable). No IC is derived (i.e., the originating line has no PTC (Pre-subscribed Toll Carrier)).
- A Route Index, rather than an Office Code, is found. (This is not the incumbent switch.)
- PORTED IN is "N". (This NPA-NXX has not been ported to Switch B.)
- An LNP query is launched. The response is 708-979-1115, which matches the originally dialed digits. (The number was not ported.)

- The call routes out of trunk 6 using RTI which is 6 from the LDIT form with FCI set. The LNP trigger is ignored.

Switch C - Trunk to Trunk, FCI is "Y", LRN is not Included

- Trunk group 5 on switch C receives a call with FCI is set to "Y".
- An LRN is not included. (The number called was not ported.) Since FCI is "Y", the IAM is checked for the presence of a Ported Number GAP.
- The dialed digits received over the trunk are analyzed in the trunk DAS. The call is routed out over trunk 98 using RTI 98 from the LDIT.

Switch E - Trunk to Line, FCI is "Y", LRN is not Included

- Trunk group 99 on switch E receives the call with FCI is set to "Y".
- An LRN is not included. (The number called was not ported.)
- The dialed digits received over the trunk are analyzed in the trunk DAS. An Office Code of 979 is found on the LDIT. The call is routed to the Terminating Line using the LDIT.

1.5 Scenario 3 - Call From Non-LRN Switch to Non-Ported DN in Portable NPA-NXX

See Figure 4 for call flow.

Switch D - Trunk to Line, DNTRAN is found, Non-Geographically Ported DN

- A call comes in to Switch D from non-LRN switch A over trunk 2 with dialed digits of 312-444-2244.
- FCI is "N". (It is unknown whether the called DN is ported since no LNP query has occurred.)
- The trunk DAS is used to analyze the dialed digits. An LNP trigger, 4, is encountered. Carrier selection determines that the LEC will route the call.
- An office code (444) exists on LDIT. (This is the incumbent exchange.)
- A DNTRAN tuple is found. (This is the home switch.)
- The DNTRAN tuple has an LRNINDEX of 0. (The called DN was not ported.)
- The call terminates to the terminating line using the LDIT form with office code (444).

1.6 Scenario 4 - Call From Non-LRN Switch to Non-Ported DN on Remote Switch

See Figure 5 for call flow.

Switch C - Trunk to Trunk, FCI is "N", PORTED IN is "Y", but the called number has not itself ported into this switch.

- A call comes into Switch C from Switch A over trunk 5 with dialed digits 708-979-1115.
- FCI is "N". (An LNP query has not been performed.)
- The trunk DAS 5 is used to analyze the dialed digits. An LNP trigger 10 is encountered. Carrier selection does not derive a carrier.
- A Route Index, rather than an Office Code, exists on the DAS form. (This is not incumbent exchange.)
- PORTED IN is "Y". (Some numbers from this NPA-NXX have ported in to this switch.)
- The NOC is set based upon the NXX.
- No DNTRAN tuple is found, so the SCP is queried.
- The response, 708-979-1115, matches the originally dialed digits. (The DN has not ported.)
- The call routes out of trunk 98 using RTI set to 98 from the LDIT form with FCI set to "Y".

Switch E - Trunk to Line, FCI is "Y", LRN Not Included

- Trunk group 99 on switch E receives the call with FCI is "Y". (The previous switch has determined whether this number is ported).
- An LRN is not included. (The number called was non-portable.)
- The dialed digits are analyzed in the trunk's DAS, 99. LNP triggers, if found, are ignored.
- The call is routed to the terminating line using the LDIT with the Office Code of 979.

1.7 Scenario 5 - Call Flow from Non-LRN Switch to DN Ported in to Switch

See Figure 6 for call flow.

Switch A - Trunk to Line, FCI is "N", PORTED IN is "Y", Ported In

- A call comes over trunk 5 from switch A to switch C with dialed digits 708-979-1116.
- FCI is "N". (An LNP query has not been performed.)
- The trunk DAS, 5, is used to analyze the dialed digits. An LNP trigger, 10, is encountered. Carrier selection does not derive a carrier.
- A Route Index, rather than an Office Code, is found on the DAS form. (This is not the incumbent exchange.)
- PORTED IN is "Y". (Some DNs from this NPA-NXX have ported into this switch.)
- The NOC is set based upon the NXX.
- A DNTRAN tuple is found. (This is the home switch.)
- The DNTRAN tuple has an LRN INDEX. (The called DN has been geographically ported.)

- The LRN INDEX is used to obtain the LRN, 312-555-1000.
- The LRN is analyzed in the POST QUERY DAS which is 10 and associated with LNP Trigger 10.
- The FCI is set to indicate that we have found the LRN.
- The pre-LRN analysis NOC, that had been set based upon the NXX, is restored.
- The call terminates to the terminating line using the pre-LRN analysis NOC, associated with NXX (979).

1.8 Scenario 6 - Call from Non-LRN Switch to Ported In DN with OFFICE CODE, Dialed NXX

See Figure 7 for call flow.

1.8.1 Switch D - Trunk to Line, PORTED IN is "N", HOME LRN is "Y"

A call comes in to Switch D from non-LRN switch A over trunk 2 with dialed digits of 888-999-1113.

FCI is "N". (It is unknown whether the called DN is ported since no LNP query has occurred.)

The trunk DAS is used to analyze the dialed digits. An LNP trigger of 44 is encountered. The carrier selection determines that the LEC will route the call.

A Route Index, rather than an Office Code, is found on the DAS form. (This is not the incumbent exchange.)

PORTED IN is "Y". (It appears as though no DNs have been ported in. Therefore, no attempt is made to set the NOC based on the NXX.)

1.9 Scenario 7 - ICLATA Carrier Call with Pre-subscribed Toll Carrier to Non-Ported DN

See Figure 8 for call flow. Switch B - Line to Trunk, ICLATA call with PTC

On switch B, 708-416-9200 originates a call by dialing 708-979-1115.

The originating line has presubscribed to carrier 288 for Intra-LATA toll calls.

The dialed digits are analyzed in the originator's DAS. An LNP trigger of 11, is detected.

GEO PORT is "Y". (This NPA-NXX has been geographically ported, so the TYPE CI CALL and other LDIT data only represent the non-ported case.)

The TYPE CI CALL is "TOLL". The originator has pre-subscribed for Toll calls.

A Route Index, rather than an Office Code, is found on the DAS form. (This is not the incumbent switch).

PORTED IN is "N". (The number was not ported into this switch.)

An LNP query is launched. The SCP returns the originally dialed digits. (The called DN has not ported.)

Since the DN was not ported, the TYPE CI CALL of "TOLL" is valid for this call.

The call is routed (FCI is not set) to the carrier using the CDI and RTI on the ICF form for that carrier. The

carrier will now be responsible for determining how to route to the called DN.

1.10 Scenario 8 - Intra-LATA Toll Call with Dialed Carrier, INTRA LATA is "N"

See Figure 9 for call flow. Switch B Line to Trunk, ICLATA Call with Dialed Carrier, INTRA LATA is "N"

On switch B, 708-416-9200 originates a call by dialing 10-288-708-979-1115.

The dialed digits are analyzed in the originator's DAS. An LNP trigger, 11, is detected.

The TYPE CI CALL is "TOLL".

GEO PORT is "Y". (This NPA-NXX has been geographically ported. Therefore, the TYPE CI CALL is correct for non-ported DNs, but might not be for other calls to this NPA-NXX.

The Intra-LATA Indicator on the ICF form is set to "N". Therefore, if the TYPE CI CALL is "INTRA", the dialed carrier is not valid.

A Route Index, rather than an Office Code, is found on the DAS form. (This is not the incumbent switch).

PORTED IN is "N". (The number was not ported into this switch.)

An LNP query is launched. The SCP returns the originally dialed digits. (The called DN has not ported.)

Since the DN has not ported, the TYPE CI CALL of "TOLL" is valid for this call.

The ICF form (RC/V 10.3) is used to obtain an RTI used to route the call to the carrier. The carrier is now responsible for determining how to route to the called DN.

1.11 Scenario 9 - AR (Automatic Recall)

See Figure 10 for call flow. Call to DN Geographically Ported Within Remote Switch

Switch B:

708-416-9200 (Line A) on Switch B calls 708-979-5555 (Line B), which may have been ported geographically within switch E.

Digit Analysis detects an LNP trigger of 11. (This NPA-NXX is portable).

A route index, rather than an office code, is found. (This is not the incumbent switch).

PORTED IN is "N". (This NPA-NXX has not been ported in to Switch B).

An LNP query is launched. The response is 708-222-1113, which does not match the dialed digits. (This number has been ported.)

The LRN is analyzed in the POST QUERY DAS 75 from NSTRIG, which is associated with the LNP trigger of 11.

HOME LRN is set to "N". (The called DN is not on this switch).

The call routes out of trunk 6 using RTI of 6 to trunk 99 via trunk 98. FCI is set and GAP populated.

Line A's OLHB (Outgoing Line History Block) is updated with the digits that Line A dialed to call Line B.

Switch C:

FCI is "Y" and

An LRN is included (The number called was ported) and is analyzed in the trunk's LRN DAS, DAS is 75.

HOME LRN is "N" on the LRN LDIT. (The call is not on this switch.) The LRN and GAP digits are passed along.

OFFICE CODE is 979 and is used to terminate the call to the called DN.

Switch E:

FCI is "Y" and

An LRN is included (The number called was ported) and is analyzed in the trunk's LRN DAS, DAS is 75.

HOME LRN is "N" on the LRN LDIT. (The call is not on this switch.)

OFFICE CODE is 979 and is used to terminate the call to the called DN.

The ILHB (Incoming History Block) of line B gets with Line A's DN when the terminal gets alerted.

Switch B:

Line A goes on-hook.

User dialed AR use code and camps-on

Line A goes off-hook and dials AR use code.

Digit Analysis detects an LNP trigger.

Line B is not found on this switch.

The Originating Process determines that this is an inter-switch call and sends an AR Initial Query TCAP message for the called party number to the STP (Signal Transfer Point) requesting GTT (Global Title Translation).

The STP does a GTT on line B's NPA-NXX-XXXX which results in routing the message to the LNP-SCP, based on the Translation Type and NPA-NXX. The SCP performs final GTT and forwards the message to switch E.

Switch E sends the Response contains information on the busy/idle status on line B's line.

If line B is busy, line A receives an AR confirmation announcement. Subsequent messages in this AR session can be routed in the same manner.

Both Idle - Camps-On Ringback

Line A answers the ringback. A Final TCAP Busy/IDLE status query is sent to determine if Line B is still idle. After the B/I status returns idle, LNP processing occurs.

LNP trigger is launched and the call is completed as before.

Automatic Callback is exactly the same for a ported DN in the ILHB (the TCAP busy/idle status processing is done before the LNP query) as described for AR.

1.12 Scenario 10 - SLE (Screen List Editing)

See Figure 11 for call flow.

Ported In Line to Originating Switch

- Line 312-444-2244 (Line A) on Switch D goes off-hook and dials SCR activation code.
- Line A gets connected to an interactive RAF announcement.
- Line A enters 708-979-1119 (Line B's DN).
- Digit Analysis detects an LNP trigger of 4. (This NPA-NXX is portable).
- A route index, rather than an office code, is found. (This is not the incumbent switch.)
- PORTED IN is "Y". (Some numbers from this NPA-NXX have ported in to this switch.)
- The NOC is set based upon the NXX.
- A DNTRAN tuple is found. (This is the home switch).
- The DN resides on the same switch as the SLE user, therefore, this will not result in a TCAP SLE DN verification query being sent to the SCP.
- The 708-979-1119 is added to line A SCF list.

2. GENERAL CALL FLOW

Since this is a secured feature, before it can be activated the ACT field for SFID 174 on the SFSYS form (5713-1 Record) must be set to "Y". In addition, since this feature depends on SFID 126, the ASP Release 0.1B secured feature must be activated by setting the ACT field for SFID 126 on the SFSYS form to "Y". For more information on this feature, see Division 2, Section 4A126.

For call processing flow, see Figure 12.

- A. Call processing begins with a normal line or trunk origination.
- B. If PFX is 0- or 0+, calls are sent through normal routing to an operator. (Operator calls bypass LNP processing).
- C. In LDIT, if either LNP TRIG NBR is non-zero or PORTED IN is "Y", this indicates a portable NPA-NXX. Otherwise, the NPA-NXX is not portable and the call is routed using basic call processing.

D. If the NPA-NXX is portable, GEO PORT is checked:

E. If GEO PORT is "N":

- This indicates there are no DNs in the NPA-NXX that have been geographically ported.
- Carrier selection checks TYPE CI CALL, PTC (if TYPE CI CALL is "TOLL") and 10XXX dialing pre-subscribed carriers to determine the carrier.
- If the carrier is an IC, the call is routed to the IC using appropriate carrier routing on the ICF form.
- If carrier is the LEC, the OFFICE CODE/ROUTE INDEX fields are checked.
 - If OFFICE CODE is specified and an OE exists, the call terminates to the dialed DN using normal routing to DN translations.
- If an OE is not found and an LNP TRIG NBR is assigned, an LNP query is launched.
- If ROUTE INDEX is specified, a check is made to see if the dialed NPA-NXX has "ported in" to this switch.
- If PORTED IN is "Y", this indicates that at least one DN in NPA-NXX may have ported into this switch. The dialed NXX is converted to a NOC and a check is made for an entry in line translations. If found, the call terminates to the DN.

NOTE: The dialed NXX is assumed to be an OFFICE CODE. If not, the feature will not function properly. For 5E12 and later, the NXX Expansion feature allows the ability to continue to handle NPA-Splits. In this case, when PORTED IN is "Y", the NOC is no longer derived using the dialed digits. The NPA and OFFCODE within LDIT are used to derive the NOC.

- If an OE is not found and an LNP TRIG NBR is assigned, an LNP query is launched. If no LNP TRIG NBR is assigned, the route index from LDIT/RDIT is used to route the call to a trunk group.
- If PORTED IN is "N", an LNP query is launched.

A. If GEO PORT is "Y":

- This indicates one or more DNs in the NPA-NXX may have been geographically ported to another switch or to another rate center on this switch.
- Since the routing data for the dialed DN represents the non-ported case, carrier selection cannot be determined at this point in the call.
- The OFFICE CODE/ROUTE INDEX fields are checked.
- If OFFICE CODE is specified, this is the incumbent switch of the DN(s) that have been geographically ported.
 - The OFFCODE is converted to a NOC and a check is made for an

entry in Line Translations.

- If no entry is found, this indicates the dialed DN may have been geographically ported to another switch and an LNP query is needed to obtain the correct LRN.
 - If a line translations entry does exist, the LRN INDEX field is checked.
 - If the value is 0, this indicates the dialed DN has not ported geographically and the call terminates to the DN or carrier.
 - If the value is non-zero, this indicates the DN has been geographically ported to another rate center on this switch.
 - Since this is an intra-switch call, it is not necessary to do an LNP query. Instead, the value is used to retrieve an LRN from the LRNINDEX form.
 - The LRN is analyzed using either the POST QUERY DAS on the NSTRIG form associated with the LNP TRIG NBR, or the SCP DAS on the OFCOPT form.
 - LRN SCREENING is checked to determine what screening data to use:
 - If set to "Y", screening data (TYPE CI CALL, CDI) is taken from the LRN.
 - If set to "N", screening data is taken from the originally dialed DN.
 - The selected routing data is used to do carrier selection and screening.
 - If the carrier is an IC, the call is routed to the IC using appropriate carrier routing on the ICF form. The IC will then determine how the call should be routed to the terminating DN.
 - If the carrier is the LEC, the call terminates to the dialed DN or trunk.
- If ROUTE INDEX is specified, a check is made to see if the dialed DN or trunk may have "ported in" to this switch.
 - If PORTED IN is "Y", this indicates that at least one DN in NPA-NXX may have ported into this switch. The dialed NXX is converted to a NOC and a check is made for an entry in line translations. If found, the call terminates to the DN.
 - If no entry is found, or if PORTED IN is "N", an LNP query is launched.
- B. If an LNP query is required, the LNP TRIG NBR is used to access the NSTRIG form.
- Checks are made to ensure APPLICATION is "ASP" and the trigger is active.
 - A query is launched. A successful query will return an analyze_route message.
 - If query failure occurs, the call is routed to DFLT 3/6/10 routing treatment, only if the DFLT 3/6/10 feature is active (SFID 153) and field DFLT RT is entered.
 - If the returned message contains the originally dialed DN, this indicates the DN has not ported.

- If the carrier is an IC, the call is routed to the IC using appropriate carrier routing on the ICF form. The IC will then determine how the call should be routed to the terminating DN.
 - If carrier is the LEC, the call is routed to the dialed DN using either the OFFICE CODE or ROUTE INDEX from LDIT/RDIT.
 - If the returned message contains an LRN, this indicates the DN has ported.
- C. The LRN is analyzed using either the POST QUERY DAS on the NSTRIG form or the SCP DAS on the OFCOPT form.
- LRN SCREENING is checked to determine what screening data to use:
 - If set to "Y", screening data (CITYTYPE, CDI and PREFIX) is taken from the LRN.
 - If set to "N", screening data is taken from the originally dialed DN.
 - The selected routing data is used to do Carrier selection
 - If the carrier is an IC, the call is routed to the IC using appropriate carrier routing on the ICF form. The IC will then determine how the call should be routed to the terminating DN.
 - If carrier is the LEC, HOME LRN is checked:
 - If HOME LRN is "Y", this indicates the called DN terminates on this switch.
 - The dialed NXX is converted to a NOC and the call terminates to the dialed DN.
 - If HOME LRN is "N", the called DN is not served on this switch and the call is routed to a trunk group using the ROUTE INDEX from the LRN LDIT entry.
- D. The next switch receives a trunk origination and checks the FCI indicator.
- If FCI is "N", this indicates no LNP query has occurred and it is unknown whether the called DN may have ported. For this case, call processing would treat this as a normal trunk origination. Call flow would begin at the starting point in the call flow diagram with possible LNP triggers encountered.
 - If FCI is "Y", the IAM is checked for the presence of a Ported Number GAP.
 - If no Ported Number GAP is included, this indicates the called DN was not ported.
 - The dialed digits are analyzed using the normal TRK DAS on the TKGRP form and the call terminates to the DN using the OFFCODE, or is routed to a trunk group using the ROUTE INDEX.
 - If the call is routed over a trunk group, call flow would repeat starting at point I until the call reaches the terminating switch.
 - If a Ported Number GAP is included, the called Number Parameter is treated as an LRN.

- The LRN is analyzed using the LRN TRK DAS from TKGRP (or the TRK DAS, if none is found) and HOME LRN is checked.

E. If HOME LRN is "N", this indicates the dialed DN does not terminate on this switch.

- The INH DNT field is checked:
- If INH DNT is "Y" (on LRN LDIT), the call terminates using the data on the LRN's LDIT.
 - Any Non-LNP triggers (DNTs (Dialed Number Triggers), TATs (Terminating Attempt Triggers), etc.) encountered are ignored, the FCI setting is preserved, and the call is routed to the next switch.
 - Next switch call processing would re-enter the call flow diagram at point E.
- If INH DNT is "N", the dialed digits are analyzed in the TRK DAS but only to the extent of finding a Non LNP Trigger.
 - Any Non-LNP triggers encountered are honored, the FCI setting is reset, and the new trigger application takes over the call (ASP/NS800...).
 - If a Non-LNP Trigger is not encountered, then the call is routed based on the LRN and FCI is not reset.
 - On the next switch call processing would re-enter the call flow diagram at point I.
 - If FCI has been cleared, LNP call processing could be called again depending on subsequent call events.

F. If HOME LRN is "Y", this indicates the called DN terminates on this switch.

- INH DNT checks made.
 - The dialed digits are analyzed using the normal TRK DAS, any Non-LNP triggers encountered are honored, the FCI indicator is cleared, and the call terminates via normal SCP processing.
 - LNP call processing could be called again depending on subsequent call events.
 - When no Non-LNP Triggers are encountered, a NOC is derived using the digits within the GAP. If a DNTRAN is found, the call is terminated to the line. If a DNTRAN is not found, the new Release Cause 26 (Mis-routed call to a Ported Number) is sent.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
DSLUSR	5908	5	1I	23.2, 23.8
LDIT	5300-3/5	3	3C	9.3
LINE	5109	3	1I	1.6
LRNINDEX	5328	3	3AM	9.36
MLDIT	5300-3	3	3C	9.15
MLHLN	5111	3	1K	1.6
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1
RDIT	5300-7/8	3	3H	9.9
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

See Figures 18 - 20 for form flow for this feature.

DSLUSR form (5908 Record) - This form is used to define: 1) the associated TN and status of a DSL user, 2) the circuit switching attributes of a DSL user. The LRN INDEX was added to support this feature. A non-zero value indicates this line has been geographically ported to a different rate center on the same switch or geographically ported in from another switch. The value is used to access an LRN in the LRNINDEX form.

LDIT form (5300-3/5 Record) - This form is used to define all area, office and service codes in a 5ESS-2000 Switch and serves as a local and foreign translator. The LNP TRIG NBR, GEO PORT, PORTED IN, HOME LRN, LRN SCREENING and INH DNT fields were added to support this feature.

- LNP TRIG NBR - Indicates NPA-NXX may have ported DN's. This field is used to launch LNP query if LNP processing indicates ported DN's terminate on another switch.
- GEO PORT - If set to "Y", this field indicates NPA-NXX has DN's which have been geographically ported to another rate center on the incumbent switch, geographically ported to another switch, or geographically ported in from another switch. Proper TYPE CI CALL and CDI cannot be determined until an LRN obtained either from an SCP or switch database has been analyzed.
- PORTED IN - If set to "Y", this field indicates NPA-NXX has DN's which have ported into the originating switch either through geographic portability or service provider portability.
- HOME LRN - If set to "Y", this field indicates LRN is owned by or is homed on this switch. This field only applies to LRNs and NOT to dialed digits.
- LRN SCREENING - If set to "Y", screening data is obtained from the analyzed LRN value. If set to "N", screening data is obtained from originally dialed DN. This field only applies to LRNs and not to dialed digits.
- INH DNT - If set to "N", other Non-LNP triggers encountered during analysis of the dialed DN will be honored. If set to "Y", Non LNP triggers encountered will NOT be honored. This field only applies to LRNs received on incoming ISUP trunks and not to dialed digits.

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each telephone number in the 5ESS-2000 Switch. The LRN INDEX field was added to support Number Portability. A non-zero value indicates this line has been geographically ported to a different rate center on the same switch or geographically ported in from another switch. The value is used to access an LRN in the LRNINDEX form.

LRNINDEX form (5328 Record) - This form was added to associate a LRN index to an LRN number. Typically, a unique LRN will be assigned to each office or rate center. The LRN obtained is analyzed using a DAS from either the NSTRIG form or SCP DAS from the OFCOPT form.

MLDIT form (5300-3 Record) - This form is used to define all area, office and service codes in a 5ESS-2000 Switch and serves as a local and foreign translator. The LNP TRIG NBR, GEO PORT, PORTED IN, HOME LRN, LRN SCREENING and INH DNT fields were added to support this feature. Refer to the LDIT form above for the description of these fields.

MLHLN form (5111 Record) - This form is used to define the individual terminal numbers assigned to a particular MLHG (Multi-Line Hunt Group). The LRN INDEX field was added to support Number Portability. A non-zero value indicates this line has been geographically ported to a different rate center on the same switch or geographically ported in from another switch. The value is used to access an LRN in the LRNINDEX form.

NSTRIG form (5324 Record) - This form is used to identify a network service application. The POST QUERY DAS field is used to specify the DAS (Digit Analysis Selector) used to analyze the LRNs either returned from the LNP SCP or retrieved from the LRNINDEX form. The ASP Multiple Rate Center secured feature (SFID 190) must be active to assign these DASs.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. The JIP (Jurisdiction Information Parameter) field was added which contains the NPA-NXX of a designated LRN (Local Routing Number) identifying the office.

RDIT form (5300-7/8 Record) - This form is used for translation of remaining dialed digit strings for digit analysis. The LNP TRIG NBR, GEO PORT, PORTED IN, HOME LRN, LRN SCREENING and INH DNT fields were added to support this feature. Refer to the LDIT form above for the description of these fields. The "IGN", ignore indication, was added for use on the RDIT form, and only for population of the LNP Trigger Number field. When call processing encounters the "IGN" indication (for the LNP TRIG NBR assignment) on the RDIT forms, then call processing will use the corresponding assignments of: DFLT RT, LNP TRIG NBR, PORT IN, and GEO PORT found on the corresponding LDIT view.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 174 to "Y". In addition, since this feature depends on SFID 126, the ASP Release 0.1B secured feature must be activated by setting the ACT field for SFID 126 on the SFSYS form to "Y". For more information on this feature, see Division 2, Section 4A126. In addition, the ACT field for SFID 190 must be set to "Y" if per-trigger POST QUERY DASs are assigned on the NSTRIG form.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The LRN DAS, and SIG PNUM fields were added to support this feature.

- **LRN DAS** - This DAS is used to analyze LRNs contained in the CdPN parameter for incoming ISUP calls.
- **SIG PNUM** - If set to "Y", the dialed DN will be signaled in the CdPN (Called Party Address Parameter) parameter of the ISUP IAM instead of the LRN, and the FCI's translated number indicator will be set to number not translated.

4. GLOSSARY

AIN	Advanced Intelligent Network
AR	Automatic Recall
ASP	Advanced Services Platform
CI	Carrier Interconnect

CNAM	Calling Name
DN	Directory Number
FCI	Forward Call Indicator
GAP	Generic Address Parameter
GTT	Global Title Translations
IAM	Initial Address Message
IC	Interexchange Carrier
ICLATA	Inter-LATA Carrier's Intra-LATA Capability
IHLB	Incoming History Block
ISUP	ISDN User Part
ISVM	Inter-Switch Voice Messaging
JIP	Jurisdiction Information Parameter
LASS	Local Area Signaling Services
LATA	Local Access Transport Area
NP	Number Portability
LRN	Location Routing Number
NP	Number Portability
NOC	Normalized Office Code
NPA-NXX	Numbering Plan Area Office Code
PIC	Pre-subscribed Inter-LATA Carrier
PTC	Pre-subscribed Toll Carrier
SCP	Service Control Point
SLE	Screen List Editing
STP	Signal Transfer Point
TAT	Terminating Attempt Trigger
TCAP	Transaction Capability Application Part
TOLHB	Temporary Outgoing History Block

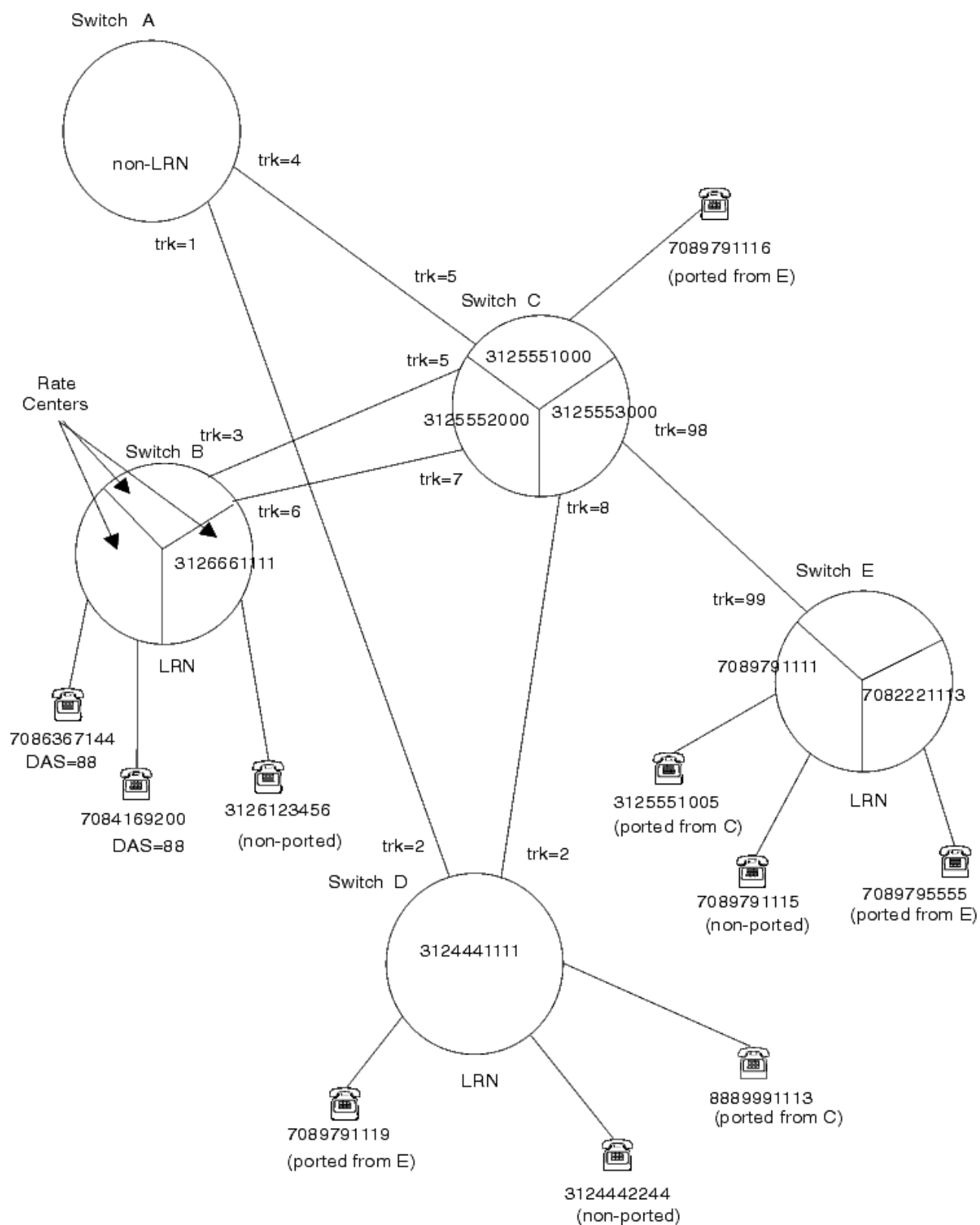


Figure 1 BASIC TYPES OF LNP CALL SCENARIOS WITHIN A NETWORK OF LRN AND NON-LRN

SWITCHES

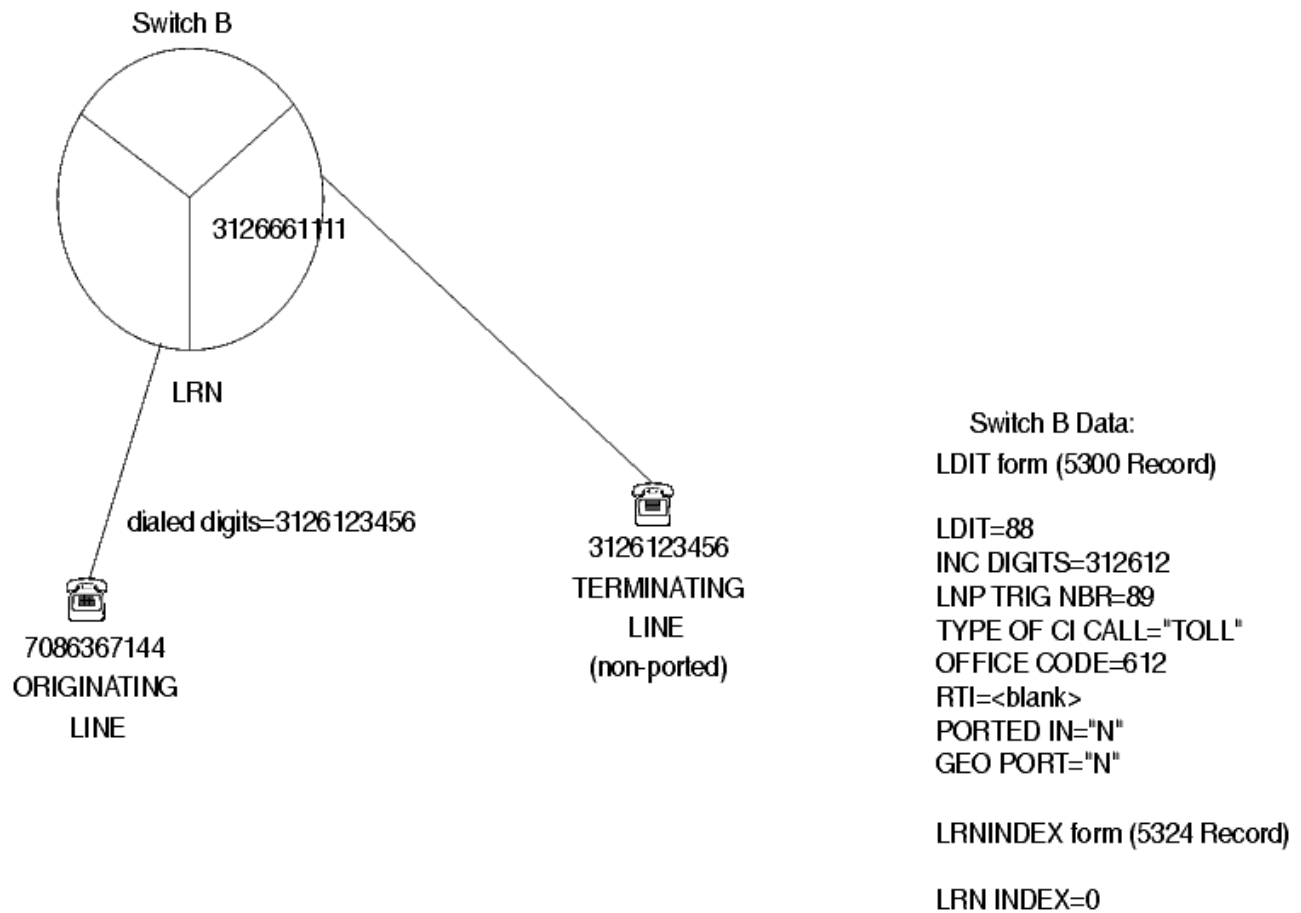


Figure 2 SCENARIO 1 - CALL TO NON-PORTED DN IN PORTABLE NPA-NXX ON ORIGINATING SWITCH

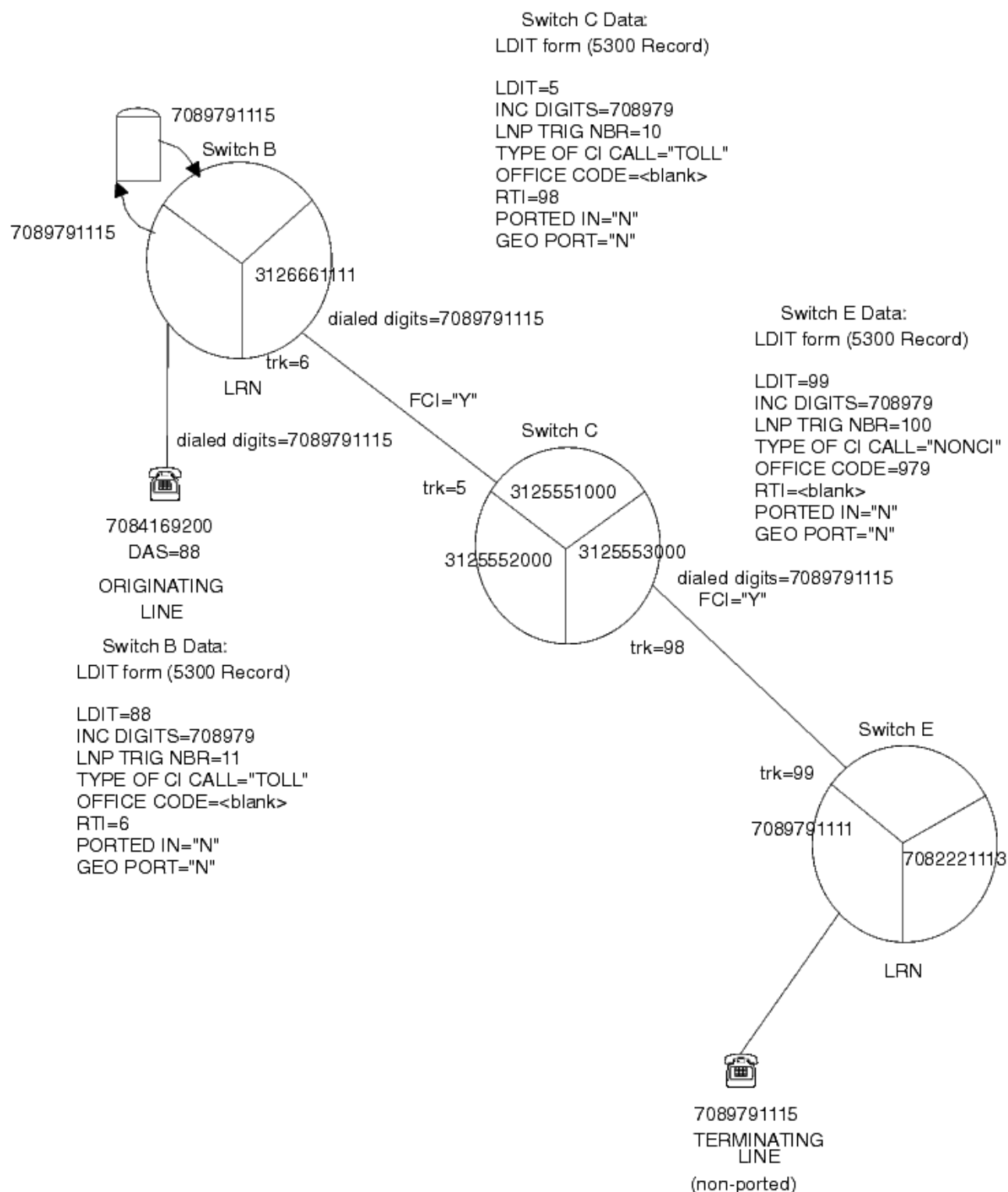


Figure 3 SCENARIO 2 - CALL TO NON-PORTED DN IN PORTABLE NPA-NXX ON REMOTE SWITCH

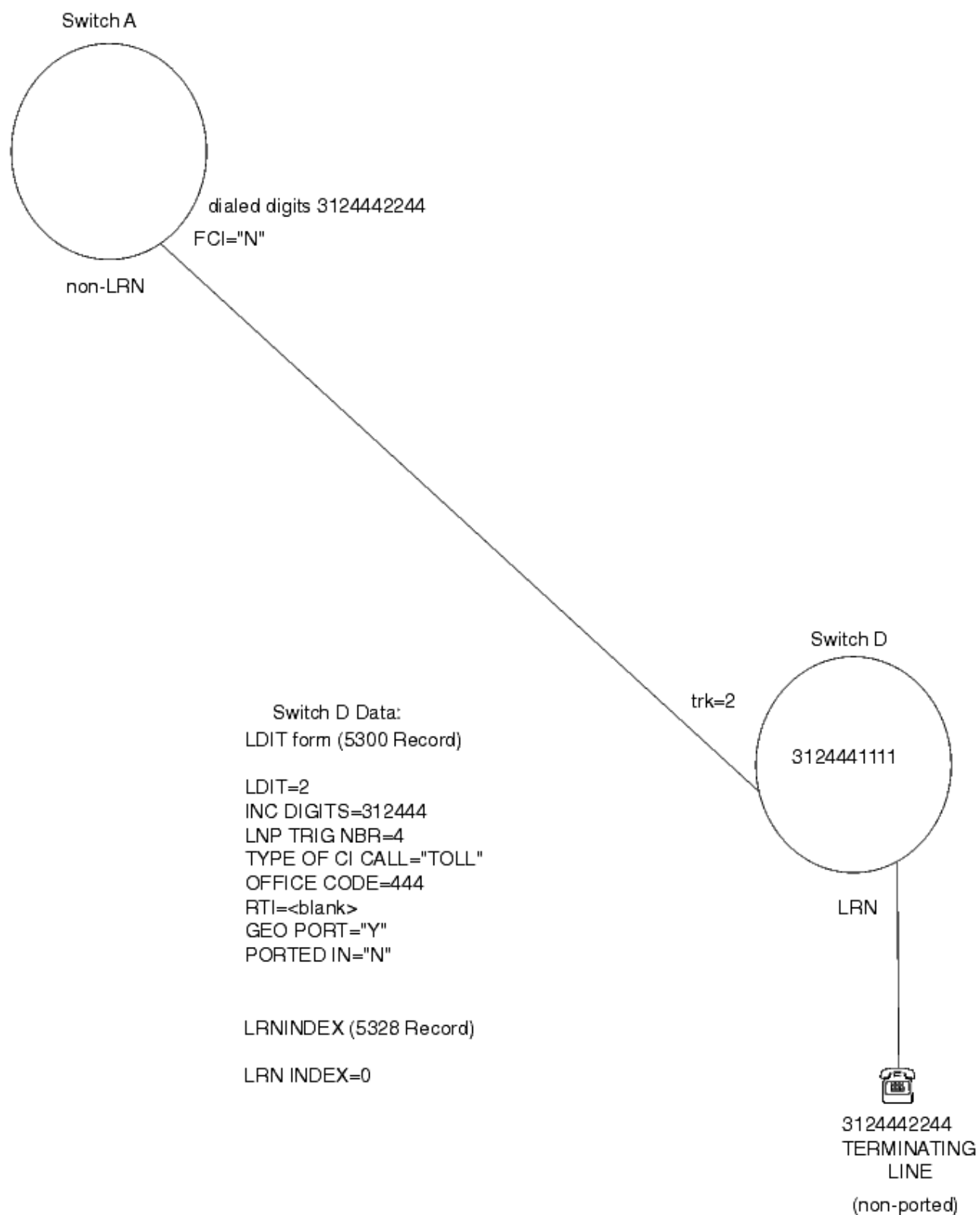


Figure 4 SCENARIO 3 - CALL FROM NON-LRN SWITCH TO NON-PORTED DN IN PORTABLE NPA-NXX

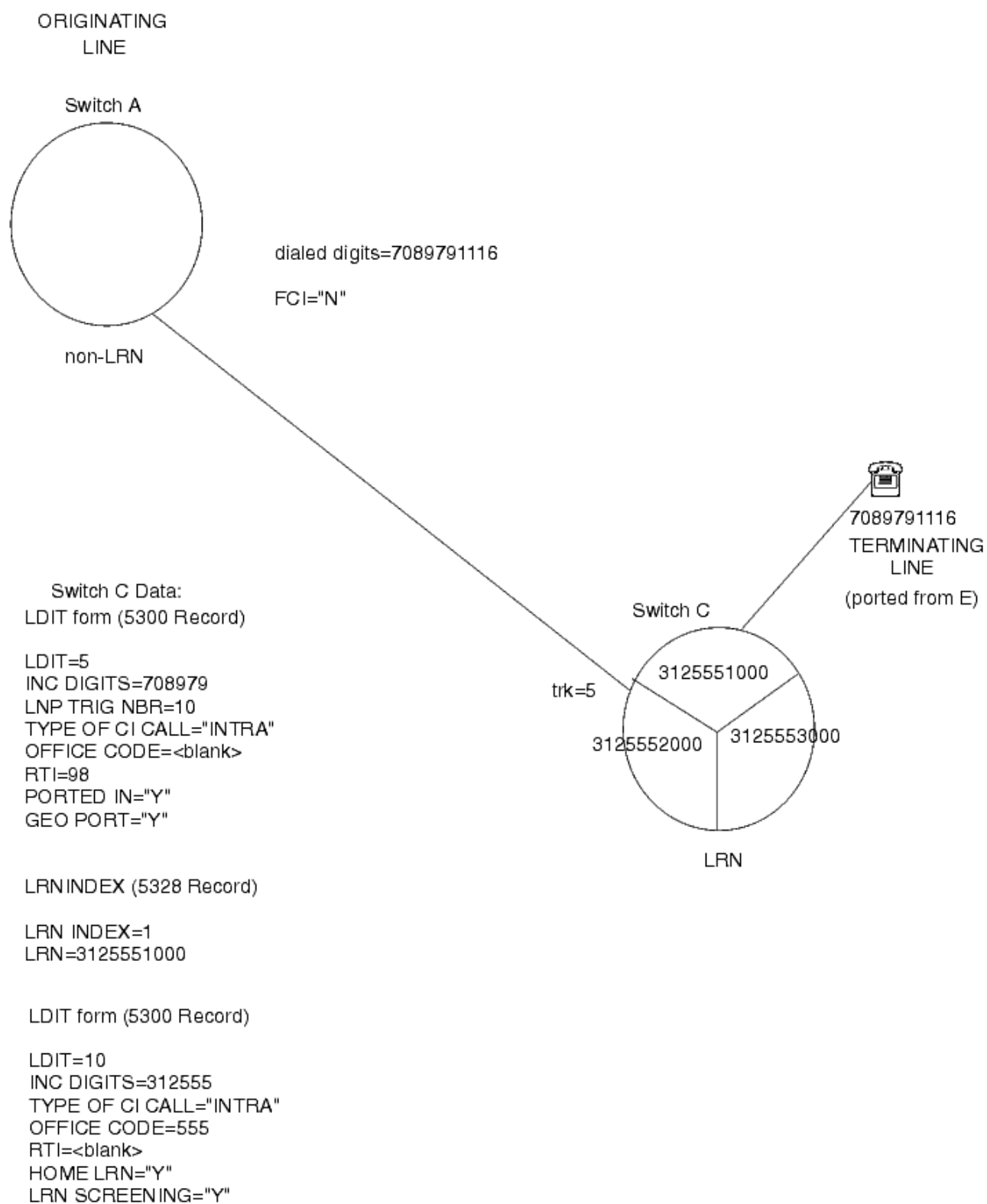


Figure 5 SCENARIO 4 - CALL FROM NON-LRN SWITCH TO NON-PORTED DN ON REMOTE SWITCH

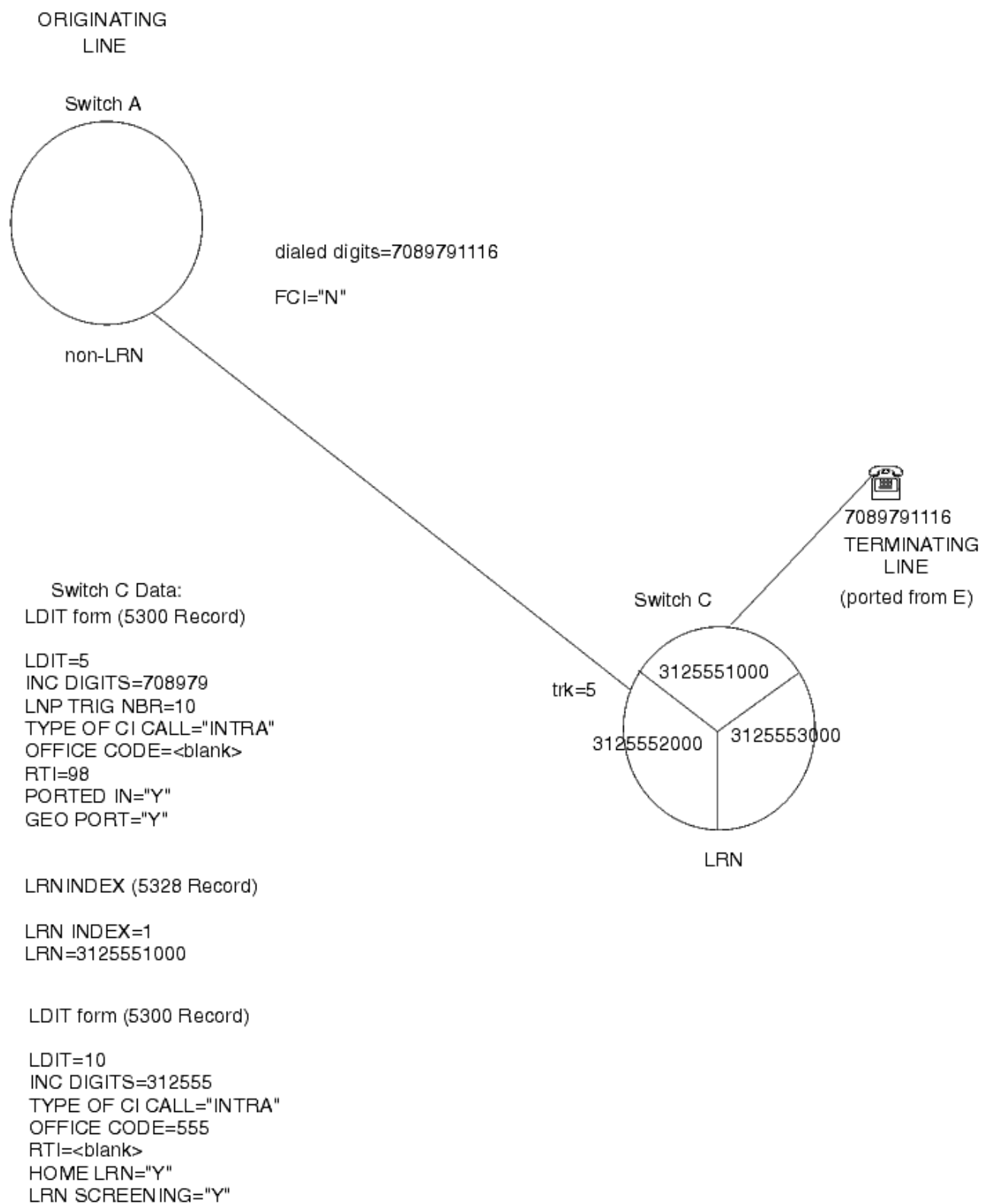


Figure 6 SCENARIO 5 - CALL FROM NON-LRN SWITCH TO DN IN PORTED IN TO SWITCH

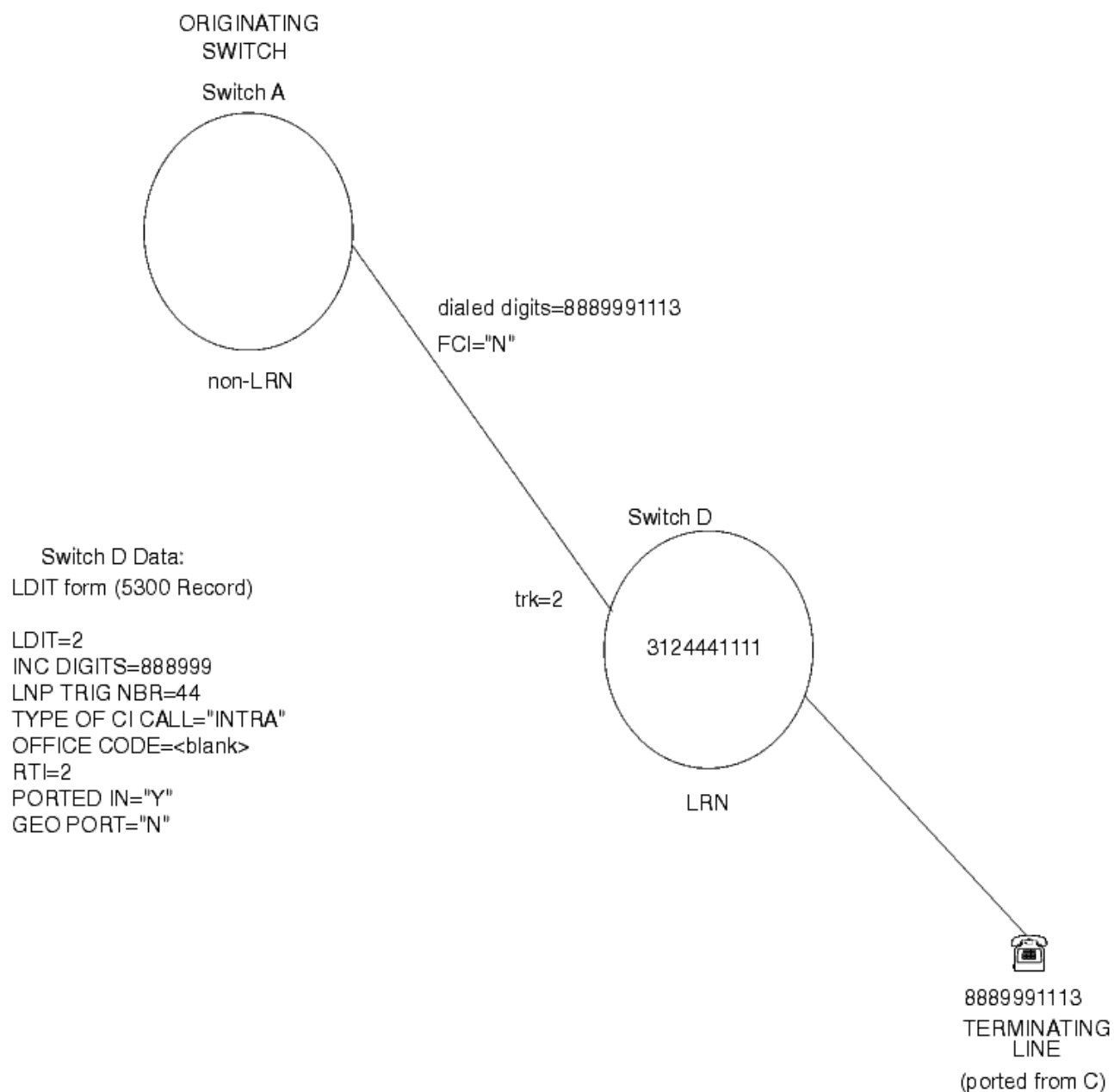


Figure 7 SCENARIO 6 - CALL FROM NON-LRN SWITCH TO PORTED DN WITH BLANK OFFICE CODE AND DIALED NXX

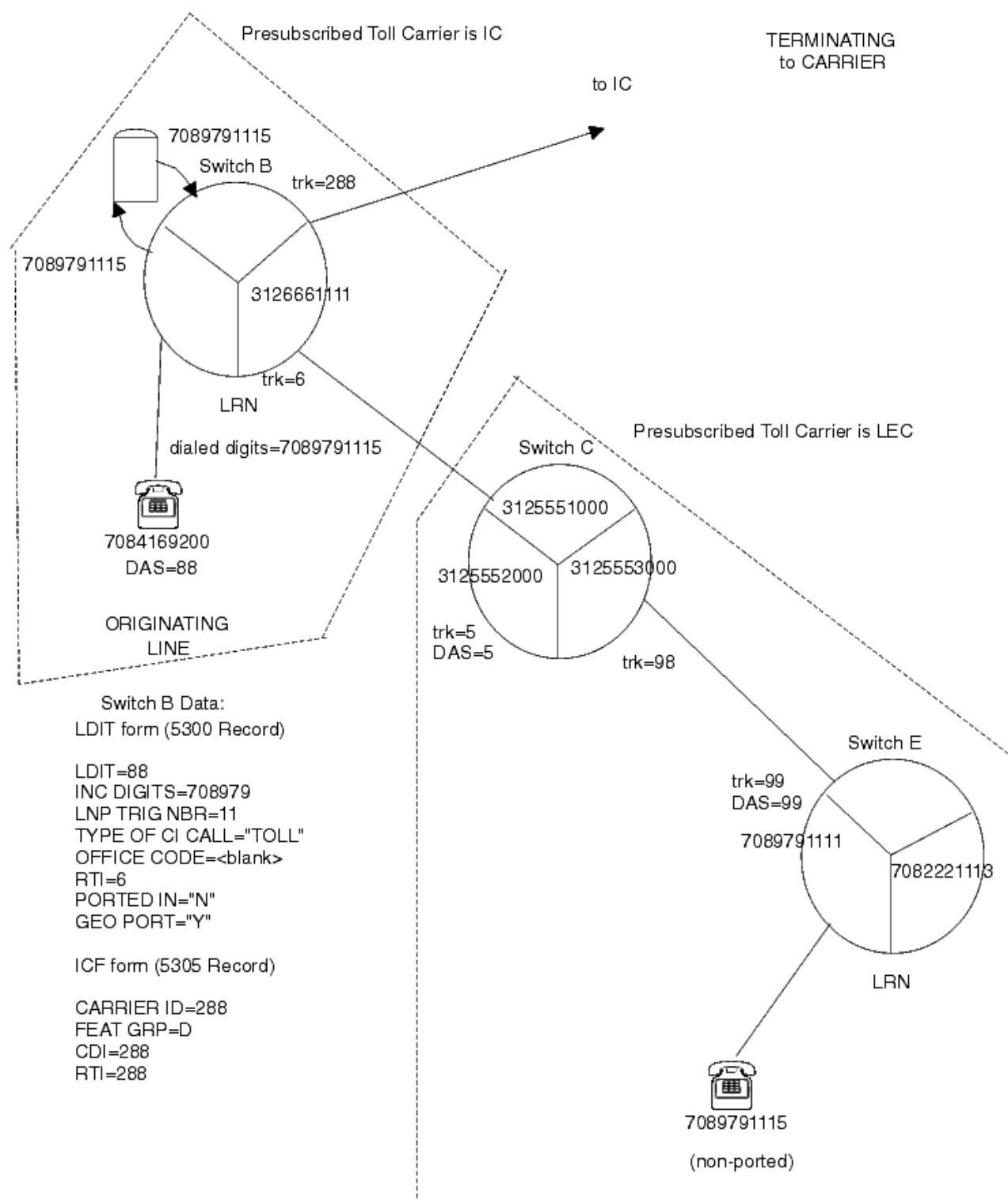
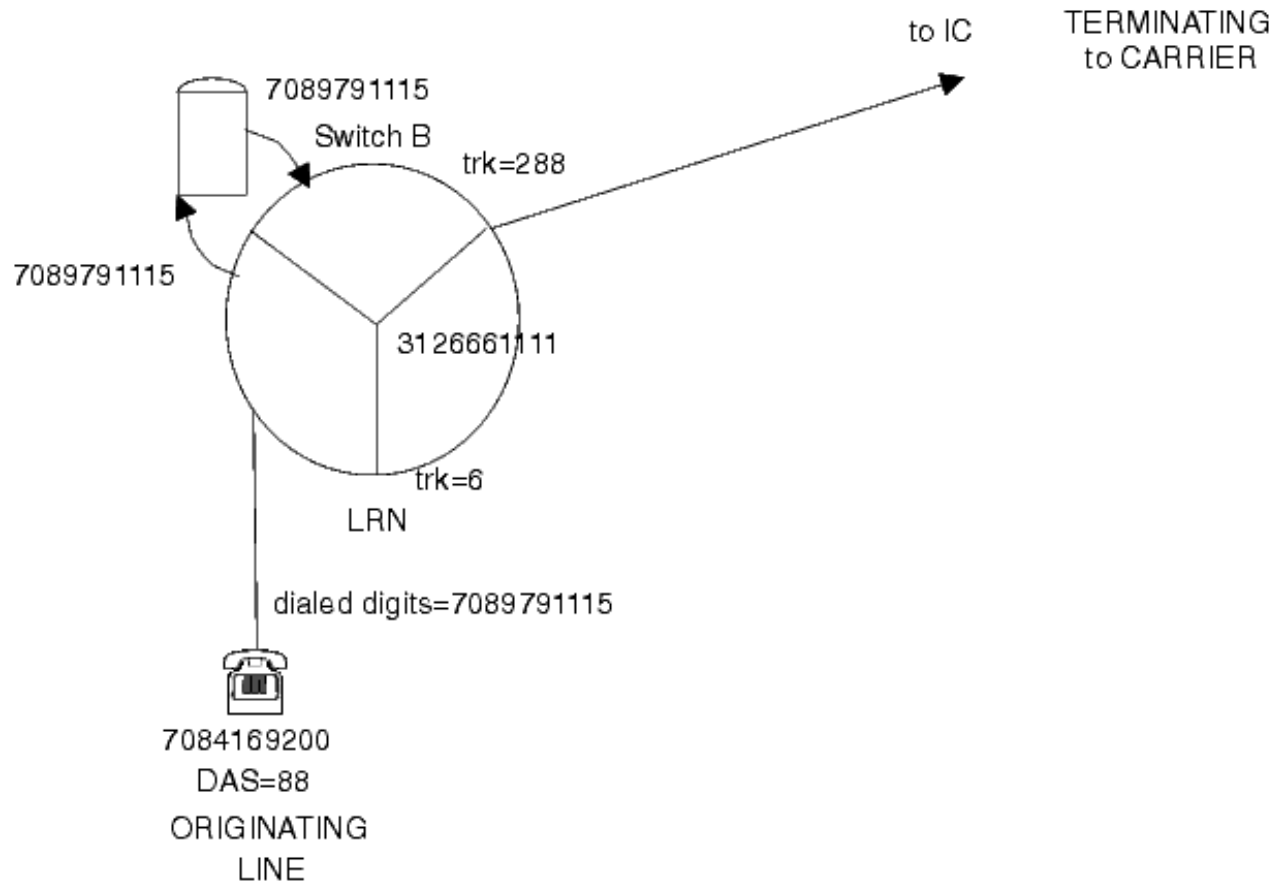


Figure 8 SCENARIO 7 - ICLATA CARRIER CALL WITH PRESUBSCRIBED TOLL CARRIER TO NON-PORTED DN



Switch B Data:

LDIT form (5300 Record)

LDIT=88

INC DIGITS=708979

LNP TRIG NBR=11

TYPE OF CI CALL="TOLL"

OFFICE CODE=<blank>

RTI=6

PORTED IN="N"

GEO PORT="Y"

ICF form (5305 Record)

CARRIER ID=288

FEAT GRP=D

CDI=288

RTI=288

INTRA LATA="N" (ATT does not handle Intra-LATA calls.)

Figure 9 SCENARIO 8 - INTRA-LATA TOLL CALL WITH DIALED CARRIER, INTRA LATA="N"

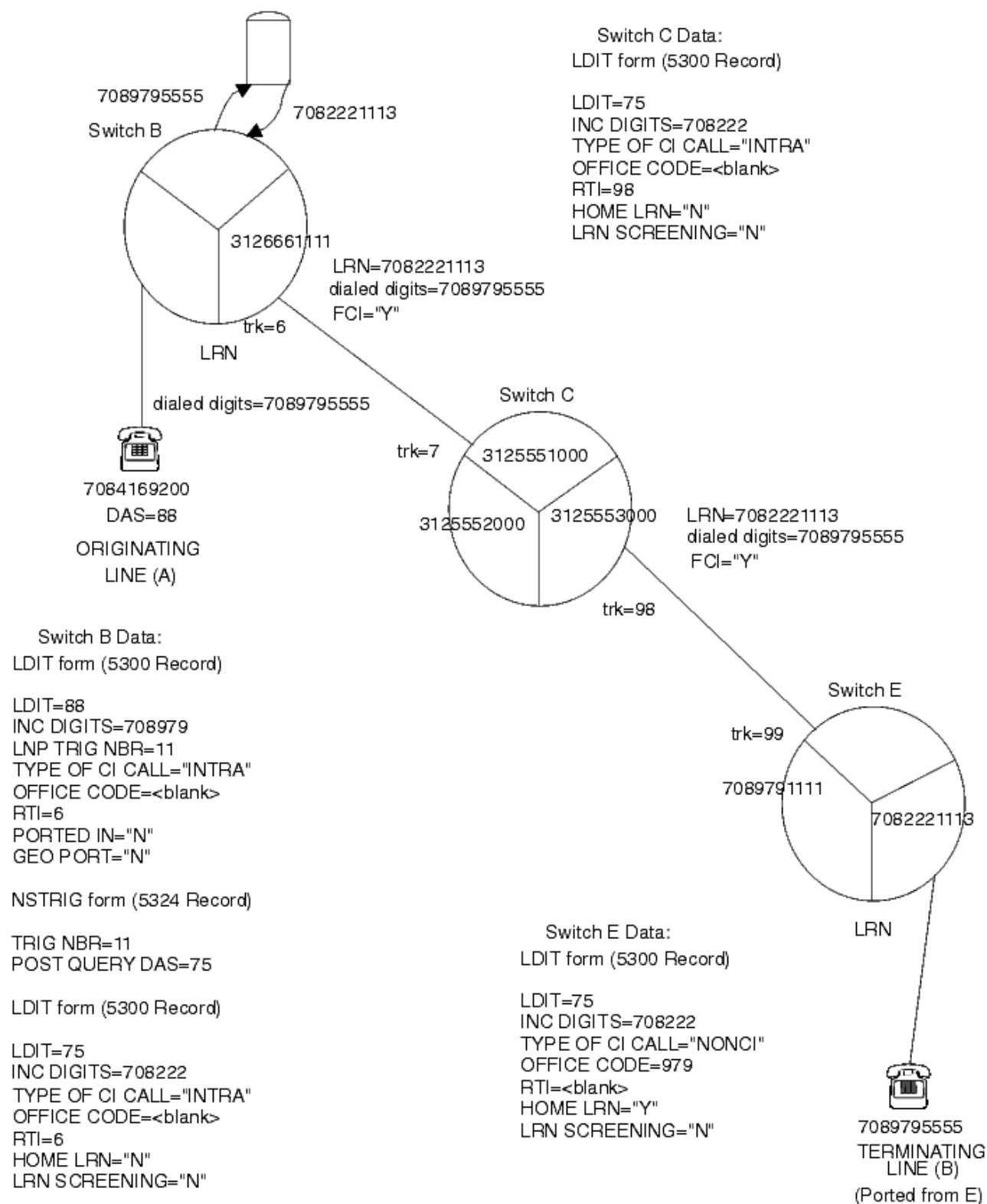


Figure 10 SCENARIO 9 - AR CALL TO DN PORTED WITHIN REMOTE SWITCH

Switch D Data:

LDIT form (5300 Record)

LDIT=2
 INC DIGITS=708979
 LNP TRIG NBR=4
 TYPE OF CI CALL="INTRA"
 OFFICE CODE=<blank>
 RTI=2
 PORTED IN="Y"
 GEO PORT="N"

LDIT form (5300 Record)

LDIT=4
 IINC DIGITS=312444
 LNP TRIG NBR
 TYPE OF CI CALL="INTRA"
 OFFICE CODE=444
 RTI=<blank>
 HOME LRN="Y"
 LRN SCREENING="N"

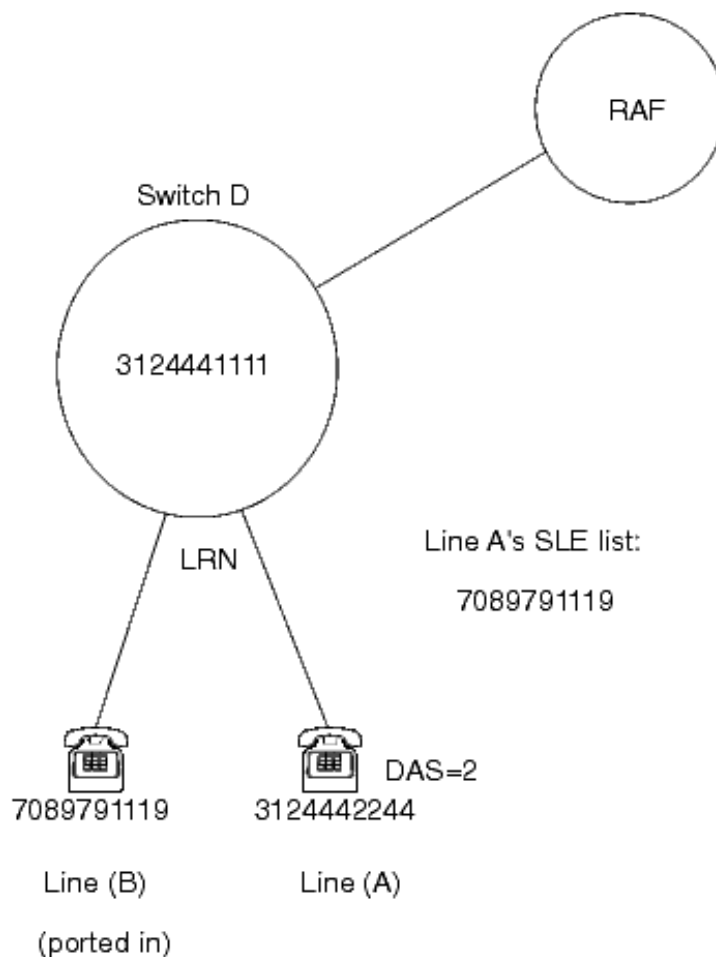
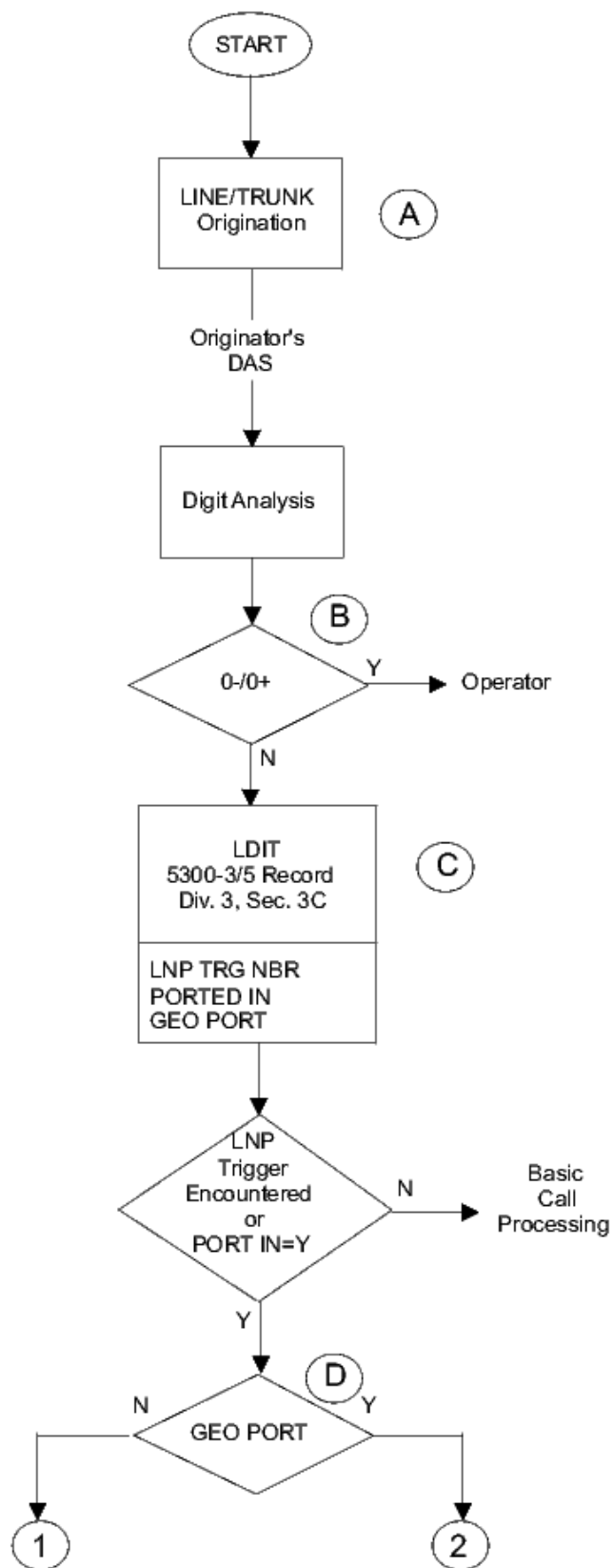
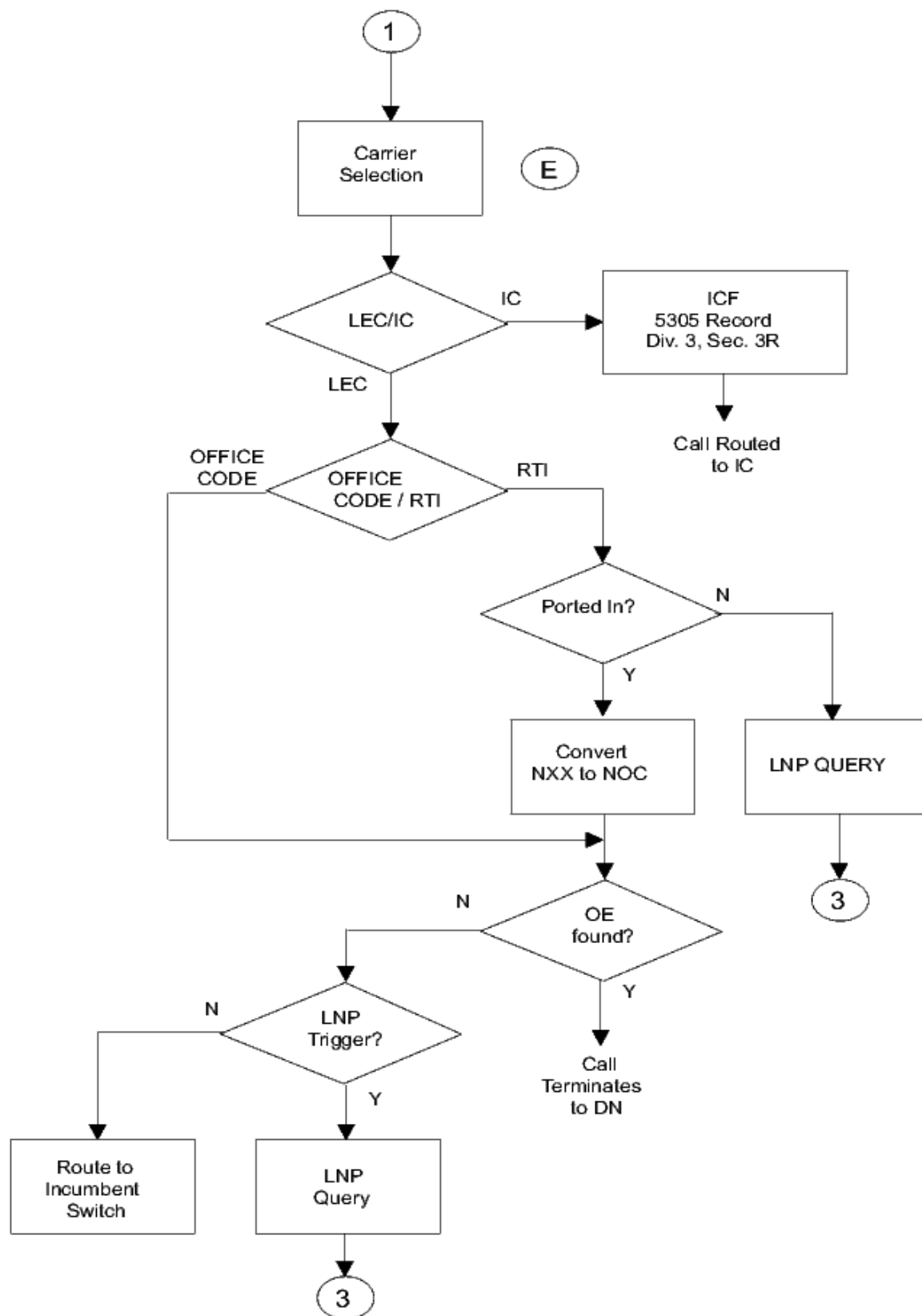
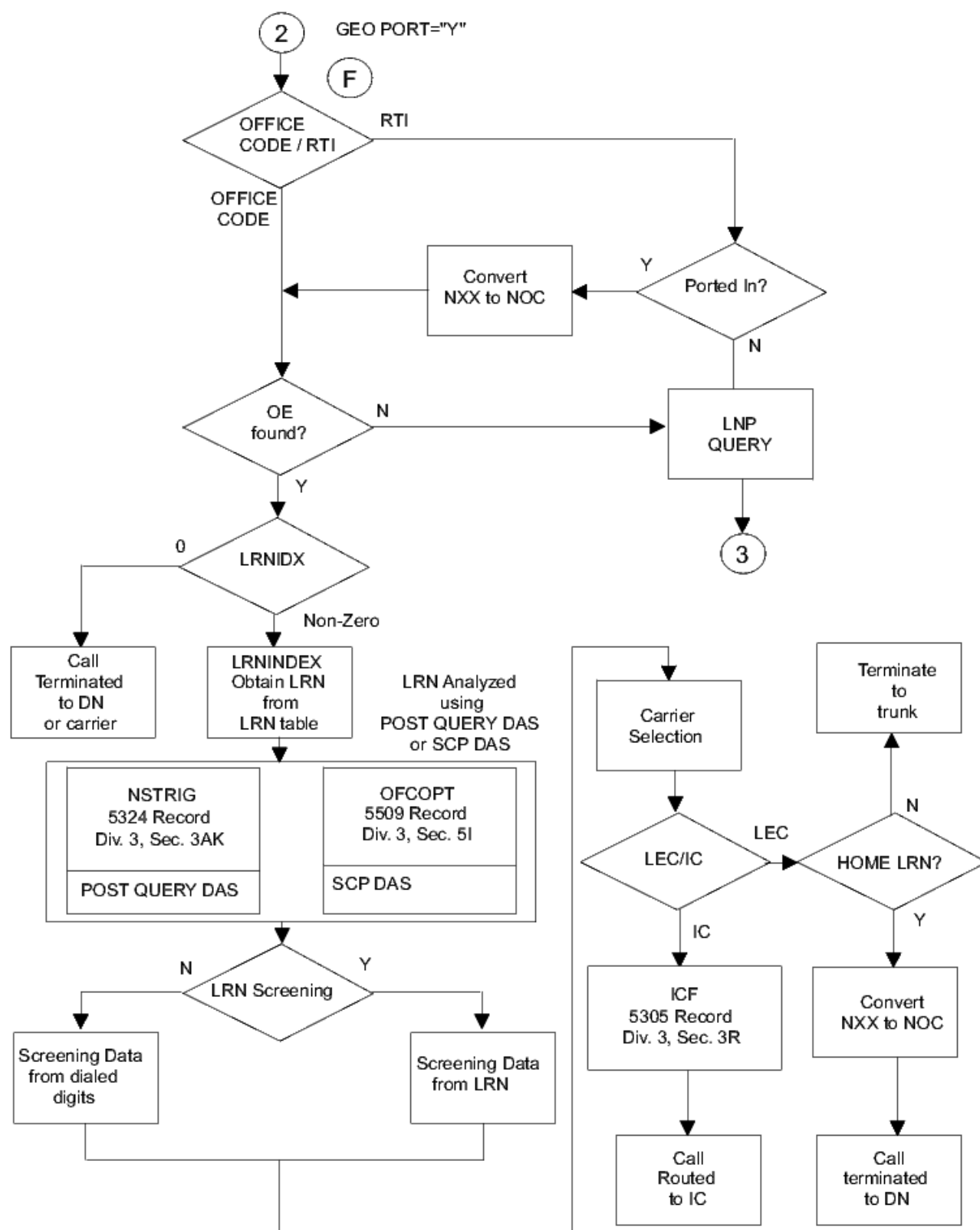
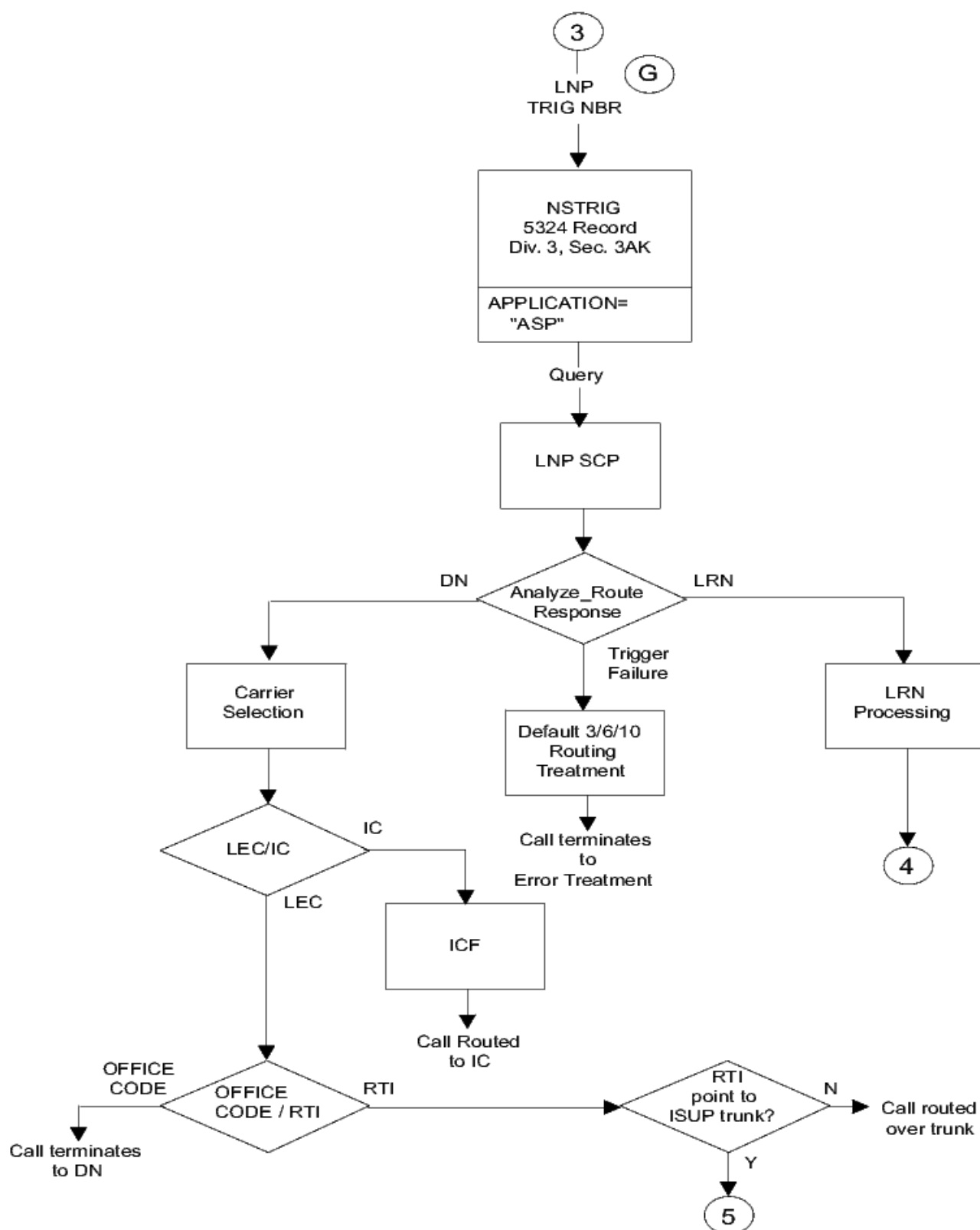


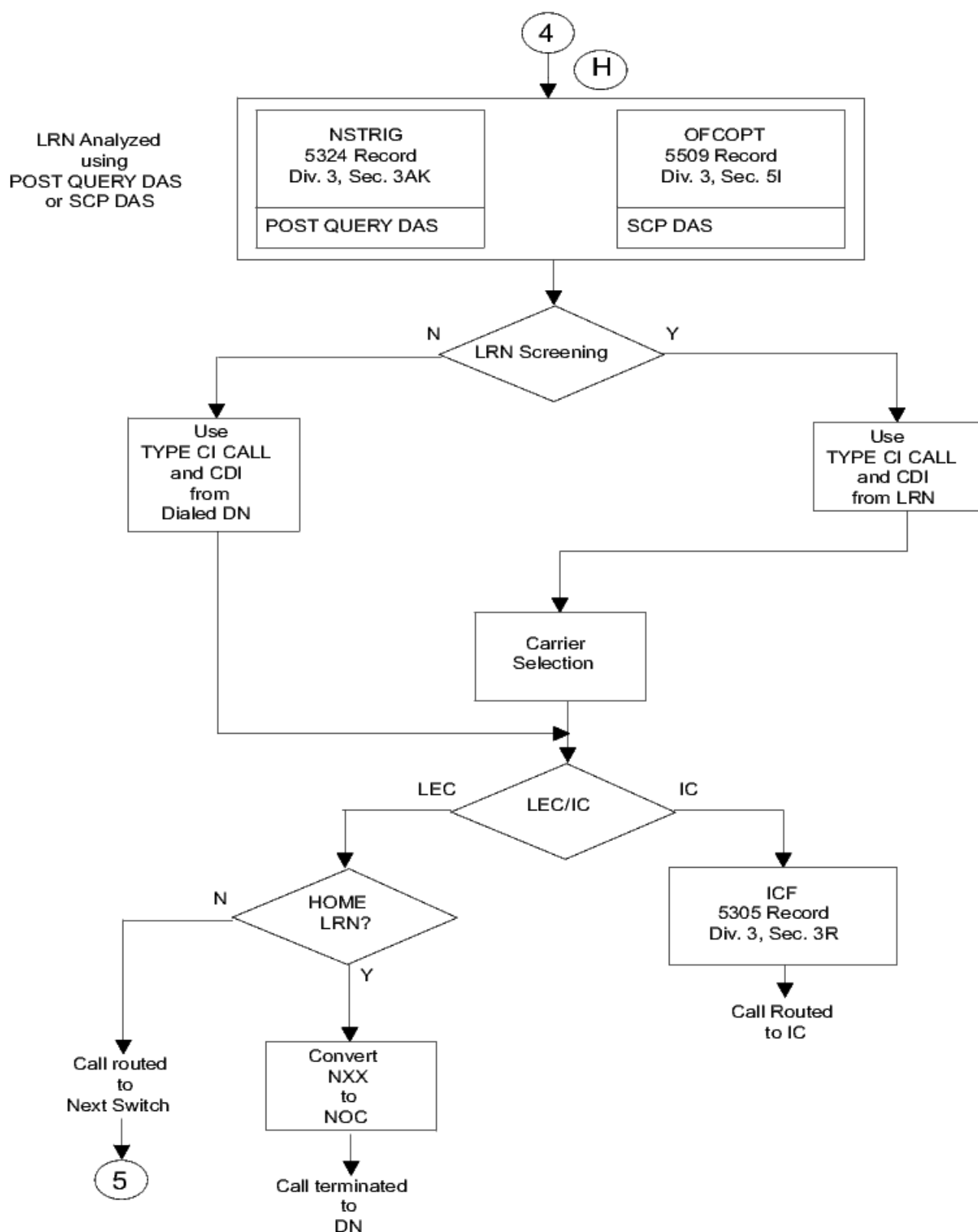
Figure 11 SCENARIO 10 SLE - PORTED IN LINE TO ORIGINATING SWITCH

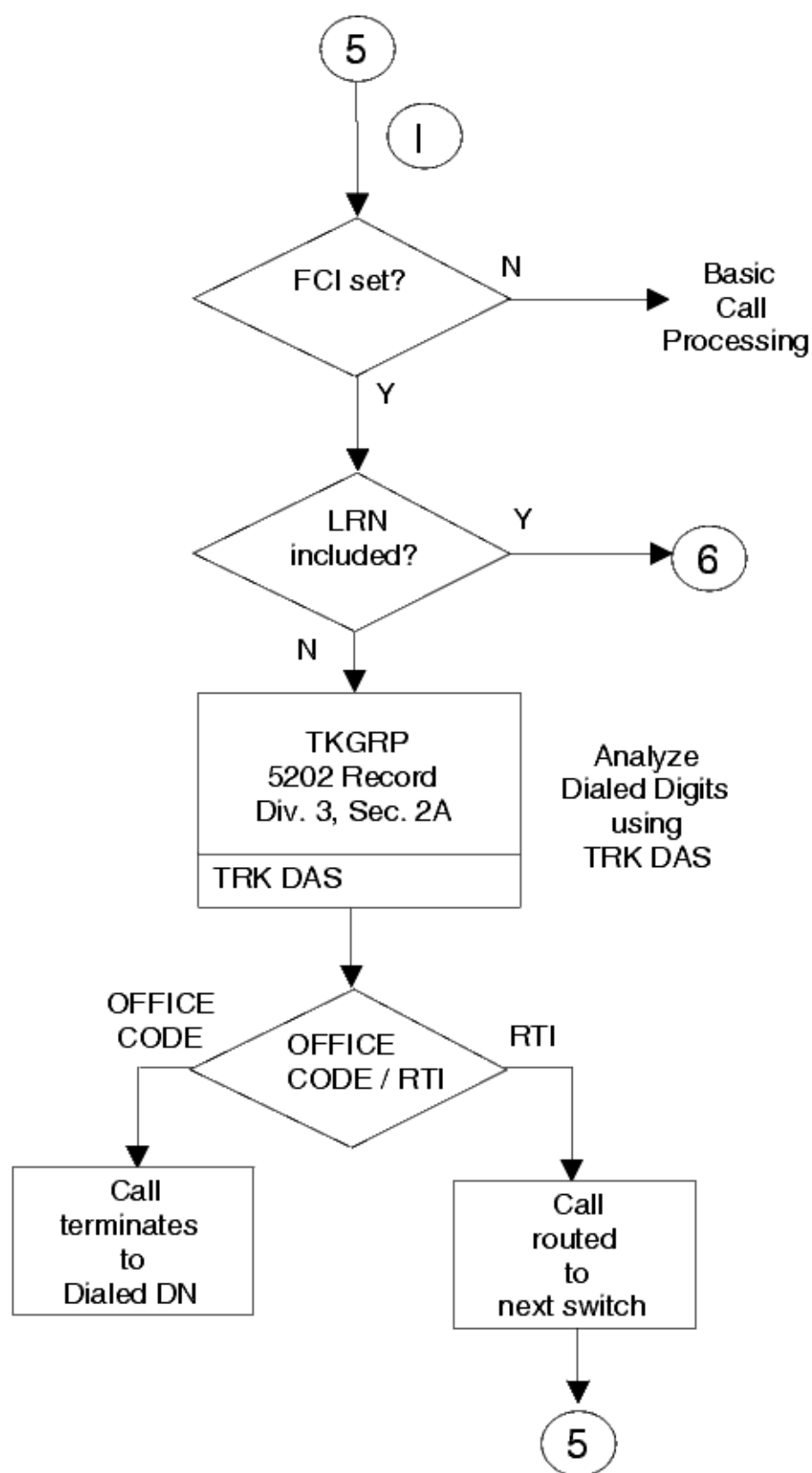


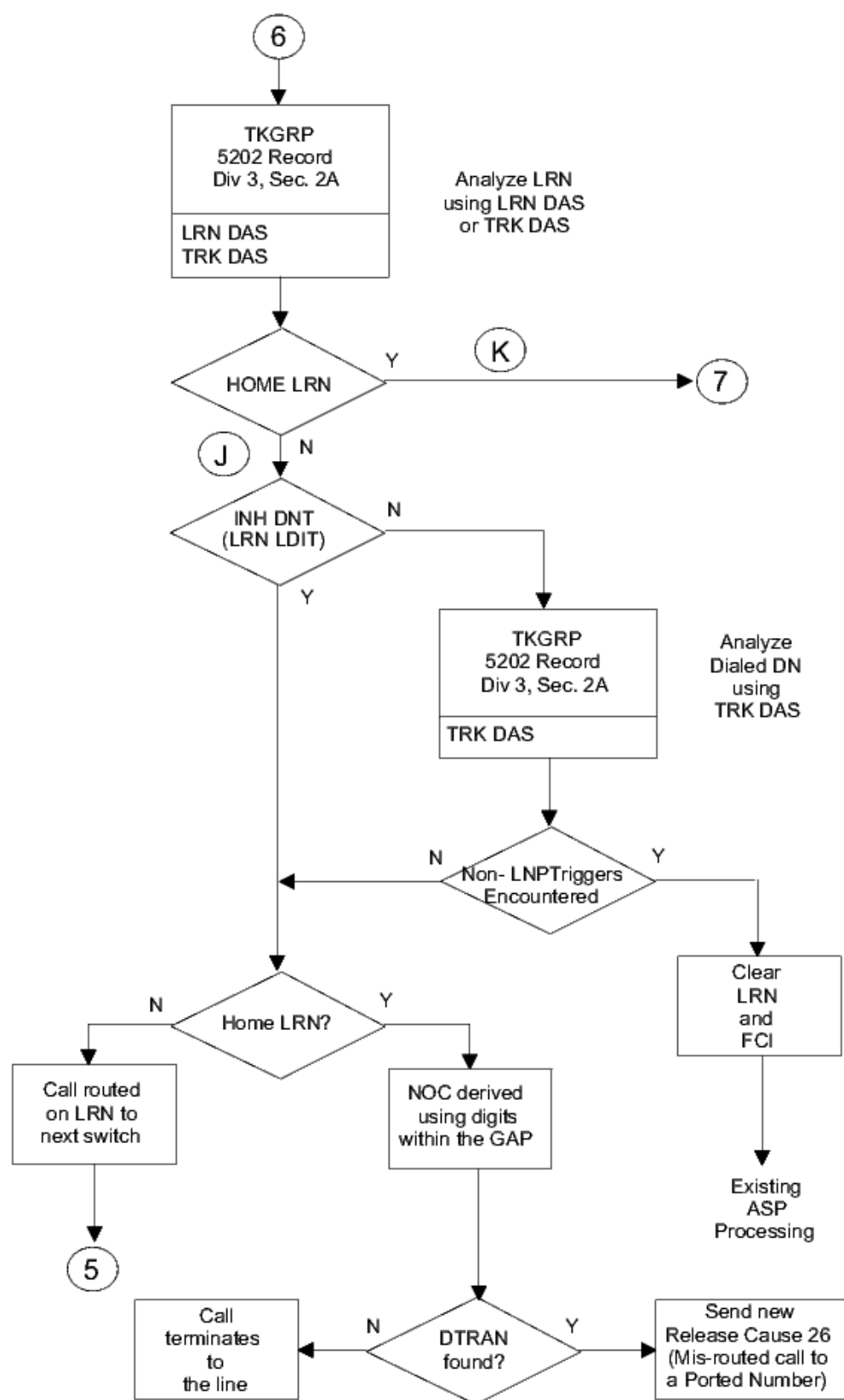












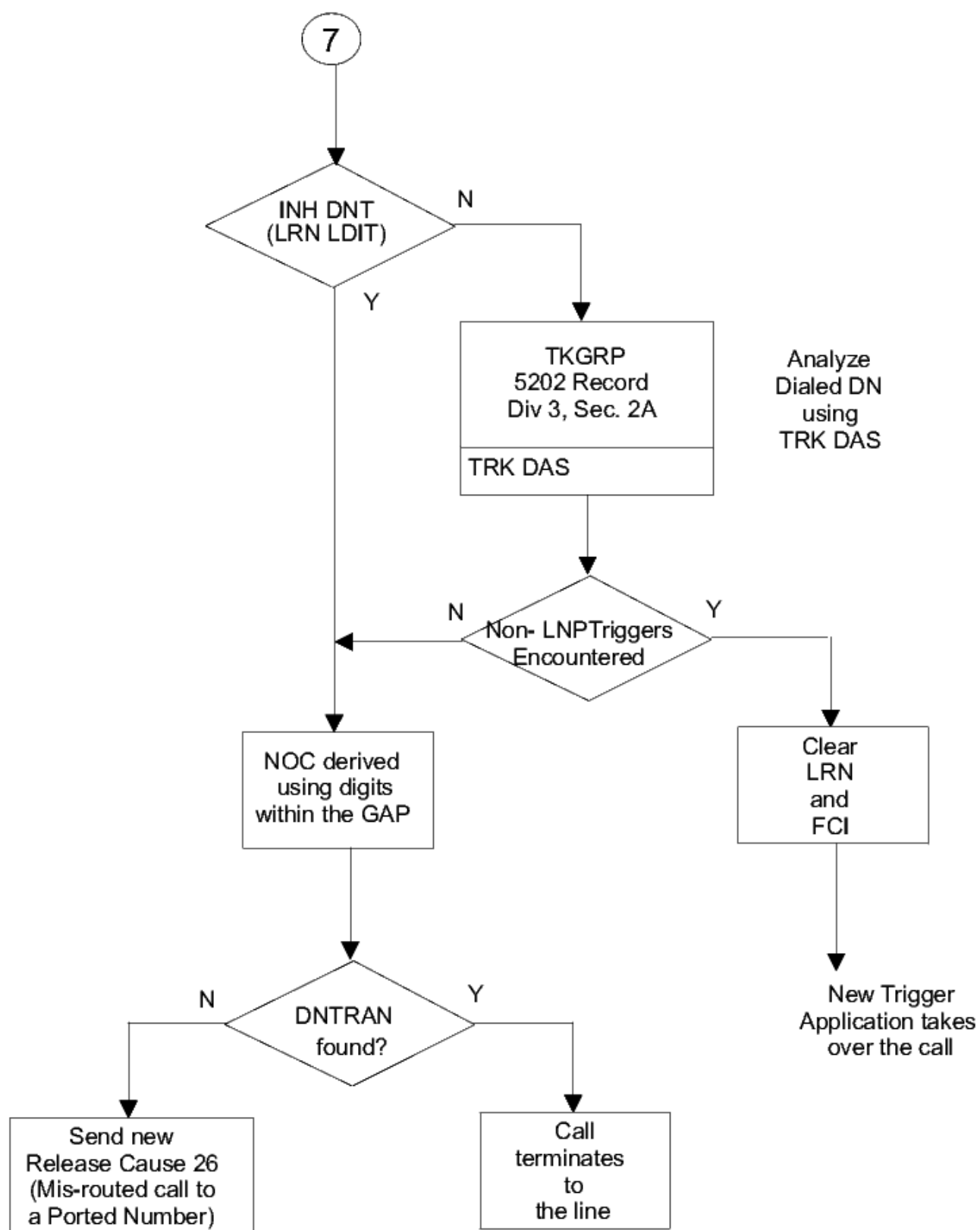


Figure 12 NUMBER PORTABILITY CALL PROCESSING FLOW

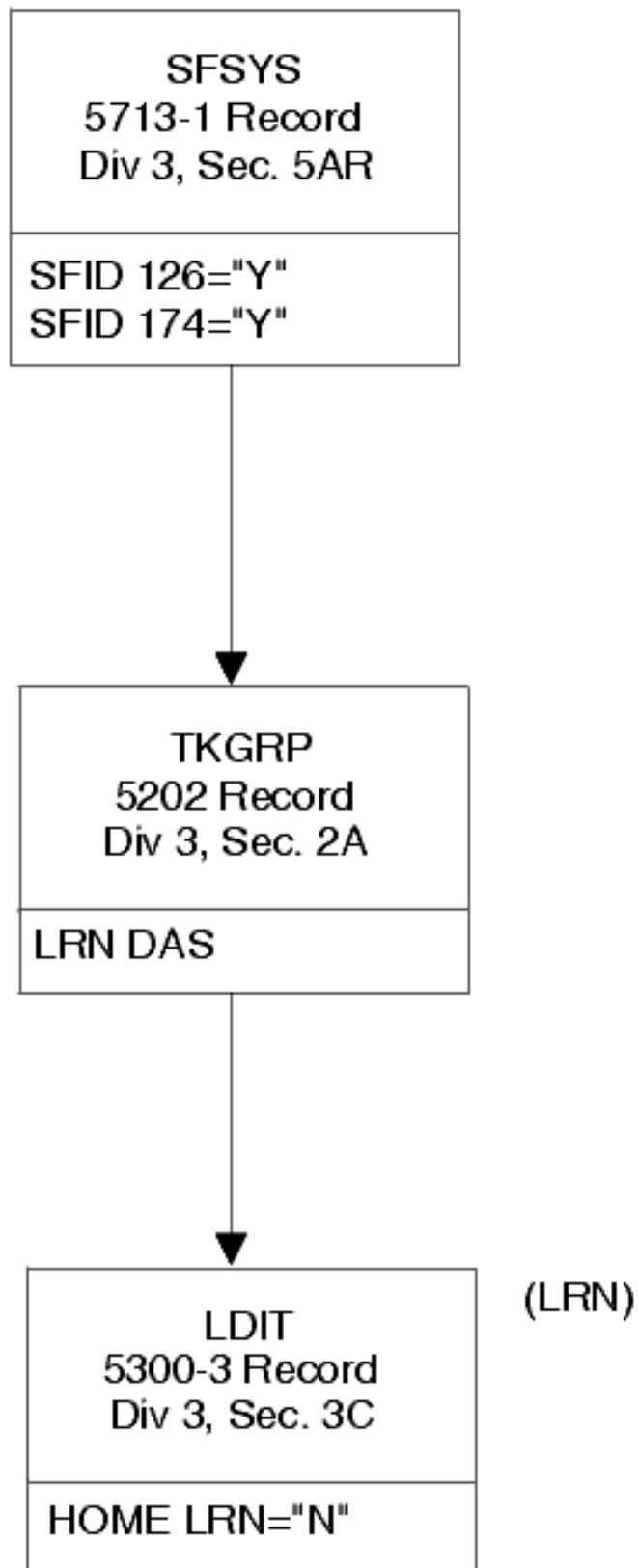


Figure 13 NUMBER PORTABILITY INCUMBENT SWITCH FORM FLOW

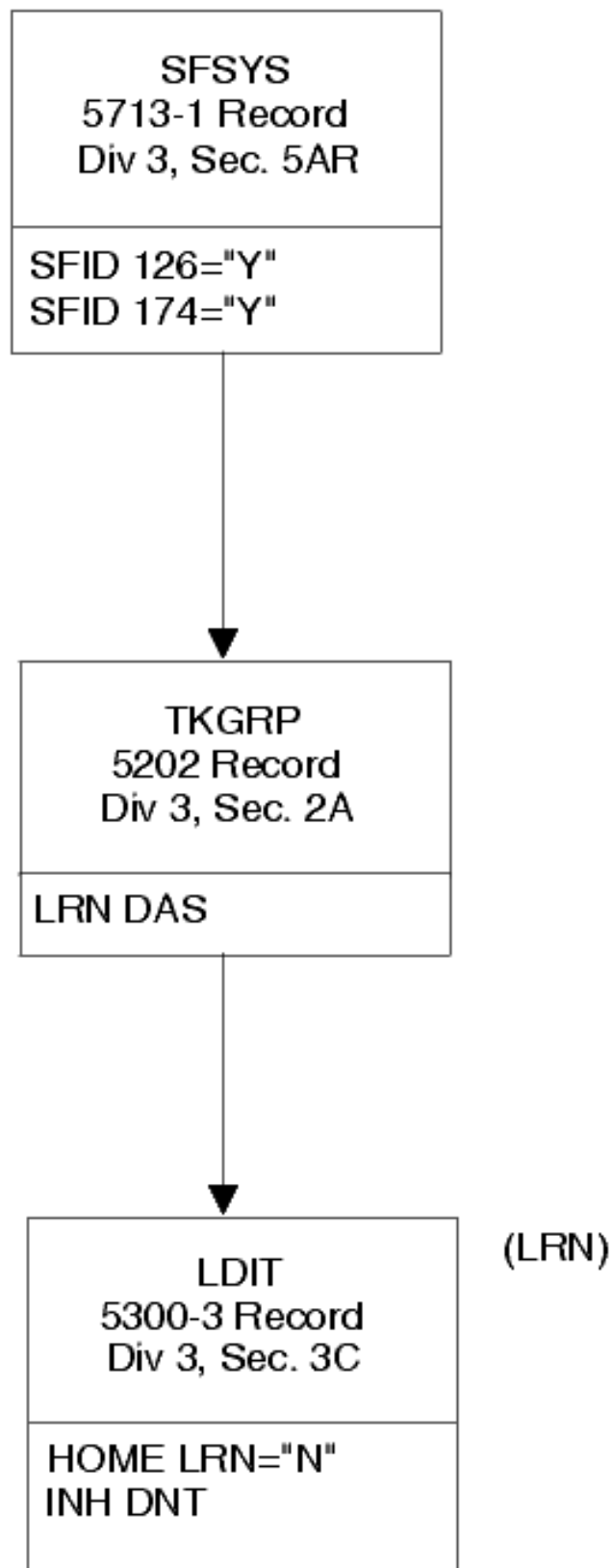


Figure 14 NUMBER PORTABILITY TANDEM SWITCH FORM FLOW

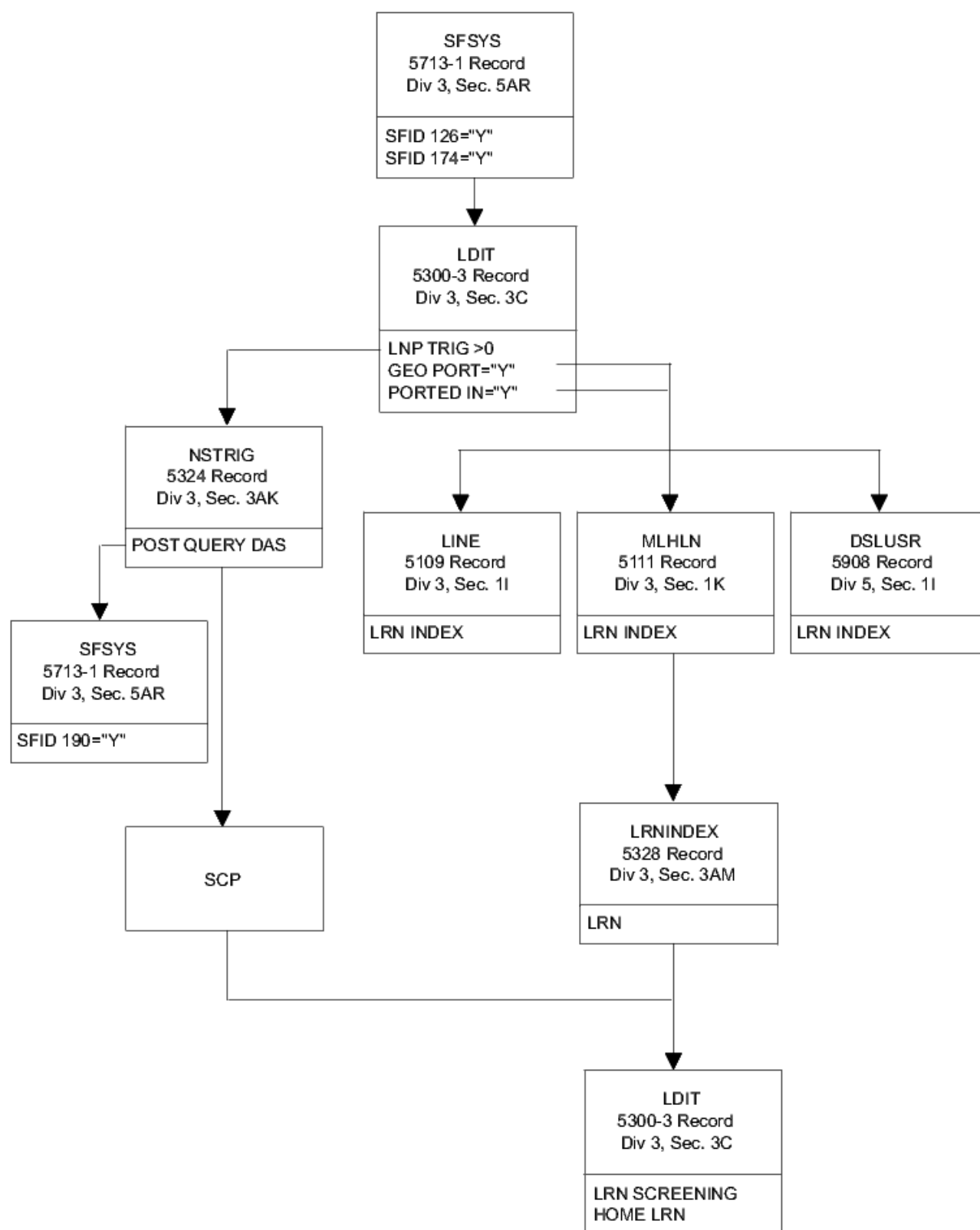


Figure 15 NUMBER PORTABILITY SERVING SWITCH FORM FLOW

SEC. 4A175: EXPANDED SLS (SIGNALING LINK SELECTION)

1. FEATURE DESCRIPTION

The Expanded SLS feature is available with 5E11 and later Software Releases. It is a SS7 (Signaling System 7) Network Reliability feature and is available for both the CNI (Common Network Interface)-based SS7 signaling platform, and the PSU (Packet Switch Unit)-based SS7 signaling.

Expanded SLS is a secured feature with SFID 175. This feature determines the specific links and STPs (Signal Transport Points) used to route a message. This feature allows for the expansion of the SLS capability to 8 bits. Such expansion allows the maximum size of a B or D link set to be 16 links compared to the previous value of 8. The expansion also allows a more even traffic distribution on links in a (combined) link set, especially after link failures. For example, with a 5-bit SLS, traffic load between links in a link set could differ in some cases by a factor of 2. With the 8-bit SLS, traffic will differ by less than 25 percent in all cases.

The Expanded SLS feature number is 99-CP-2316.

2. FEATURE ASSIGNMENT

The Expanded SLS feature is activated by setting SFID 175 ACT on the SFSYS form (5713-1) to "Y". The feature is defined for CNI on the OFCOPT form (5700 Record), by setting the EXPANDED SLS field to "Y".

The feature is defined for PSU on the CCGSM form (6008 Record), by setting the EXPANDED SLS field to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCGSM	6008	9	10H	16.1
OFCOPT	5700	3	5I	8.15
SFID	5713	3	5AR	8.22

CCGSM form (6008 Record) - This form is used to specify data used for the Global Switching Module(s) associated with the PSU (Packet Switching Unit)-based SS7 signaling platform. The EXPANDED SLS field defines this feature.

OFCOPT form (5700 Record) - This form is used to define the parameters in a CNI office. The EXPANDED SLS field was added to define this feature.

SFSYS form (5713 Record) - This form is used to activate secured features. SFID 175 was added to designate the Expanded SLS feature.

SEC. 4A176: IMPROVED SLT (SIGNALING LINK TEST)

1. FEATURE DESCRIPTION

The Improved SLT (Signaling Link Test) feature is available with 5E11 and later Software Releases. It is a SS7 (Signaling System 7) Network Reliability feature and is available for both the CNI (Common Network Interface)-based SS7 signaling platform, and the PSU (Packet Switch Unit)-based SS7 signaling.

Improved SLT is a secured feature with SFID 176.

The current SLT procedure provides a signaling link for reliable transfer of signaling messages between two directly connected "signaling points". The on-line signaling link test procedure involves communication between the two ends of the concerned signaling link. This procedure verifies the physical link assignments and can detect looped links and other irregularities in the operation of the link. This procedure is used when a signaling link is activated or restored. The signaling link will be available to carry traffic only if the test is successful.

The Improved Signaling Link Test Procedures feature adds two additional requirements to the existing Signaling procedure.

- clarification that the test pattern sent in the second signaling link test message should be the same as that sent in the first signaling link test message. This allows the response to the first test message to be accepted as a response to the second test message, in effect allowing twice the time for a response to the first signaling link test message.
- when the "test available (i.e., in-service) links periodically" option is on, the test should be performed even on links which are experiencing transmit or receive congestion.

The Improved SLT feature number is 99-CP-3072.

2. FEATURE ASSIGNMENT

The Improved SLT feature is activated by setting SFID 176 ACT on the SFSYS form (5713-1) to "Y". The feature is defined on the OFCOPT form (5700 Record), by setting the IMPROVED SLT field to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5700	3	5I	8.15
SFID	5713	3	5AR	8.22

OFCOPT form (5700 Record) - This form is used to define the parameters in an office. The IMPROVED SLT field was added to define this feature.

SFSYS form (5713 Record) - This form is used to activate secured features. Setting the SFID 176 ACT field to "Y" activates the Improved SLT feature.

SEC. 4A177: MESSAGE TRANSFER PROTOCOL NODE RESTART

1. INTRODUCTION

The following two features are described in this section:

- the Message Transfer Protocol (MTP) Node Restart feature, available for a CNI (Common Network Interface)-based SS7 (Signaling System 7) signaling platform.
- the SS7 (Signaling System 7) PSU (Packet Switch Unit) Whitebook MTP Enhancements feature, available for a PSU (Packet Switch Unit)-based SS7 signaling platform.

2. MESSAGE TRANSFER PROTOCOL NODE RESTART

2.1 Feature Description

The MTP (Message Transfer Protocol) Node Restart feature is available with 5E11 and later Software Releases. This is a secured feature using SFID (Secured Feature ID) 177. The feature number for this feature is 99-CP-2314. This feature is a SS7 Network Reliability feature and is available for both the CNI-based SS7 signaling platform, and the PSU-based SS7 signaling platform.

The MTP Node Restart procedure enables the MTP at a signaling point that has just become available to bring sufficient signaling links into the available state to handle the expected traffic and to stabilize its routing before user traffic is restarted to the point. This procedure uses the TRA (Traffic Restart Allowed) and TRW (Traffic Restart Waiting) messages. The TRW message is an indication to the receiving signaling point that user signaling traffic (i.e., traffic from the users of the MTP, such as ISUP (Integrated Services User Part)) should not be sent to the originator of the TRW until a TRA message is received from the same signaling point. A TRA is an indication of the receiving signaling point that user signaling traffic may be resumed to the originator of the message. The MTP Restart procedures may not only be performed at a restarting signaling point, but also at signaling points adjacent to the signaling point which is restarting.

2.2 Feature Assignment

The MTP Node Restart feature is activated by setting the ACT field for SFID 177 on the SFSYS form (5713-1) to "Y". The feature is defined on the OFCOPT form (5700 Record), by setting the MTP NODE RESTART field to "Y".

2.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5700	3	5I	8.15
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5700 Record) - This form is used to define the parameters in an office. The MTP NODE RESTART field was added to define this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. Setting the SFID 177 ACT field to "Y" activates the MTP Node Restart feature.

3. SS7 PSU WHITEBOOK MTP ENHANCEMENTS

3.1 Feature Description

The SS7 PSU Whitebook MTP (Message Transfer Part) Enhancements feature is available with 5E14 and later Software Releases. This is a secured feature using SFID 177. The assigned feature number is 99-5E-4238.

This feature is an enhancement to the base MTP feature and is available for PSU-based SS7 signaling. It provides additional reliability to the network. For more information on the base MTP feature, refer to Message Transfer Protocol Node Restart in Section 2 of this document.

3.2 Feature Assignment

To activate this feature, the ACT field for SFID 177 on the SFSYS form (5713-1) must be set to "Y".

3.3 Translation Requirements

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CCGSM	6008	9	10H	16.1
CCPBD	6012	9	10M	16.22
CCSGT	6015	9	10N	16.25
CCSPR	6011	9	10L	16.21
CC7PR	6001-2	9	10A	16.2
PC	6006	9	10F	16.10
SFSYS	5713-1	3	5AR	8.22

CCGSM form (6008 Record) - This form is used to specify data used for the global switching module. The RESTART OPTION, SUFFICIENT RTE, and SUFFICIENT LNK fields were added.

CCPBD form (6012 Record) - This form is used to define the primary and backup destinations for SCCP signaling. Valid entries were added for the SSN PRIMARY and SSN BACKUP fields.

CCSGT form (6015 Record) - This form is used to maintain single fixed or primary plus secondary digit string for Global Translations. Valid entries for the DEST SS NUM field were added.

CCSPR form (6011 Record) - This form is used to define the individual parameters for a Signaling Connection Control Part Global Switching Module. The SCCP STATUS MGMT heading and the REMOTE SCCP MGMT, LOCAL INIT SPEC, and LOCAL INIT SSN ALW fields were added.

CC7PR form (6001-2 Record) - This form is used to specify and update the GSM CCITT7 (International Telegraph and Telephone Consultative Committee - Common Channel Signaling System No. 7), office parameters and MTP Level 3 timers. The ANSI TRA WAIT, ANSI TRW WAIT, ANSI TRA ANSWER, and MTP STPO fields were added.

PC form (6006 Record) - This form is used to specify the point code and alternate link set routing. The RESTART OPTION field and its data rule, and the REMOTE INIT SSN ALW field were added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 177 to "Y".

SEC. 4A178: ASP Pre-Query Screening for OHD Triggers

1. FEATURE DESCRIPTION

The feature number for the ASP (Advanced Services Platform) Pre-Query Screening for OHD (Off-Hook Delay) Triggers feature is 99-5E-3175. This feature is a call processing secured special feature, which is controlled by SFID (Secured Feature ID) 178. This feature is being deployed as a Software Update for the 5E10 Software Release.

The ASP Pre-Query Screening for OHD Triggers feature provides the ability to screen OHD Triggers and inhibit the query to the SCP (Service Control Point) if the trigger fails screening. It is applicable to both Release 0 and Release 0.1 protocol triggers.

Pre-Query Screening was initially provided by the 3/6/10 Digit Trigger Pre-Query Screening special feature, and is being expanded for OHD Triggers.

When an OHD Trigger is encountered as the first trigger on a call that is dialed or impulsed directly from the originating access, or on a call that is originated by a feature (e.g., Speed Calling, Call Forwarding, Multiway Calling), the call is screened using the information on the RAR form (5301 Record) (Recent Change View 10.10 SCREENING). The RAR form entries used to perform the screening function are derived as follows:

- SCR (Screening Index) of the originating line/trunk,
- PFX (Dialed or impulsed Prefix) (none, 0+ or 1+),
- CDI (Code Index) derived from the translation of the dialed number.

The OHD Pre-Query Screening passes and an Info_Collected R0 or R0.1 query is sent to the SCP if the translation of the SCR, PFX, and the CDI entries on the RAR form (5301 Record) either does not exist or is defined as one of the following:

Route Index (RTI) = "REGL"

Route Index (RTI) Number = the RTI number from the translation of the dialed digits in the Office Dialing Plan

Office Code (OFFCOD) = OFFCOD digits from the translation of the dialed digits in the Office Dialing Plan

For all other cases, the OHD Trigger will fail screening.

If the OHD Trigger passes screening, the call proceeds as an ASP call and the ASP query is sent to the SCP. If it fails screening, a query is not sent, the call proceeds as a non ASP call and is routed via the RTI or OFFCOD.

Note that the dialed or derived carrier is not used either in screening the OHD Trigger or in routing the call if it fails screening.

A boolean office parameter is introduced for the Pre-Query Screening for OHD Triggers special feature to indicate whether pre-query screening should be ignored on 0+ calls. If the parameter is set to "N", then 0+ calls are not ignored and are subject to screening, as occurs for 1+ and no-prefix calls. If the parameter is set to "Y", then pre-query screening is ignored on 0+ calls, and these calls will not be part of the pre-query screening.

A new field IGN OHD 0+PQSCR, has been added to the OFCOPT form (5509 Record) which is used to indicate that Pre-Query Screening for OHD Triggers will be ignored for calls originating with a dialed or impulsed prefix of 0+. In the 5E12 Software Release this field has been moved to the ASPOPT (5670 Record) (Recent Change View 8.49).

Screening is done for OHD Triggers encountered for any of the following originations:

- All line originations currently allowed to encounter an OHD Trigger.
- Extended Digital Subscriber Line (EDSL and EDSLHM).
- Private Facility Trunks (PF, PFITT, PFLASH), when the trunk's Unrestricted Equal Access Indicator is set to "N".

Screening is NOT done for OHD Triggers in any of the following cases:

Originations other than those listed above.

Calls originating with a dialed or impulsed prefix of 0+, when the PRE QUERY SCR office parameter is set to "Y".

Calls made when the Pre-Query Screening feature is locked.

Calls in which the digits dialed after the OHD trigger is detected represent an Escape Code.

Private Facility Trunks (PF, PFITT, PFLASH), when the trunk's Unrestricted Equal Access Indicator is set to "Y".

Calls in which an FCD trigger is encountered, even when the OHD Pre-Query Screening feature is unlocked and active.

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID 178 on the SFSYS form (5713-1 Record) must be set to "Y".
- For 5E10 and 5E11 on the OFCOPT form:
 - Set the PRE QUERY SCR field to "Y" .
- For 5E12 and later on the ASPOPT form:
 - Set the IGN OHD 0+PQSCR field to "Y" .

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPOPT	5670	4	31G	8.49
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

ASPOPT form (5670 Record) - This form is used to define ASP office parameters. For 5E12 and later added a new field, PRE QUERY SCR.

OFCOPT form (5509 Record) - This form is used to define miscellaneous office options and parameters. For 5E10 and 5E11 added a new field, PRE QUERY SCR.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 178 to "Y".

SEC. 4A179: ENHANCED PROFESSIONAL OFFICE

1. FEATURE DESCRIPTION

The Enhanced Professional Office feature is a secured feature (SFID 179) and must be purchased before

being activated. The feature number for this feature is 99-5E-2371.

For Custom ISDN, the EPO (Enhanced Professional Office) feature provides the interface between the switch and the external AIU (Application Interface Unit) / MIS (Management Information System) that is used to monitor the activity of Custom ISDN terminals in real time at the customer's site. The EPO feature enhances the current ACD/BRCs feature to other BRCS users, not just those who are part of a call center. The Service offers the following capabilities:

- Provides status of BRCS Professional Office Positions to Management.
- Allows tracking of primary and secondary (shared, non-shared, and shared analog) DN's (Directory Number) as well as tracking of members of multi-line hunt groups. DN's assigned as series completion DN's can also be tracked.

For more information on the ACD/BRCS feature see Division 2 Section 4A121.

2. FEATURE ASSIGNMENT

An EPO position terminal can have information about calls to its circuit TN (Telephone Number) or circuit MLHG (Multiline Hunt Group) member call appearances tracked and sent to the MIS. The MIS provides user reports and displays based on the call-related data. In order for complete information to be tracked for a specific TN or MLHG member on calls to or from its call appearances on a specific terminal, the terminal must be provisioned as an EPO position (EPO POS NUM field on DSLUSR), and the TN or MLHG member must be provisioned as a TN or MLHG to be tracked on the terminal (EPO ON field on DSLUSR). See Figure 1 for form flow for EPO.

2.1 Recent Change Provisioning of EPO on

The tracking field, EPO ON, can be provisioned for TNs and MLHG members whether or not the terminals on which they have call appearances have been provisioned as EPO positions. This provides the convenience of provisioning tracking before designating EPO positions, as well as the ability to remove an EPO position without having to change all associated tracking fields before being permitted to perform the update. Tracking only occurs for TNs or MLHG members which have call appearances on at least one terminal provisioned as an EPO position, and the tracking is set for the TN or MLHG member to be tracked on the terminal by setting EPO ON to "Y".

2.2 Provisioning EPO - DSLUSR form

The following steps provide information for defining a Custom ISDN terminal to be an EPO position and to assign EPO tracking to the CKT TN/MLHG-TERM on the terminal. The steps provided must be done in addition to the normal provisioning steps for the DSLUSR form:

- Turn on the SFID (Secured Feature ID) 179 for the office.
- On the DSLUSR form define a Custom ISDN Terminal to be an EPO position by setting the EPO POS NUM field to a number between 1 and 15,000.

Restrictions:

- The EPO POS NUM must be unique, i.e. only one terminal can have this EPO POS NUM; it cannot already be assigned to another terminal. The terminal cannot be an ACD position (ACD POS NUM

cannot be entered).

- The terminal must have TERMTYP set to "TYPEB" or "TYPED".
- The DSL CLS must be "MP" or "PP".
- The CKT TN/MLHG-TERM must be a voice user (i.e. CSV must be set to 1 or 2).
- On DSLUSR, indicate whether or not the primary CKT TN/MLHG-TERM of the terminal should be tracked for EPO information. Set the EPO ON field to "Y" if tracking is desired, otherwise leave the field alone and it will default to "N" (no tracking).

NOTE: If EPO ON is set to "Y", calls to the CKT TN/MLHG TERM will only be tracked for complete information (originations and terminations) if the terminal has been defined as an EPO position (EPO POS NUM is entered). If EPO ON is set to "Y" and EPO POS NUM is not entered, the CKT TN/MLHG TERM will only be tracked on the terminal if the CKT TN/MLHG TERM is shared (SHTN form) onto at least one terminal which is defined as an EPO position. In that case, calls to the CKT TN/MLHG TERM call appearances on the terminal (with no EPO POS NUM) will be tracked, but calls from the CKT TN/MLHG TERM call appearances on the terminal will not be tracked.

2.3 Provisioning EPO - SHTN form

The following provides information for assigning EPO tracking for a shared TN/MLHG TERM NBR onto primary ISDN terminals.

- On the SHTN form, set the EPO ON field in the SHARED LIST to "Y" if tracking of the shared TN on the ISDN terminal in the SHAREDLIST is desired. Otherwise leave the EPO ON field alone and it will default to "N" for no EPO tracking.

Restrictions:

- The EPO ON field can only be set to "Y" on Custom terminals.
- If the entry in the SHAREDLIST is an ACD position terminal, EPO ON cannot be set to "Y".

NOTE: If EPO ON is set to "Y", calls to the CKT TN/MLHG TERM will only be tracked for complete information (originations and terminations) on terminals which have been defined as EPO positions (i.e. the terminal has an EPO POS NUM entered on the DSLUSR form). If EPO ON is set to "Y" and EPO POS NUM is not entered, the CKT TN/MLHG TERM will only be tracked on the terminal if the CKT TN/MLHG TERM is shared onto at least one terminal which is defined as an EPO position. In that case, calls to the CKT TN/MLHG TERM call appearances on the terminal (with no EPO POS NUM) will be tracked, but calls from the CKT TN/MLHG TERM call appearances on the terminal will not be tracked.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2 23.8
SHTN	5902	5	1C	23.20

DSLUSR form (5908) - The 5908 Record is used to collect data for digital subscriber lines. Added the EPO POS NUM and EPO ON fields to support this feature.

SHTN form (5902) - The 5902 Record is used to specify a primary or secondary TN that is shared by several other TNs. Added the EPO ON field to support this feature.

4. GLOSSARY

A/U - Application Interface Unit

DN Directory Number

EPO Enhanced Professional Office

ISDN Integrated Services Digital Network

MIS Management Information System

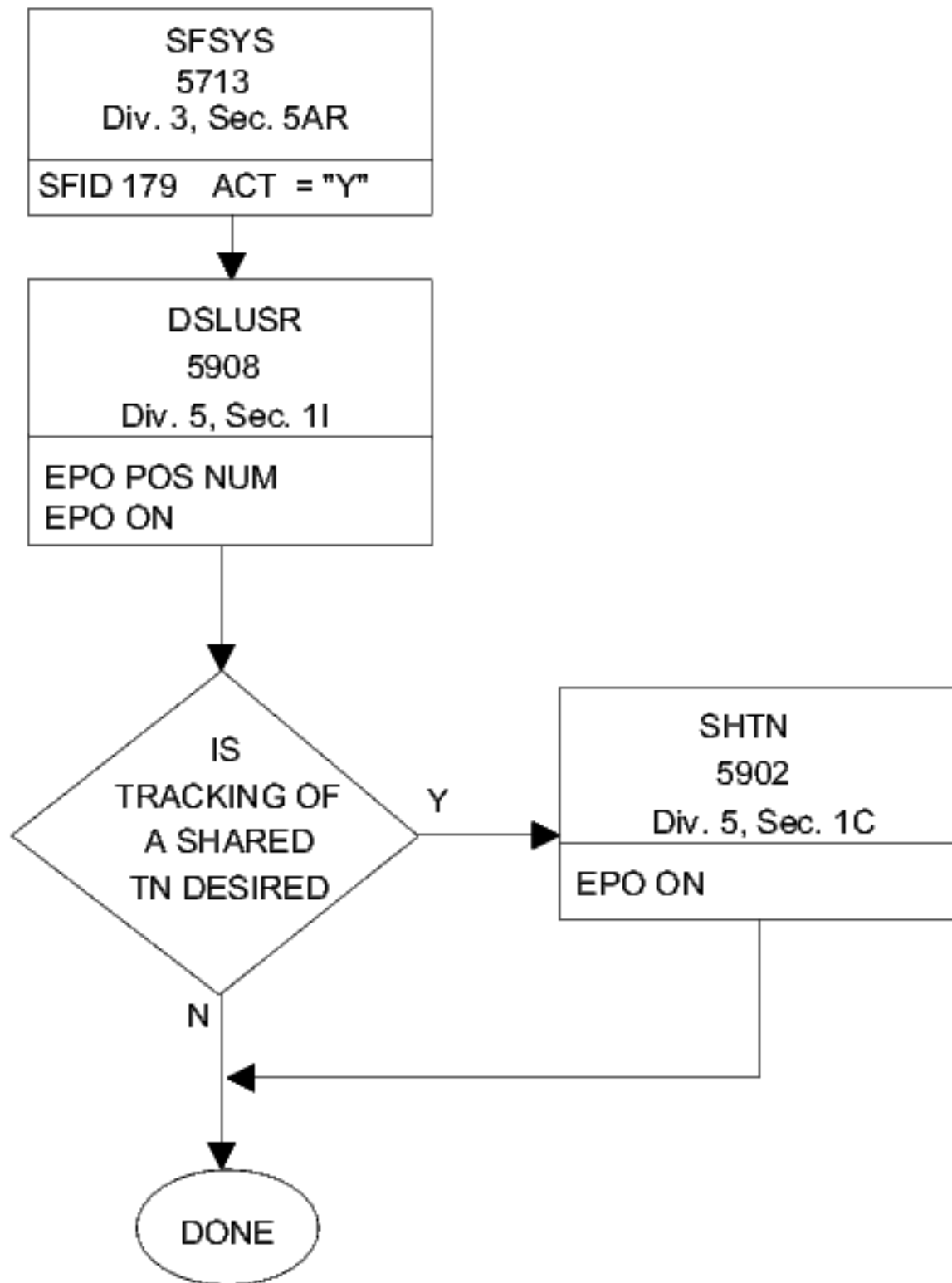


Figure 1 FORM FLOW FOR ENHANCED PROFESSIONAL OFFICE

SEC. 4A180: NP - BASIC LRN AMA

1. FEATURE DESCRIPTION

1.1 NP - Basic LRN AMA

Available with 5E11 Software Update and later, the NP (Number Portability) - Basic LRN (Local Number Portability) AMA (Automatic Message Accounting) feature is a secured feature using SFID 180 and must be purchased before being activated. The feature number for this feature is 99-CP-3667.

The NP - Basic LRN AMA feature provides billing functions for Service Provider Portability within a rate center. It will provide a BAF (Bellcore AMA Format) LNP AMA Module for two new occurrences to support billing and cost recovery for Number Portability.

- an LNP-SCP (Service Control Point) database query.
- a call transiting a network boundary between two local service providers.

For the occurrence of an LNP-SCP database query, this feature provides a BAF AMA Module appended to an existing AMA record. The module is appended to the AMA record produced, if any, for the "pre-LNP query call leg". The LNP Module initially contains the LRN (Local Routing Number), if any, returned by the LNP-SCP database for a ported terminating DN (Directory Number). The LNP Module is appended to either the end-user AMA record at an originating exchange or to a terminating access record (at an intermediate, Tandem, or donor exchange). For an exchange that performs an LNP-SCP database query, LNP-SCP service logic may force the creation of an AIN (Advanced Intelligent Network) AMA record by returning the appropriate information (i.e. AMASpID (AMA Service Logic Provider ID)) to the querying exchange. In this case, the receipt of the AMASpID causes the querying exchange to generate an ASP (Advanced Service Platform) AMA record and the LNP Module is appended to the ASP AMA record instead of to the "pre-LNP query" call leg AMA record.

To provide AMA recording for the occurrence of a call transiting a network boundary between two local service providers, a new type of "terminating access" record can be produced by this feature. It is known as CNA (Connecting Network Access) record. The CNA Recording option is provided on a per-Trunk Group basis and is available either for all calls received over the trunk-group or only for those calls resulting in an LNP-SCP database query. To provide LNP database look-ups for non-capable networks or exchanges, this option may be used to produce terminating access records to bill for calls which enter the network over traditional (also known as Feature Group C) inter-office trunks for which no access records are presently produced.

1.2 CNA Trunk Group Billing Number Option

The CNA Trunk Group Billing Number Option special feature is an enhancement to the NP-Basic AMA feature (99-5E-3667). The feature is being deployed on the 5ESS Switch in a software update for the 5E11(1) and 5E12(1) 5ESS Switch Software Releases and in the Beginning Managed Introduction of the 5E13(1) Software Release. This feature can be utilized if the NP-Basic AMA feature has already been purchased. The Lucent feature number for the CNA Trunk Group Billing Number Option enhancement is (99-CP-4550). With NP-Basic AMA feature (SFID 180) unlocked, a new office Optioned Feature Identifier field OFID 719 (CNA Trk Grp Billing No) on the FOSYS form (RCV 8.31) can be set to allow the new functionality to be turned on or off as desired. OFID 719 defaults to inactive.

When active, this parameter will affect only CNA records using Call Code 720 generated for an incoming trunk call. The originating NPA & originating number fields in the CNA record will always record the BN (Billing Number) assigned to the incoming trunk group regardless of any incoming ANI or SS7 charge number

received. The trunk group billing number is required to be populated for every trunk group with the CNA flag set.

When this option is NOT active, the CNA record will be populated with the received SS7 CHG or MF ANI in accordance with the NP-Basic AMA feature procedures (99-5E-3667). Lacking either SS7 CHG or MF ANI, the assigned trunk group billing number is used as a last resort.

2. FEATURE ASSIGNMENT

The NP - Basic LRN AMA feature is activated by setting SFID 180 ACT field on the SFSYS form (5713-1 Record).

The NP - Basic LRN Method feature is not required in order to activate the NP - Basic LRN AMA feature. If the NP - Basic LRN Method feature is not active, the only function provided by the NP - Basic LRN AMA feature is to produce CNA AMA records. No LNP BAF Modules are produced and appended to any AMA records without the NP - Basic LRN Method feature, because the conditions under which an LNP Module is produced (i.e. LNP-SCP database query performed) cannot exist without the presence of the NP - Basic LRN Method feature.

The call processing functions of the NP - Basic LRN AMA feature which generate an LNP BAF Module when an LNP query is performed is controlled by office option FOSYS ID 665. This option is activated by setting the FID 665 ACT field to "Y" on the FOSYS form (5713-2 Record). An LNP BAF Module is not appended when the option is inactive. Note that this office option does not control the CNA Access recording option. See Figure 1 for form flow.

The CNA Trunk Group Billing Number Option special feature is activated by setting the FID 719 ACT field to "Y" on the FOSYS form (5713-2 Record).

2.1 Call Flows

For the following call flows, assume that the calls are handled by a Local Service Provider. For these calls intra-LATA SS7 (Signaling System 7) signaling and SS7/MF interworking are used. Assume that the office performing the LNP query has the NP - Basic LRN AMA feature active and that measured recording is active in the originating switch for flat rate calls.

Scenario 1: Originating Exchange LNP Processing Direct to Serving Switch.

In this case a subscriber ports his/her number to a different exchange and the subscriber can be connected via direct connection.

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits to determine how to route the call. The switch determines that B is in a portable NPA-NXX (708-713) and the line does not reside on the switch.
- The switch sends a query based on the dialed digits to the LNP-SCP.
- The LNP-SCP sends an "Analyze_Route" response containing the LRN of the Serving switch.
- The Originating switch receives the LNP-SCP response and analyzes the data. The LRN is translated in a Post_Query DAS associated with the trigger and an ISUP (ISDN User Part) route out of the switch is determined. The LRN is stored in the CdPN parameter and the dialed digits are stored in the GAP parameter of the ISUP IAM (Initial Address Message) message. The FCI (Forward Control Indicators)

Translated Called Number Indicator is set to indicate that an LNP query has been done (set to "translated number").

- The call is routed to the Serving Switch based on the LRN.
- The Serving Switch receives and processes the contents of the IAM message. The exchange determines that an LRN is received and that it is the switch's LRN. It replaces the CdPN parameter's contents with the dialed digits stored in the GAP parameter. The switch does digit analysis on the dialed digits from the GAP and finds the subscriber on the switch.
- The Serving Exchange completes the call to the subscriber.
- An intra-LATA AMA record is generated for the call by the originating end-office with an appended LNP Module (Bellcore AMA Format Module - 720). The LNP module contains the LRN returned from the LNP-SCP database and an indication that the module applies to the "terminating party", as well as a query status indication of "no query failure".

Scenario 2: Originating Exchange LNP Processing Direct to Serving Exchange - Non-Ported.

In this case the call is made to the Serving Exchange for a number that is not ported and still resides on the switch. The same processing can be applied whether the call is incoming from a line or trunk.

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits to determine how to route the call. The switch determines that B is in a portable NPA-NXX (708-713) and does not reside on the switch.
- The switch sends a query based on the dialed digits to the LNP-SCP.
- The LNP-SCP sends a "Analyze_Route" response containing the Dialed Number to the Originating Exchange. For example, the Dialed Number with Analyze_Route response could be sent when the number is in a ported NPA-NXX but the subscriber has not ported. This allows the SCP to only have information about ported subscribers.
- The Originating Exchange receives the LNP-SCP response and analyzes the data. The dialed number is translated in a post_query or SCP DAS and an ISUP route out of the switch is determined. The dialed number is stored in the CdPN parameter and the FCI Translated Called Number Indicator is set to indicate an LNP query has been done (set to "translated number"). The GAP is NOT included in the IAM for this scenario.
- The call is routed using a route index to the Serving Exchange (based on the Dialed Number).
- The Serving Exchange receives and processes the contents of the IAM message. The switch does digit analysis on the dialed digits and finds the subscriber on the switch.
- The Serving Exchange completes the call to the subscriber.
- An Intra-LATA AMA record is generated for the call by the originating exchange with an appended LNP BAF Module. The LNP module contains only an indication that the module applies to the "terminating party", as well as a query status indication of "no query failure". The dialed DN is not recorded in the LRN field of the LNP module, rather the LRN field is filled with hexadecimal Fs.

Scenario 3: Originating Exchange LNP Processing Indirect to the Serving Exchange.

In this case when an intermediate exchange is between the originating exchange doing the LNP query and the serving exchange. For this scenario it is assumed that the intermediate exchange is in the same network as the originating exchange, but that the Serving exchange is a different local service providers network. It is also assumed that the serving exchange has the Connecting Network Access Recording Option active for all calls (i.e. YES or UNCONDITIONAL) received over the incoming trunk group from the intermediate exchange.

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits to determine how to route the call. The switch determines that B is in a portable NPA-NXX (708-713) and does not reside on the switch.
- The switch sends a query based on the dialed digits to the LNP-SCP.
- The LNP-SCP sends a response containing the LRN of the Serving Exchange.
- The Originating Exchange receives the LNP-SCP response and analyses the data. The LRN is translated in a Post_Query DAS associated with the trigger number and an ISUP route out of the switch is determined. The LRN is stored in the CdPN parameter and the dialed digits are stored in the GAP parameter of the ISUP IAM message. The FCI Translated Called Number Indicator is set to indicate that an LNP query has been done (set to "translated number").
- The call is routed to an Intermediate Exchange based on the LRN.
- The Intermediate Exchange receives and processes the contents of the IAM message. The FCI is set and the CdPN is checked for an LRN on this switch. The LRN is analyzed in the trunk's LRN DAS. The LRN does not belong to this switch so the call is routed using existing ISUP procedures.
- The Intermediate Exchange routes the call to the Serving Exchange.
- The Serving Exchange receives and processes the contents of the IAM message. It replaces the CdPN parameter's contents with the dialed digits stored in the GAP parameter. The switch does digit analysis on the dialed digits from the GAP and finds a subscriber on the switch.
- The Serving Exchange completes the call to the subscriber.
- An intra-LATA AMA record is generated for the call by the originating exchange with an appended LNP Module. The LNP module contains the LRN returned from the LNP-SCP database and an indication that the module applies to the "terminating party", as well as a query status indication of "no query failure".
- A CNA AMA record ("terminating access record") is generated for the call by the Serving Exchange for the call received from another local service providers network over a trunk group explicitly marked for CNA recording on all calls (i.e. CNA Recording Option of YES or UNCONDITIONAL).

Scenario 4: Incumbent Exchange with LNP Query.

In this case the originating exchange does not have any knowledge that the dialed number is a ported number and routes the call to the incumbent exchange. The incumbent exchange recognizes the ported number. The incumbent exchange will direct the call to the Serving Exchange. For this scenario it is assumed that the incumbent exchange is in the same network as the originating exchange, and does not have the CNA recording option active on the incoming trunk group from the originating exchange. It is further assumed that the LNP-SCP database is configured to return an AMAslpID for LNP-SCP queries, in order to insure that an

ASP AMA record is generated for the query.

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits to determine how to route the call.
- The call is routed to the Incumbent Exchange based on the dialed number (Originating Exchange is not involved in NP).
- The Incumbent Exchange performs digit analysis on the dialed digits to determine how to route the call. The switch determines that B is in a portable NPA-NXX (708-713) and the line does not reside on the switch.
- The Incumbent Exchange sends a query based on the dialed digits to the LNP-SCP.
- The LNP-SCP sends an "Analyze_Route" response containing the LRN of the Serving Exchange.
- The Incumbent Exchange receives the LNP-SCP response and analyzes the data. The LRN is translated in a Post_Query DAS associated with the trigger and an ISUP route out of the switch is determined. The LRN is stored in the CdPN parameter and the dialed digits are stored in the GAP parameter of the ISUP IAM message. The FCI Translated Called Number Indicator is set to indicate an LNP query has been done (set to "translated number").
- The call is routed to the Serving Exchange based on the LRN.
- The Serving Exchange receives and processes the contents of the IAM message. The switch determines that the LRN is its LRN and replaces the CdPN parameter's contents with the dialed digits stored in the GAP parameter. The switch does digit analysis on the dialed digits and finds the subscriber on the switch.
- The Serving Exchange completes the call to the subscriber.
- An ASP AMA record with structure code 220 is produced for the call at the incumbent exchange (following existing ASP AMA procedures) due to the receipt of an AMAspID in the LNP-SCP response message. An LNP module is appended to the ASP AMA record to record the LRN returned from the LNP-SCP database along with an indication that the LNP module applies to the "terminating party" and that "no query failure" occurred.

Scenario 5: Originating Exchange with LNP Query and Outgoing MF Signaling.

In this case a subscriber moves to an exchange but the call encounters MF signaling between the switch launching the LNP query and the serving exchange.

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits to determine how to route the call. The switch determines that B is in a portable NPA-NXX and the line does not reside on the switch.
- The switch sends a query based on the dialed digits to the LNP-SCP.
- The LNP-SCP sends an "Analyze_Route" response containing the LRN of the Serving Exchange.
- The Originating Exchange receives the LNP-SCP response and analyses the data. The LRN is translated in a Post_Query DAS and determines an MF route out of the office.

- The Originating Exchange signals, using MF signaling, the dialed number (not the LRN) to the Serving exchange using existing procedures.
- The Serving Exchange performs digit analysis on the incoming digits to determine how to route the call and determines that the line is on the switch.
- The Serving Exchange completes the call to the subscriber.
- An intra-LATA AMA record is generated for the call by the originating exchange with an appended LNP BAF Module. The LNP module contains the LRN returned from the LNP-SCP database and an indication that the module applies to the "terminating party", as well as a query status indication of "no query failure".

Scenario 6: Intermediate Exchange with LNP Query and Incoming MF Signaling In this case the LNP trigger is encountered for digits received via a trunk. For this scenario it is assumed that the intermediate exchange is in a different local network as the originating exchange, and has CNA recording option active on the incoming trunk group from the originating exchange.

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits to determine how to route the call.
- The call is sent to the Intermediate Exchange via MF signaling.
- The Intermediate Exchange performs digit analysis on the incoming digits to determine how to route the call. The switch determines that B is in a portable NPA-NXX (708-713) and the subscriber is not on the switch.
- The switch sends a query based on the dialed digits to the LNP-SCP.
- The LNP-SCP sends an "Analyze_Route" response containing the LRN of the Serving Exchange.
- The Intermediate Exchange receives the LNP-SCP response and analyzes the data. The LRN is translated in a Post_Query DAS and an ISUP route out of the switch is determined. The LRN is stored in the CdPN parameter and the dialed digits are stored in the GAP parameter of the ISUP IAM message. The FCI Translated Called Number Indicator is set to indicate that an LNP query has been done (set to "translated number").
- The call is routed to the Serving Exchange based on the LRN.
- The Serving Exchange receives and processes the contents of the IAM message. It replaces the CdPN parameter's contents with the dialed digits stored in the GAP parameter. The switch does digit analysis on the dialed digits from the GAP and finds the subscriber on the switch.
- The Serving Exchange completes the call to the subscriber.
- Since the intermediate exchange has the CNA recording option active for all calls incoming on the trunk group from the originating exchange, the intermediate exchange generates a CNA AMA record (Structure Code 0625, Call Code 720) for the call with an appended LNP Module. The LNP module contains the LRN returned from the LNP-SCP database, and an indication that the LNP module information applies to the "terminating party", as well as a query status indicator of "no query failure".
- An intra-LATA AMA record is generated by the originating exchange for the call. This is a function of existing recording, and no additional functionality is provided by the NP - LRN Basic AMA feature.

Scenario 7: Intermediate Exchange with LNP Query and Outgoing MF Signaling.

In this case the LNP trigger is encountered for digits received via a trunk. The call is routed via MF signaling to the serving exchange that has the subscriber. For this scenario it is assumed that the intermediate exchange is in a different local network as the originating exchange, and has CNA Recording conditionally active on the incoming trunk group from the originating exchange. (When conditionally active, the CNA Recording option will only result in a CNA AMA record being generated for calls incoming over the trunk group for which an LNP query is performed by the exchange.) For this scenario it is assumed that the serving exchange is in a third local network, different than both the originating and intermediate exchanges, and has CNA recording option active on the incoming trunk group from the intermediate exchange. (When unconditionally active, the CNA Recording option will result in a CNA AMA record being generated for all calls incoming over the trunk group regardless of whether or not an LNP query is performed by the exchange.)

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits to determine how to route the call. It routes the call to the Intermediate Exchange (Originating Exchange is not LNP-capable).
- The Originating Exchange selects an ISUP trunk to the Intermediate exchange and signals using ISUP existing procedures.
- The Intermediate Exchange performs digit analysis on the incoming digits to determine how to route the call. The switch determines that B is in a portable NPA-NXX (708-713) and that B is not on the switch.
- The switch sends a query based on the dialed digits to the LNP-SCP.
- The LNP-SCP sends a response containing the LRN of the Serving Exchange.
- The Intermediate Exchange receives the LNP-SCP response and analyses the data. The LRN is translated in an LNP DAS and an MF route out of the switch is determined. The LRN is replaced with the dialed digits for signaling MF to the Serving Exchange.
- The Intermediate Exchange signals, using MF signaling, the dialed digits to the Serving exchange.
- The Serving Exchange processes the incoming call to find the subscriber.
- The Serving Exchange completes the call to the subscriber.
- Since the intermediate exchange had the CNA Recording option conditionally active (e.g. set to CONDITIONAL) on the incoming trunk group, and since the intermediate exchange did perform an LNP query for the call, the intermediate exchange will generate a CNA AMA record (Structure Code 0625, Call Code 720) for the call and append an LNP Module to the CNA AMA record. The LNP module will contain the LRN returned from the LNP-SCP database, and an indication that the LNP module information applies to the "terminating party", as well as a query status indicator of "no query failure". (Note - the LNP module may be attached at an intermediate exchange to any type of end-user or access AMA record generated for the call - not just to a CNA Record. For example, if the intermediate exchange were to instead generate a "Feature Group D Terminating Access Record - CC0119" for the call, the LNP module would be appended to that record.)
- Since the serving exchange had the CNA Recording option active (e.g. set to YES or UNCONDITIONAL) on the incoming trunk group, the serving exchange will generate a CNA AMA record (Structure Code 0625, Call Code 720) for the call.

Scenario 8: DN ported in geographically to Originating Exchange.

In this case there is an Intra-switch call to a Ported DN.

- Line A (708-224-1111) dials Line B (708-713-2222).
- The Originating Exchange performs digit analysis on the dialed digits. The switch determines that B is in a portable NPA-NXX (708-713) and finds the subscriber is on the switch.
- The line data is used to determine the Home LRN.
- The Home LRN is translated in a Post_Query DAS associated with the LNP trigger. The FCI Translated Called Number Indicator is set to indicate that the location of the terminating DN was found (set to "translated number").
- The Originating Exchange completes the call to the subscriber based on the analysis of the LRN.
- An intra-LATA AMA record is generated by the originating exchange for the call. Since no LNP database query was necessary to complete the call to the Ported DN, no LNP module is generated.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AMACT	5506	3	5F	10.12
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

AMACT form (5506 Record) - This form is used to define AMA Call Types. The new AMA CALL TYPE "CNA" was added.

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency features. The call processing functions of the NP - Basic LRN AMA feature which generate an LNP BAF Module when an LNP query is performed is controlled by office option FOSYS ID 665. This option is activated by setting the FID 665 ACT field to "Y" on the FOSYS form (5713-2 Record). An LNP BAF Module is not appended when the option is inactive. Note that this office option does not control the CNA Access recording option.

The CNA Trunk Group Billing Number Option special feature is activated by setting the FID 719 ACT field to "Y" on the FOSYS form (5713-2 Record).

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 180 to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The field ASP TOLL was added to this form. This field determines if all incoming calls over this toll trunk group will generate an SCP query.

4. GLOSSARY

AIN Advanced Intelligent Network

AMA	Automatic Message Accounting
ASP	Advanced Service Platform
BAF	Bellcore AMA Format
CNA	Connecting Network Access
DN	Directory Number
DNT	Dialed Number Trigger
FCI	Forward Control Indicators
IAM	Initial Address Message
ISUP	ISDN User Part
LNP	Local Number Portability
LRN	Local Routing Number
NP	Number Portability
SCP	Service Control Point
SS7	Signaling System 7

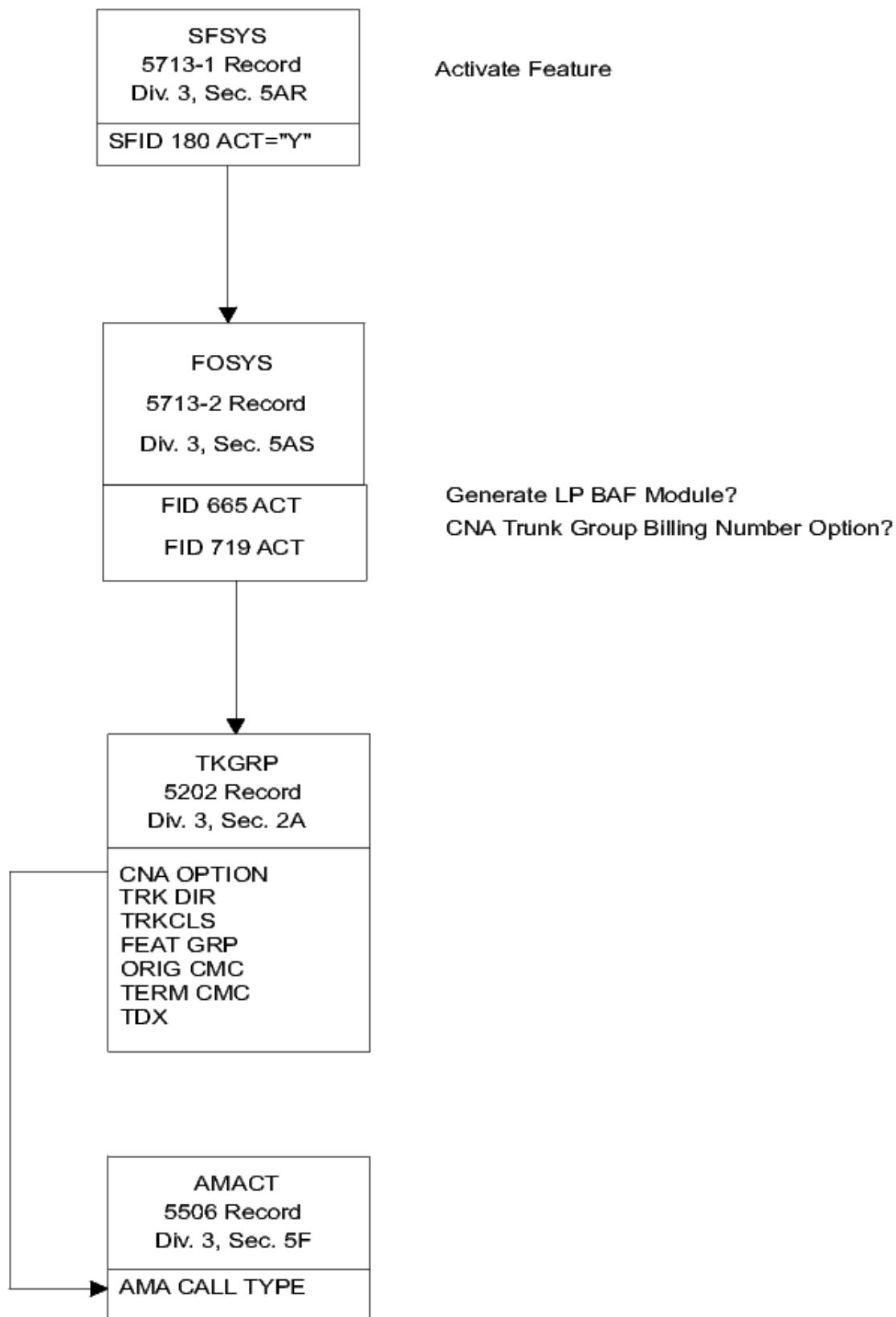


Figure 1 FORM FLOW FOR NP - BASIC LNP AMA**SEC. 4A181: CENTREX NETWORK****1. FEATURE DESCRIPTION**

The CENTREX Network feature is available for 5E9(2) and later. The feature number for this capability is 99-5E-1156. The CN ISVM (CENTREX Network Interswitch Voice Messaging) and CNS (CENTREX Network Special) features are secondary features to the CN feature. See Division 2, Sections 4A182 and 4A183 for information on the CN ISVM and CNS features.

The CN (CENTREX Network) secured feature provides some of the CENTREX functionality on multiple switches that is currently provided on a single switch. By associating an MBG (Multiswitch Business Group) identifier with a terminal group identifier CENTREX Network Service can be provided across several switches. CN provides the following:

- Interswitch station-to-station intercom dialing
- Single LDN (Listed Directory Number) for the CENTREX customer to reach attendant assistance
- DID (Direct Inward Dialing) and DOD (Direct Outward Dialing) with station identification on outgoing calls
- The following basic features of a single switch are expanded to include stations on multiple switches.
 - Call Forwarding Screening
 - Call Waiting Screening
 - Call Pick-Up Screening
 - Three-Way Calling Screening
 - Call Transfer Screening
 - Distinctive Ringing
 - ISAT (ISDN Attendant) assisted calls
 - ISAT Camp-on to Remote Stations
 - Display of Station Restrictions at ISAT for on-network calls.

1.1 ISAT Feature Interactions

- For ISAT (ISDN Attendant) Source Billing for Remote Stations:
 - for interswitch MBG calls that are extended by the ISAT, the attendant's BDN (Billing Directory Number) is replaced with the originator's BDN.
 - for interswitch forwarded calls extended by the ISAT, the forwarding party's BDN replaces the ISAT's BDN.
 - If the forwarding party's BDN is not available in the SS7 IAM message, the originator's BDN is used.

- For ISAT Camp-on to Remote Stations:
 - Camp-on is allowed for interswitch MBG calls from the attendant to MBG members.
 - The attendant must use IDP (Individualized Dialing Plan) intercom dialing for interswitch calls. Calls using the ODP (Office Dialing Plan) will not invoke camp-on to a busy MBG station.
- For ISAT Display:
 - Originating party information (ICLID - Incoming call line identification) is provided to the attendant.
 - Call forwarding indication is provided to the attendant for interswitch calls within the attendant's MBG. Also, the number of calls in the queue is available to the attendant.
 - The originating restrictions including the toll restrictions are displayed to the attendant. The display also indicates if the caller is in the attendant's MBG.

1.2 Precedence and Preemption Feature Interactions

- For Precedence and Preemption:
 - All calls from MBG stations assigned a PP (Precedence and Preemption) feature are treated as non-MBG calls.
 - IDP intercom calls are treated as MLPP DSN (Multi-level Precedence and Preemption Defense Switched Network) calls and receive MLPP screening.
 - All non-intercom calls (i.e. *9 - escape to POTS) are non-MLPP calls and do not receive MLPP screening.

2. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for the CN feature.

The CN feature requires the following translations:

- Activate the secured feature. The ACT field of SFID 181 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.
- Define the terminal group on the TGS RFD form (5607 Record).
- Assign to at least one port on the LINEFA form (5112 Record) or the DSLUSR form (5908 Record).
- Define the MBG on the MBG form (5633 Record).

The following translation provisioning is optional.

- Set the terminal display restrictions on the TGSRLPA or TGS RMPA forms (5607-3/4 Records). Toll

restriction can also be entered on the BFG form (5625 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26A	12.9
DSLUSR	5908	5	1I	23.2
ICIPF	5903	5	1D	3.43
MBG	5633	4	22A	4.12
MLHG	5110	3	1J	3.5
SFSYS	5713-1	3	5AR	8.22
TGATTD	5611	4	12A	4.4
TGSRFD	5607-1/2	4	8A	12.21
TGSRLLPA	5607-3	4	8B	1.29
TGSRMPA	5607-4	4	8C	1.29

BFG form (5625 Record) - This form is used to specify and construct BFGs for use when assigning subscriber features to analog lines or ISDN terminals. The DISP RESTRICT field indicates the restriction that displays on the ISAT's terminal for an incoming MBG call.

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user, and 4) defines the On Demand B-channel packet switching attributes of a DSL user. For 5E9(2) and later, ISAT groups may have a maximum of 63 terminals; CKT TERM may not exceed 63.

ICIPF form (5903 Record) - This form is used to assign ICI (Incoming Call Identification) parameters to ISDN Attendant Multi-Line Hunt Groups and Terminal Groups. The CNET (CENTREX Network) Trunk Group ICIs are assigned on this form.

MBG form (5633 Record) - This form defines the data associated with an MBG and associates the MBGID with a TGID.

MLHG form (5110 Record) - This form defines Multi-Line Hunt Group information. Data rule restrictions were added for 5E9(2) and later to the QUEUING FEATURE, INTRA SW OCDN, and AP SITE ID fields.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 181 should be set to "Y"

TGATTD form (5611 Record) - This form defines the information such as attendant DN, Source Billing, and SDN DAS on a Terminal Group basis. The MBG ID field is a Verify only field, it cannot be entered on this ODA form or on the corresponding Recent Change view 4.4.

TGSRFD form (5607-1/2 Record) - This form defines the Terminal Group and Station Restriction Feature definitions. The DISP RESTRICT field indicates the restriction that is displayed on an ISAT's terminal for an incoming MBG call.

TGSRLLPA form (5607-3 Record) - This form defines Terminal Group and Station Restriction Line parameters. The DISP RESTRICT field indicates the restriction that is displayed on an ISAT's terminal for an incoming MBG call.

TGSRMPA form (5607-4 Record) - This form defines the Terminal Group and Station Restriction parameters for an MLHG Member. The DISP RESTRICT field indicates the restriction that is displayed on an ISAT's

terminal for an incoming MBG call.

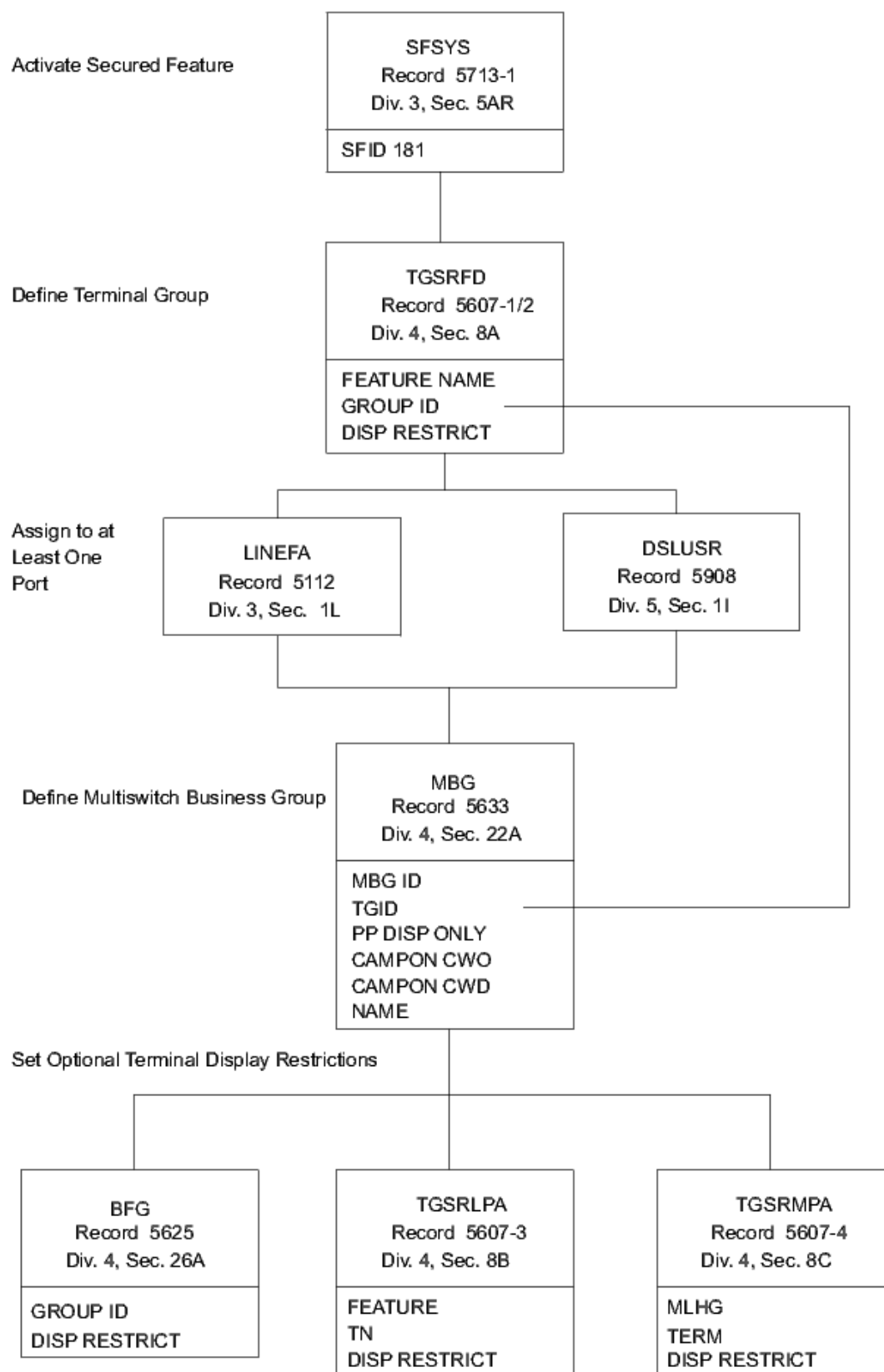


Figure 1 CENTREX NETWORK FEATURE FORM FLOW**SEC. 4A182: CENTREX NETWORK FOR INTERSWITCH VOICE MESSAGING****1. FEATURE DESCRIPTION**

The feature number for this capability is 99-5E-1156. The CN ISVM (CENTREX Network for Interswitch Voice Messaging) feature is available for 5E9(2) and later Software Releases. CN ISVM is an enhancement to the CENTREX Network Feature. It provides BCID (Business Customer Identifier) screening for trunk originated MBG calls that are routed to a VMS (Voice Messaging System). Calls to an MBGE (Multiswitch Business Group Element) in one switch can be forwarded to a VMS on another 5ESS Switch. This feature provides BCID screening in the 5ESS Switch before delivery to a VMS.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for the CN ISVM feature.

This feature must be activated on the SFSYS form (5713-1 Record). The ACT field for SFID 182 must be set to "Y". In addition, the CENTREX Network feature must be activated; the ACT field for SFID 181 must be set to "Y".

The ISVM feature for CN is activated on the MBG form (5633 Record) by setting the CNISVM field to "Y". The BCID (Business Customer ID) is used for screening to verify that the MBG station is served by the VMS. A BCID can map to only one MBG ID. However, multiple MBG IDs may be to the same BCID. The CNISVM field cannot be set to "Y" unless SFID 182 has been activated on the SFSYS form.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MBG	5633	4	22A	4.12
SFSYS	5713-1	3	5AR	8.22

MBG form (5633 Record) - This form defines the data associated with an MBG. CNISVM must be set to "Y" and the BCID must be entered.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 182 must be set to "Y"

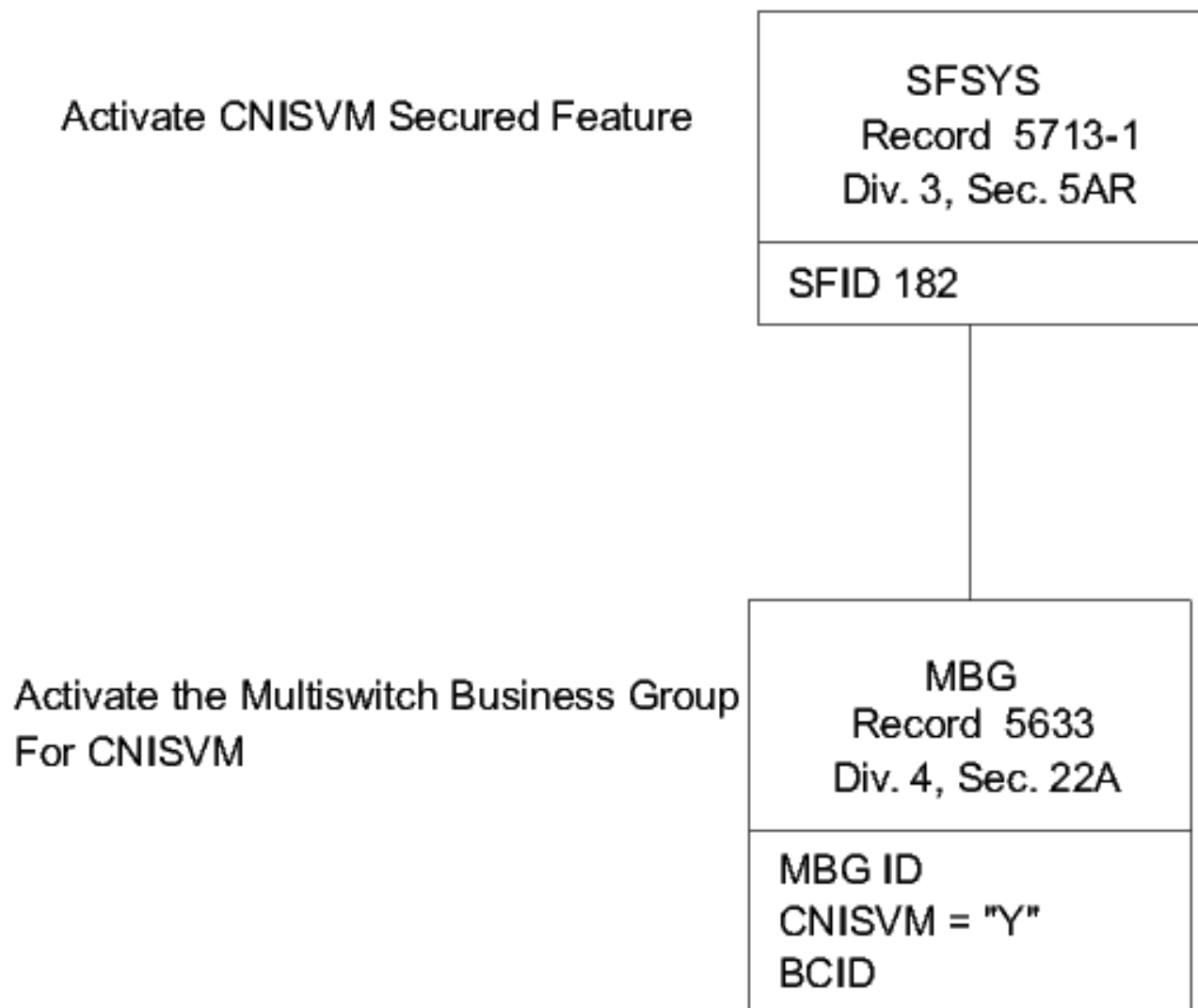


Figure 1 CN ISVM FEATURE FORM FLOW

SEC. 4A183: CENTREX NETWORK SPECIAL

1. FEATURE DESCRIPTION

The feature number for this capability is 99-5E-1156. CN-S (CENTREX Network Special) feature is available for 5E9(2) and later Software Releases.

The CN-S secured feature is an enhancement to the CENTREX Network secured feature (see Division 2, Section 4A181). This feature provides additional features for the DTS-W (Defense Telecommunications System - Washington DC). It provides enhanced ISAT (ISDN Attendant) displays showing DSN (Defense Switch Network) identity and precedence levels. With the CN-S feature, an ISAT can see the originating trunk type of calls that originate from trunks which are routed to an MBGE (Multiswitch Business Group Element), and which get forwarded to the ISAT. The ISAT may be in either the same switch as the trunk or an ISUP7 connected switch different from the original MBGE termination. The trunk type (FX, TIE, or FTS2000) is delivered to the ISAT.

The CN-S also provides SFG (Simulated Facilities Group) control of MBG calls which overflow from private trunk groups into the public network.

1.1 Precedence and Preemption

CN-S interacts with PP (Precedence and Preemption). The MBG IDP (Individualized Dialing Plan) intercom call, from an MBGE that is assigned a PP feature and a PP access code is not dialed, is treated as an MBG call and populates the MBG parameter if the trunk is on-net or overflowed to a public SS7 trunk. MBG calls are not screened for MLPP (Multi-Level Precedence and Preemption). The PP DISP ONLY field on the MBG form is used to indicate whether or not PP display format will be used for all calls terminating at the MBG ISAT or just PP calls.

MLPP DSN IDP intercom calls, which dialed the PP access code, receive MLPP screening. MLPP DSN calls are only allowed with proper originating TGSr restriction.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for CN-S. See for Figure 2 feature assignment form flow for CN-S Queuing and Display.

CN-S is a secured feature and must be activated on the SFSYS form (5713-1 Record) by setting the ACT field for SFID 183 to "Y". (Also, ACT field for SFID 181 for CENTREX Network feature must be set to "Y".)

CN-S must also be activated on the MBG form (5633 Record). The CN-S field indicates that the CN-S feature has been activated.

Trunk groups must be identified as part of a specific MBG network in the MBG ID field. Call processing checks this field prior to populating MBG information in the IAM message to ensure network specific information is only being populated on a trunk marked with the proper MBGID value. At an end office, the MBG ID is also checked before overflowing CN-S MBG calls to the public network. Access to the SFG to provide control for the CN-S MBG calls overflowing to the public network is entered in the OVFL MC RTIDX field. The TRK ICI field determines the ICI display to ISAT for calls coming into the CN-S MBG network.

The hunting ICIs are entered on the ICIPF form (5903 Record). The HUNTING ICIs correspond to the TRK ICI on the TKGRP form as follows:

TRK ICI	HUNTING ICI
FTS	FTSICN - ICI displayed to ISAT for call incoming over trunks connected to the FTS-2000 network.
FX	FXICN - ICI displayed to ISAT for calls incoming over trunks connected to FX private facilities.
TIE	TIEICN - ICI displayed to ISAT for call incoming over trunks connected to TIE trunk private facilities.

The TGN for trunk groups connected to the FTS-2000 network to be displayed to the ISAT and the priority of these calls in the queue for the ISAT are entered on the ICIPF form.

The SFG TYPE field, which is accessed when CN-S MBG calls overflow to the public network, is entered on the PFASFG form (5609-3a/b Record).

The ICI list is entered on the DSLUSR form (5908 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	11	23.2

ICIPF	5903	5	1D	3.43
MBG	5633	4	22A	4.12
PFASFG	5609-3	4	10C	7.3
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user, and 4) defines the On Demand B-channel packet switching attributes of a DSL user. The ICIs "FTS", "FXICN", "TIEICN" and "FTSICN" were added for the CN-S feature.

ICIPF form (5903 Record) - This record is used to assign ICI (Incoming Call Identification) parameters to ISDN Attendant Multi-Line Groups and Terminal Groups. The values "FTSICN", "FXICN", and "TIEICN" for the HUNTING ICIs and FTS TRK GRP fields support the CN-S feature. The HUNTING ICIs are used for hunting, queuing for the ISAT, and also for display.

MBG form (5633 Record) - This form defines the data associated with an MBG. The CNS field indicates if CN-S is active. Also the PP DISP ONLY field determines the display format for ISAT assigned to a PP feature.

PFASFG form (5609-3 Record) - This form defines SFGs (Simulated Facility Groups) which allow control of access to physical groups such as lines, trunks, and special circuits. The SFG TYPE "CNSOVFL" supports the CN-S feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 183 must be set to "Y"

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

The following fields support CN-S on the TKGRP form. The MBG ID field identifies the trunk group as part of a specific MBG network. Call processing checks this field prior to populating MBG information in the IAM message to ensure network specific information is only being populated on a marked private trunk. This field is also checked prior to overflowing CN-S MBG calls to the public network.

The OVFL MC RTIDX field allows the SFG to provide control for CN-S MBG calls. The TRK ICI field determines if FX, TIE, or FTS will be displayed at the ISAT's terminal.

Activate Secured Feature

SFSYS Record 5713-1 Div. 3, Sec. 5AR
SFID 183

Activate Multiswitch Business Group
for CN-S

MBG Record 5633 Div. 4, Sec. 22A
MBG ID CNS = "Y"

CNS Overflow Routing

PFAFSG Record 5609-3 Div. 4, Sec. 10C
SFG NUM SFG TYPE = "CNSOVFL" SFG SIZE HUNT TYPE

MCRTIDX Record 5304 Div. 3, Sec. 3Q
MCRTIDX MC ROUTE TYPE = "SFG" SFG NUMBER CHARGE INDEX NEXT MC ROUTE INDEX

TKGRP Record 5202 Div. 3, Sec. 2A
TGN MBG ID OVFL MC RTIDX

CNS Queuing and Display

Figure 1 CNS FEATURE FORM FLOW

CNS Queuing and Display

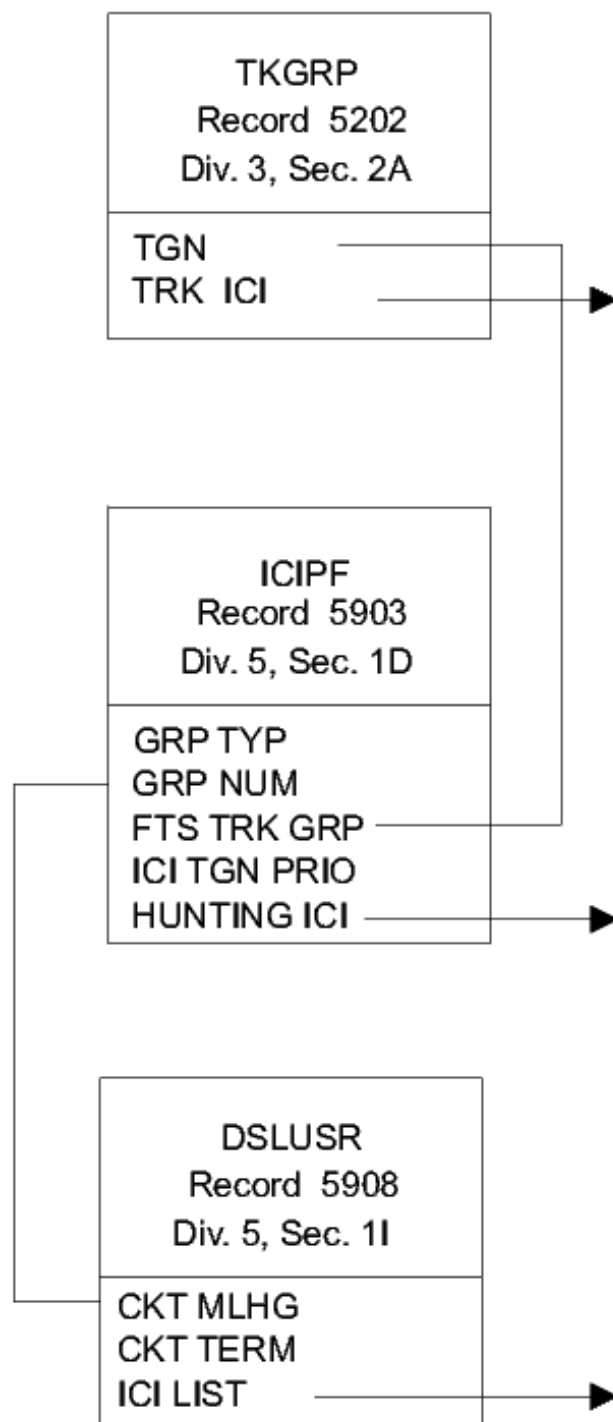


Figure 2 CNS QUEUING AND DISPLAY FORM FLOW**SEC. 4A184: FAR ACCESS REMOTE****1. BACKGROUND**

Prior to this feature LSSGR (Local Switching Systems Generic Requirements) specified a loss of 0dB for a line-to-line call in a single switch. This specified loss was sufficient for a centralized architecture in which no trunking was involved within the switch itself, and the distances were relatively short between phones.

The 5ESS Switch has a distributed architecture. SMs (Switching Modules) are separated from each other via NCT (Network Control and Timing) links. Remote Switch Modules can be remoted from SMs via umbilicals, e.g., T1 spans. ORMs (Optically-Remoted Modules) can be separated from host SMs via optical carrier.

The potential situation with voice traffic to remote units is that each of these remote units is equivalent to a small switch itself, and all of these umbilicals, although frequently not recognized as such, are effectively trunks. However, since they do not span to another switch and are within the distributed architecture it is considered a single 5ESS Switch; calls between the local and remote units are considered line-to-line calls. The 5ESS Switch can only apply 0dB loss to these calls, even though the range of distances of these line-to-line calls can be hundreds of miles.

However, remote units can be 150 to 600 miles away from the host. Under these conditions, unacceptable service occurs due to reflective delays. These delays occur along the umbilicals to these remote units which effectively make them unusable at those distances. The problem introduced with RSMs at these distances is noticeable detection of talker echo and listener echo to the human ear. This causes an objectional voice transmission quality to the end customers (persons making the call).

In the case of long umbilicals, modifying the loss can limit the echo heard by the end customer. This is a reasonable compromise between signal strength (or loudness) and the degree of acceptable echo. Thus, adding loss to the path along the umbilicals to remote units can allow them to be placed at distances over 150 miles and up to 600 miles.

2. FEATURE DESCRIPTION

The Far Access Remote feature is a secured feature using SFID (Secured Feature ID) 184 and must be purchased before being activated. The feature number for this feature is 99-5E-1252.

Available with 5E9(2) and later, this feature provides the ability to minimize effects to the human interface and provide more consistent perceived service while the actual configuration of the switching equipment is allowed to change. For example, if a customer is moved from a configuration where that customer is served by a unit which does not have a long umbilical to a unit which does, this feature enables craft to modify loss in order to minimize any perceived difference in service. These differences include echo on the line during calls and the loudness of calls when the new equipment configuration is installed.

In order to maintain flexibility for the Central Office engineer to tailor this loss to individual circumstances, this feature does not specify the loss value to be added. In the case of long umbilicals, this loss can be modified to limit echo as a compromise between signal strength (or loudness) and degree of acceptable echo.

When a transmission engineer determines that a remote module is homed on an umbilical that is exceptionally long, loss can be assigned to all lines on that remote via the REMOTE LOSS field on the IMINFO form (5510 Record). For calls originating or terminating on an SM (not going over an umbilical), loss can be assigned via the LOCAL LOSS field on the IMINFO form.

This feature applies to analog voice service and analog lines. Loss is not added by this feature for data calls or for calls terminating to an ISDN port. OSPS calls are also not covered by this feature, and this feature does not add loss to OSPS calls. This feature applies to TSI (Time Slot Interchanger) loss only; no additional loss will be applied at the LU (Line Unit) channel, ISLU (Integrated Services Line Unit) or RISLU (Remote Integrated Services Line Unit).

The end user of this feature is the switching office craft. After installation of the hardware to support an RSM or ORM at a distance of greater than 150 miles, the craft uses Recent Change to insert a loss value to be associated with the module (SM, RSM, or ORM). Then, when an analog voice Line-to-Line call is made in the office that traverses an umbilical, the call will have that loss applied to it on the receive side of the TSI time slot engaged in that call.

The factors which determine the values of loss to be entered into the LOCAL LOSS or REMOTE LOSS parameters and the criteria to determine if these parameters need to be set are not hard and fast. This feature makes no requirements that any particular length umbilical necessitate a non-zero loss value be inserted. These values are to be determined by the transmission engineer. The following documents provide the transmission engineer with the information regarding recommended loss values and ranges:

- Local Switching Systems Generic Requirements (TR-507, December, 1994 or later issue)
- Loss Plan for Evolving Digital Networks (T1.508)
- 5D5-900-306, The 5ESS Transmission Loss Plan

The values are determined so as to provide an acceptable performance for voice calls within a module or RSM cluster and for calls which traverse umbilicals outside a module or RSM cluster. This feature allows these loss values to be set and added to voice calls, but does not check or enforce the values themselves.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
IMINFO	5510	3	5J	11.1
				18.1
SFSYS	5713-1	3	5AR	8.22

IMINFO form (5510 Record) - This form gathers and builds miscellaneous customer data related to a given SM. The LOCAL LOSS and REMOTE LOSS fields were added to this form.

SFSYS form (5713-1 Record) - This form is used to enable a secured feature for the operating company. This feature is a secured feature which has an RTU (Right to Use) fee and must be purchased through the Lucent Technologies Account Team. The ACT field for SFID 184 must be set to "Y" on the SFSYS form before the default data on the LOCAL LOSS and REMOTE LOSS fields on the IMINFO can be changed.

SEC. 4A185: ADVANCED SERVICES PLATFORM NETWORK ELEMENT SERVICES SIGNALING

1. FEATURE DESCRIPTION

The ASP NESS (Advanced Services Platform Network Element Services Signaling) feature is a secured feature with secured feature ID 185 and having AT&T feature number 99-5E-1511. Available with 5E9(2) the ASP NESS feature provides a mechanism for transporting data between the A-I-Net SCN (Service Circuit Node), or any other IP (Intelligent Peripheral), and the A-I-Net SCP (Service Control Point). The SCN to SCP,

or SCP to SCN data, is transported through the 5ESS Switch, SSP (Service Switch Point). In essence, the SSP is providing the interface between the SCN and SCP.

Currently, the SCN to SCP interface is provided by an X.25 link. The X.25 link was intended as an interim solution until an alternate solution (such as, NESS) became available. The implementation of the NESS secured feature through an SSP provides the SCN to SCP interface and the following enhancements:

- Centralization of subscriber data at the SCP.
- Centralized monitoring, by the SCP, of SCN resources.
- Further utilization of existing SS7 resources rather than using X.25 links.

This service allows the A-I-Net Service Circuit Node to communicate with a database resident on an A-I-Net SCP. An example of a planned SCN service is ACS (Audible Call Screening), which requires that the calling party's name be audibly delivered to the subscribers of the ACS service. Incoming calls to ACS subscribers are forwarded to the SCN. The SCN uses ASP NESS to retrieve the name associated with the calling party from the SCP database.

The SCN is linked to the SSP via National ISDN BRIs (Basic Rate Interfaces). The BRI terminals are generally configured as one or more multi-line hunt groups. To utilize the ASP NESS interface provided by the SSP, an SCN BRI terminal must be capable of transmitting and receiving Q.931 REGISTER and RElease COMplete messages. The ATS (Automatic Terminal Setup) feature is currently the only other feature to utilize REGISTER messages. The REGISTER message contents allows the switch to distinguish whether the ASP NESS or ATS feature is being invoked. When the SSP receives a NESS REGISTER message from the SCN, the SSP checks for the following:

- The NESS secured feature is unlocked in the SSP office.
- The terminal that sent the REGISTER message has the ASP NESS feature assigned and activated.
- The length of the ASP NESS parameters, to be sent to the SCP, does not exceed 192 octets.
- The CallingPartyID value provided matches the primary DN for the BRI terminal.
- The CalledPartyID and CallingPartyID values provided are both 10 digits in length.
- The CalledPartyID value provided is on a CallingPartyID screening list of allowed DNs.

Once the REGISTER message is validated by the SSP, as identified in the above list, a RElease COMplete message is sent to the BRI terminal to release the call reference value selected by the BRI terminal. The SSP checks ACG (Automatic Call Gapping) controls, and if none apply, sends a NESS Unidirectional message to the SCP. If ACG controls are applied to the NESS message request, the switch terminates the NESS transaction. No message is returned to the ISDN CPE (Integrated Services Digital Network Customer Premise Equipment) that originated the REGISTER message. The NESS Unidirectional message is formulated from the information supplied in the REGISTER message. Specific to the ACS service, this NESS Unidirectional message would contain the original CallingPartyID. An SCP look-up would be done for the name associated with the number. An SCP originated NESS Unidirectional message would carry the ACS name information back to the SCN.

1.1 NESS information sent from the SCP to the SCN

A NESS message from the SCP may be either a response to an SCN request for information or an SCP initiated message to the SCN to:

- Download user profile data (such as, updating a call forward DN).
- Determine if that SCN is up and running.
- Determine if specific SCN resources are available.

The SCP sends NESS information for the SCN through NESS Unidirectional messages. The NESS Unidirectional messages contain a CalledPartyID parameter that represents the destination DN for the NESS data. The CalledPartyID parameter is a 10 digits primary DN associated with a destination SCN. If the digits equate to a 3/6/10-digit or Termination AAttempt trigger, the trigger is ignored.

The SSP validates the terminal to be a fully-initialized and in-service National ISDN BRI (i.e., the DSLUSR form has the field SCP ALW set to "Y" and the DSL CLS field set to "STD").

A NESS REGISTER message is sent to the selected BRI terminal. The NESS REGISTER message includes the NESS data form the SCP and SSP generated call reference value. Immediately after the sending of the REGISTER message to the SCN, the SSP sends a RElease COMplete message to the BRI terminal to release the call reference value.

1.2 Limitations

The following are limitations for this feature:

- This feature supports only unidirectional messages between the network elements. The query/response mechanism proposed by Bellcore is not supported, although A-I-Net applications themselves residing in the SCN and SCP may correlate messages at the application level. For example, the SCN and SCP may encode their own correlation IDs within the envelopes that they transmit.
- This feature does not apply to a Primary Rate Interface between the switch and ISDN CPE.
- This feature does not support AMA recording at the switch.
- The NESS feature can only be assigned to standard ISDN (National ISDN) terminals. The ASP NESS feature is not supported on Custom ISDN.
- If ACG controls are applied to the NESS message request, the switch terminates the NESS transaction. No message is returned to the ISDN-CPE that originated the REGISTER message.
- The AT&T implementation of NESS eliminates the need to count the number of call references from any given D-channel. As soon as the SSP receives a NESS REGISTER message on a D-channel, a RElease COMplete message, specifying the call reference value identified in the REGISTER message, is sent to the ISDN CPE and the call reference is released.
- For the ASN.1 encoding for the nCAData operation the following parameters are not supported: SrhrGroupID, Amp1, Amp2, and ExtensionParameter. The switch does not include these four parameters in the NESS Unidirectional message to the SCP.

2. FEATURE ASSIGNMENT

See Figure 1 for ASP NESS feature form flow.

2.1 Enabling SCN to SCP NESS Messaging

In support of the ASP NESS feature, a new preconstructed BRCS (Business Residential Custom Services) modular feature type has been created to assign NESS capabilities to an National ISDN terminal. The existing ASPFD (ASP Feature Definition) form (5632-1 Record) defines the new NESS preconstructed feature /ASPNESS or any NESS constructed features (if feature construction is allowed by the switch). The /ASPNESS feature, or any constructed NESS feature, is defined on the ASPD form with a CONTROL field entry of "NESS". Three NESS parameter fields have been added to the ASPFD form. The three NESS parameters are also added to ASPLPA (ASP Line Parameters) form (5632-2 Record) and the ASPMPA (ASP Multi-Line Hunt Group Parameters) form (5632-3 Record). These forms allow NESS parameter modification at the individual line level. The three NESS parameters are:

- TRIG NBR.

The NESS TRIG NBR specified on ASPFD or ASPLPA (or ASPMPA) must be defined on the NSTRIG (Network Services Trigger) form (5908 Record). The NSTRIG trigger number (TRIG NBR) selected for NESS must specify the following in the remaining NSTRIG fields:

- APPLICATION must be "ASP".
- ALT GBL TITLE is not entered. If one is defined it is unused.
- STP TT NBR is allowed. If one is specified it overrides the Transaction Type on the DSAPP (Direct Signaling Application) form (5537 Record).
- ADM CD ST is not used for NESS. If a value is specified it is unused.
- AIN REL must be "R0D1".

- TRIG ACT.

The NESS TRIG NBR defines whether the NESS trigger is active or inactive.

- SCR N GRP.

The number defined in the SCR N GRP field is used to reference the SCR N GRP field on ASPGRP (ASP NESS Group Screening List) form (5634 Record). The ASPGRP form is a new form for NESS CallingPartyID screening. Each SCR N GRP number defined on the ASPGRP form can support a list of 128 10-digit DNs. The SCR N GRP number defines the list of allowed CalledPartyID destination numbers (used by the CallingPartyID to select the SCP) for the ISDN CPE.

The ASP NESS feature can be assigned to the NISDN terminal from either:

- the DSLUSR form (5908 Record) or
- the LINEFA (MLHLNFA) form (5112 (5113) Record).

The NESS feature may be assigned directly to the terminal, or indirectly through a cluster. Assignment

through a BFG (BRCS Feature Group) is not supported.

2.2 Trigger Activation / Deactivation

The NESS trigger may be assigned in either the active or inactive state. It can be activated/deactivated as follows:

1. ASPFD form, TRIG ACT field.

This affects all future NESS feature assignments.

2. ASPLPA and ASPMPA form, TRIG ACT field.

This affects an individual line.

3. LINEFA, MLHLNFA, DSLUSR form, A field.

If this method of feature deactivation is used, the ASP NESS trigger will be marked inactive (TRIG ACT set to "N") on the ASPLPA/ASPMPA form. Trigger reactivation requires feature activation from LINEFA, MLHLNFA, or DSLUSR forms followed by trigger activation on ASP

4. LINEFA form, M field.

The feature's master override status may be marked active or inactive. If this method of feature deactivation is used, the ASP NESS trigger is marked inactive (TRIG ACT set to "N") on ASPLPA or ASPMPA form. Trigger reactivation requires feature activation from LINEFA, MLHLNFA, or DSLUSR form followed by trigger activation on the ASPLPA or ASPMPA form.

It is important to note that NSTRIG form is not included in the above list. The Trigger Number active/inactive status (ADM ST CD field) does not affect the use of the NESS capability.

2.3 Enabling SCP to SCN NESS Messaging

Standard BRIs capable of receiving SCP NESS messages can be identified by setting the field, SCP ALW, on DSLUSR form to "Y". If the terminal is a member of a MLHG, then the member must have an individual primary DN that is marked no-hunt (i.e., NONHUNT set to "Y").

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPFD	5632-1	4	31A	12.64
ASPGRP	5634	4	31F	4.64
ASPLPA	5632-2	4	31B	1.64
ASPMPA	5632-3	4	31C	1.64
DSLUSR	5908	5	11	23.2
SFSYS	5713-1	3	5AR	8.22

ASPFD form (5632-1 Record) - This form defines various combinations of options available with the ASP feature.

The following fields support the ASP NESS feature:

The NESS TRIG NBR field is used to locate the unique network service for the ASP terminating attempt

trigger. An entry in this field indicates that a query will be launched to an external database.

The NESS TRIG ACT field indicates whether the ASP terminating attempt trigger is active or inactive.

The NESS SCRNR GRP field is used to specify the unique group number for the TN screening list.

ASPGRP form (5634 Record) - This new form defines a list of allowed called TN values for a given screening list group. This screening list group is used by terminals that have the ASP NESS secured feature assigned to them.

The following fields support the ASP NESS feature:

The SCRNR GRP field is used to specify the unique group number for the TN screening list.

ASPLPA form (5632-2 Record) - This form is used to define ASP line parameters.

The following fields support the ASP NESS feature:

The NESS TRIG NBR field is used to locate the unique network service for the ASP terminating attempt trigger. An entry in this field indicates that a query will be launched to an external database.

The NESS TRIG ACT field indicates whether the ASP terminating attempt trigger is active or inactive.

The NESS SCRNR GRP field is used to specify the unique group number for the TN screening list.

ASPMPLA form (5632-3 Record) - This form is used to define ASP Multi-Line Hunt line parameters.

The following fields support the ASP NESS feature:

The NESS TRIG NBR field is used to locate the unique network service for the ASP terminating attempt trigger. An entry in this field indicates that a query will be launched to an external database.

The NESS TRIG ACT field indicates whether the ASP terminating attempt trigger is active or inactive.

The NESS SCRNR GRP field is used to specify the unique group number for the TN screening list.

DSLUSR form (5908 Record) - This form defines the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel Packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form.

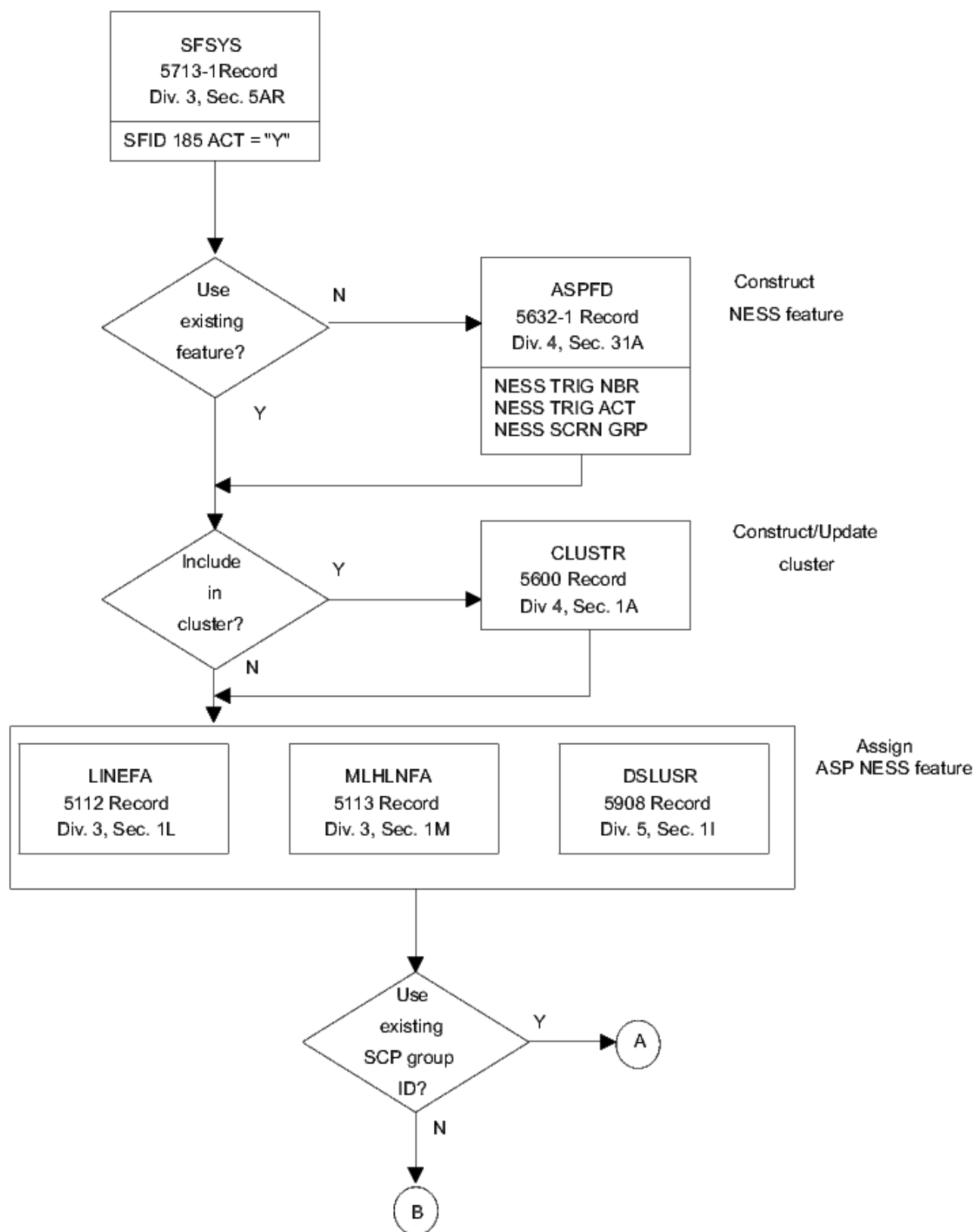
The field SCP ALW indicates whether or not the terminal may receive messages from the SCP.

SFSYS form (5713-1 Record) - This form is used by the SEE (AT&T System Equipment Engineer) to enable the feature for the operating company. SFID 185 must have the field ACT set to "Y" to enable the feature.

4. GLOSSARY

ACG	Automatic Call Gapping
ACS	Audible Call Screening
AIN	Advanced Intelligent Network
ASP	Advanced Services Platform

ATS	Automatic Terminal Setup
BRI	Basic Rate Interface
CPE	Customer Premise Equipment
DPKT	D-channel Packet
IP	Intelligent Peripheral
ISDN	Integrated Services Digital Network
NESS	Network Element Services Signaling
NISDN	National (or Standard) ISDN
ODB	On Demand B-channel
SCN	Service Circuit Node
SCP	Service Control Point
SFID	Secured Feature IDendtifier
SS7	Signaling System Number 7
STP	Signal Transfer Point



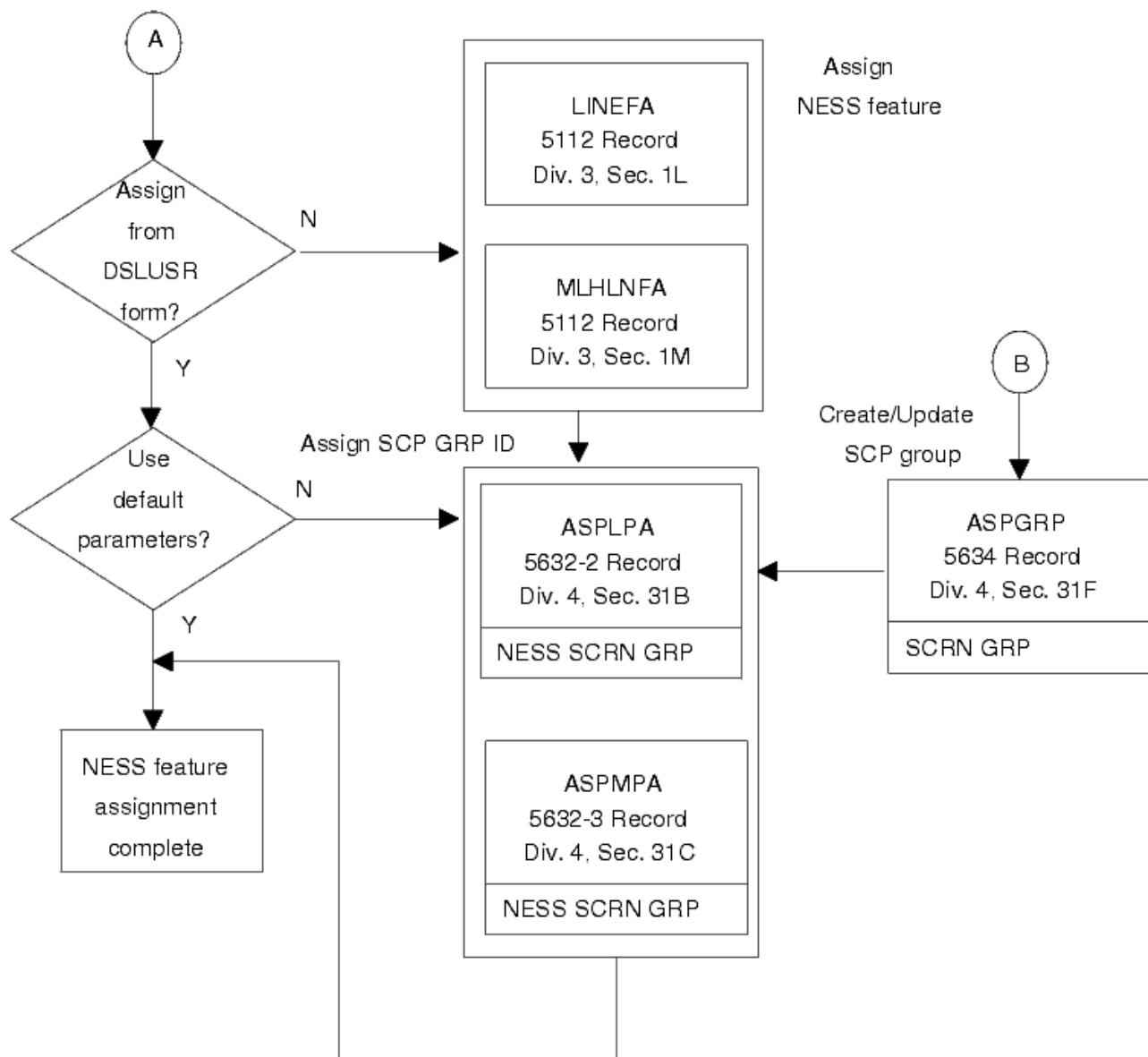


Figure 1 ASP NESS FORM FLOW

SEC. 4A186: SUPPRESSED RINGING

1. FEATURE DESCRIPTION

The Suppressed Ringing feature is a secured feature using SFID (Secured Feature ID) 186 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-1457.

Available with 5E9(2) and later, this feature allows non-ringing access to an end user's line regardless of the assigned features. This access method is used to transport data without interruption to the end user or its telephone service. Therefore, data can be efficiently transported in a non-restrictive way between Utility companys as well as ESPs (Enhanced Service Providers) and an end user's TIU (Telemetry Interface Unit) or other CPE (Customer Premises Equipment) which is attached to the line.

The TIU is a CPE device that provides the interface to one or more meters (water, gas, and electric) or other telemetry/control devices and is typically located in the residence (or commercial business). The TIU connects to the end user's line on the customer side of the Network Interface.

The Suppressed Ringing feature allows a transmission path to be established between a trunk and a line without ringing the line. This permits external systems to exchange data between a COSU (Central Office Service Unit) and CPE/TIU over existing switching fabric (trunk to line) when the end user's line is not in use.

The COSU is connected to the 5ESS via trunks. These trunks are defined on the 5ESS as LATA (Local Access and Transport Area) Connect trunks marked for UTS (Utility Telemetry Service) usage. The trunk OTP (Originating Terminal Process) is modified to handle originations on these trunks. The COSU originates a call over these trunks using a two stage Equal Access signaling. The first digit string contains the CTI (Call Type Identification) digits and the billing directory number. The second digit string contains the directory number for the intended termination. Once the OTP receives and analyzes the digits successfully, routing to a line is requested.

Routing is performed for UTS calls to valid idle analog lines. Once routing is successful, a line TTP (Termination Terminal Process) is created. Information is then requested from the OTP as for the type of signals needed to activate the line.

The activation signal is determined by the ST (Start Pulse) signal from the second digit string sent by the COSU. The valid ST signals are ST, STP, ST2P and ST3P. These pulses represent a ring duration parameter used to activate the line. Connection from the line unit to the port via GDX (Gated Diode Crosspoint (Connects lines to channels)) cross points are set up to support on-hook transmission of the alerting tone (from the COSU).

When the connection is made, the TTP acknowledges this to the OTP which sends a wink signal to the COSU. Upon receiving the wink, the COSU sends an alerting tone over the cut-thru path to the TIU. Upon receiving the tone, the TIU goes off-hook. (The TTP sets a timer and waits a maximum of 2 seconds for the off-hook to occur). The TTP receives the off-hook and releases the GDX cross point connections.

The call is then seen as a normal trunk to line call. (The OTP sets a call duration timer). The COSU and the TIU communicate over the voice path until one of them goes on-hook or the call duration times out.

The normal disconnect sequence is initiated by the COSU. After data is collected from the TIU, the COSU goes on-hook. This triggers the voice path to be released. The TTP senses the path release and sends an 800ms open interval to the line to get the TIU to go on-hook. The trunk and line are then idle.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
AMACT	5506	3	5F	10.12
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1
UTTKGRP	5215	3	2R	5.16

AMACT form (5506 Record) - This form is used to define AMA (Automatic Message Accounting) Call Types. The enumeration "UTT" was added for the AMA CALL TYPE field.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The new field UTT was added to designate a trunk as a utility telemetry trunk.

UTTKGRP form (5215 Record) - This form is used to define the parameters for a utility telemetry trunk

group.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the Suppressed Ringing secured feature, the SFID 186 ACT field on this form must be set to "Y".

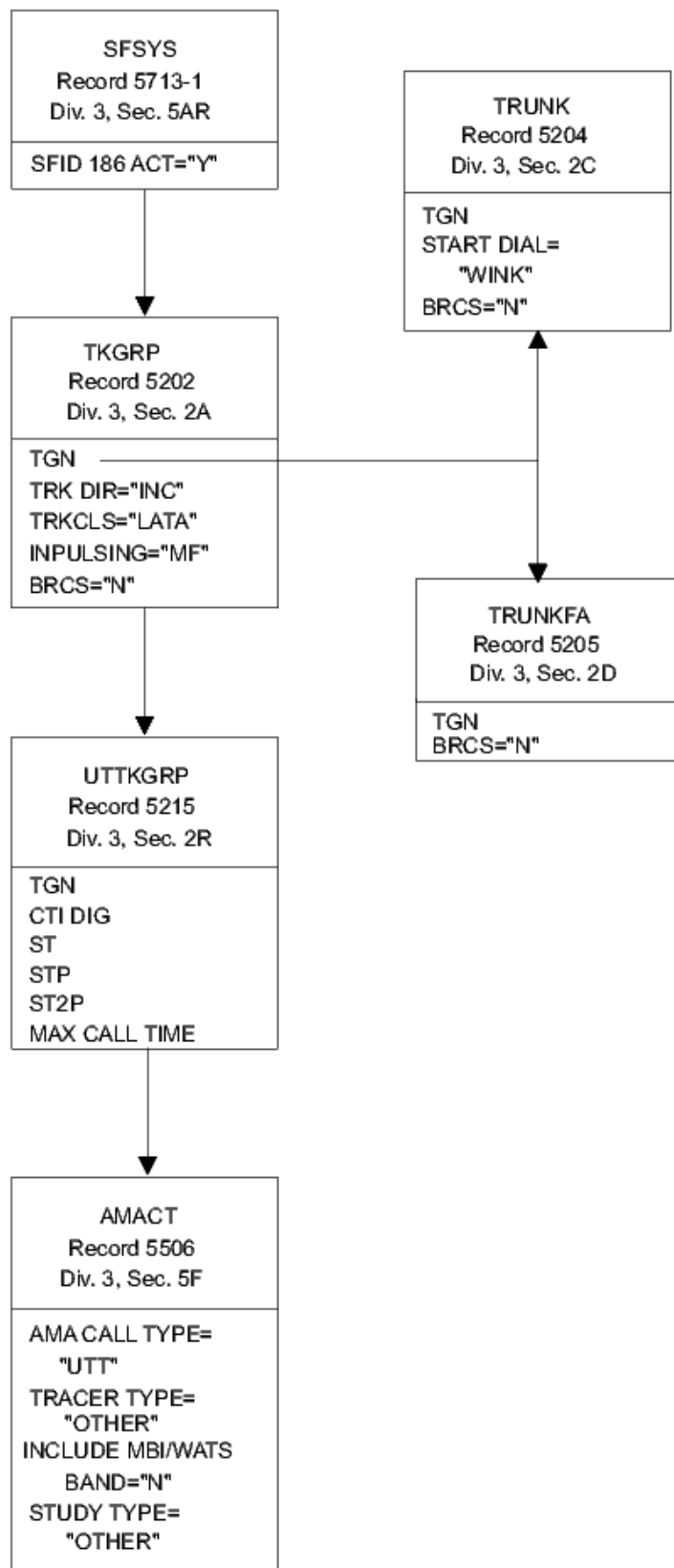


Figure 1 FORM FLOW FOR SUPPRESSED RINGING**SEC. 4A188: IXE TANDEM CALLS VIA 2 LOCAL ACCESS TANDEMS****1. FEATURE DESCRIPTION**

The IXE (Inter-exchange End office Tandem) Tandem Calls via 2 Local Access Tandems feature is a secured feature (SFID 188) and must be purchased before being activated. The feature number for this feature is 99-5E-3112.

The IXE Tandem Calls via 2 Local Access Tandems feature is available for 5E9(2) and later software releases.

The IXE Tandem Calls via 2 Local Access Tandems feature allows service providers a better way to route low-usage IXC (Inter-exchange Carrier) traffic between two different 5ESS-2000 Switch AT (Access Tandem) offices.

A single small carrier trunk group routes all low-usage carrier traffic from one access tandem switch to a second access tandem switch, thus providing consolidation of all small carrier traffic. The second access tandem switch then routes the small carrier traffic directly to the small IXC carriers. Using a single trunk group and a second access tandem switch provides a good alternative to using direct trunk groups for each small IXC carrier.

This feature is available on a per-switch basis and can be assigned on a per-trunk group basis. It works in both digital and analog environments.

2. FEATURE ASSIGNMENT

See Figure 1 for the form flow for the IXE Tandem Calls via 2 Local Access Tandems feature.

On the SFSYS form (5713-1 Record), SFID 188 must have the ACT field set to "Y".

To assign the IXE Tandem Calls via 2 Local Access Tandems feature, populate the RTIDX form (5303 Record RC/V View 10.2) field TGN with the appropriate trunk group number to route calls over a single small carrier trunk group. Field RT DES TYP should be set to a value of "STG" and field SIG PRO must be set to a value other than "TRAD" because FGD signaling is used.

For the TKGRP form (5202 Record RC/V View 5.1), although there are no modifications to the form, this feature will utilize the TRK CLASS field which must be set to a value of "LTOLLCON" or "IC" for the small carrier trunk group.

3. TRANSLATION REQUIREMENTS

TABLE 3 New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22

RTIDX form (5303) - The 5303 Record defines characteristics of the route index. Data rules are added to the PREFIX DIGITS and CKT CODE fields.

SFSYS form (5713-1) - This form is used to enable the feature for the operating company. SFID 188 must

have the field ACT set to "Y" to enable the feature.

4. GLOSSARY

AT - Access Tandem

IXC - Inter-exchange Carrier

IXE Inter-exchange End office Tandem

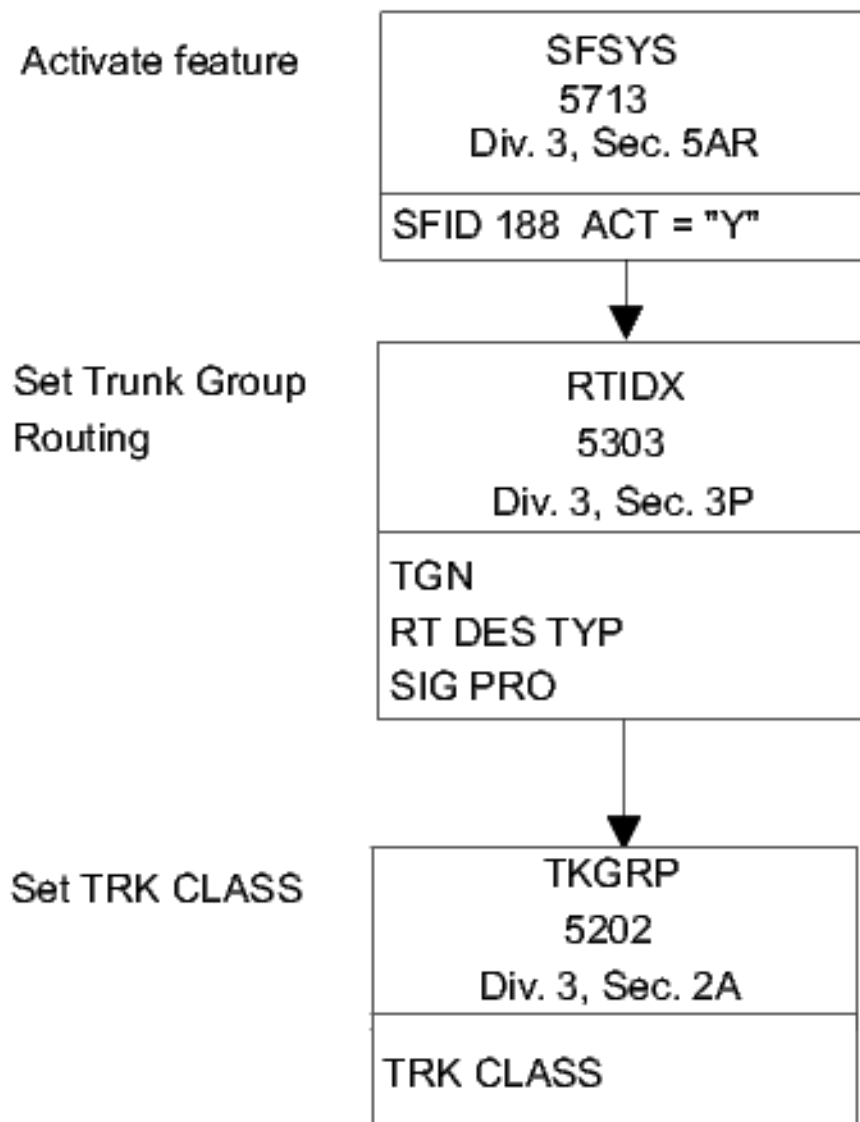


Figure 1 FORM FLOW IXE TANDEM CALLS VIA 2 LOCAL ACCESS TANDEMS

SEC. 4A189: ASP ORIGINATING BUSY/NO ANSWER TRIGGERS WITH EXTENDED RINGING

1. FEATURE DESCRIPTION

The ASP Originating Busy/No Answer Triggers With Extended Ringing feature is available as a 5E11 Software Update and for the BMI (Beginning Managed Introduction) of the 5E12 Software Release. This is a secured feature with SFID 189. The ASP (Advanced Services Platform) feature, SFID 126, must be enabled before SFID 189 can be enabled. (Note that the ASP Busy/No Answer Subsequent Event Detection feature (SFID 147) does NOT have to be unlocked before this feature (SFID 189) can be unlocked.)

This feature allows the SSP (Service Switching Point) to query the SCP (Service Control Point) upon detection of a busy or no answer condition for all calls originated by lines at the SSP. These new capabilities allow service providers to implement applications that are driven by the fact that callers have encountered busy or no answer when placing calls.

In addition to the office-based ASP Originating Busy/No Answer Triggers, this feature defines a capability known as "Extended Ringing". Extended Ringing allows the called party's line to continue to receive ringing after the "no answer" trigger has been activated and the SSP is playing an announcement (specified through an SCP (Send_To_Resource message) to the calling party. Extended Ringing also allows the calling party to be connected to the called party if the called party answers while the SSP is playing an announcement to the calling party.

The feature number for this feature is 99-5E-3529.

2. FEATURE ASSIGNMENT

See Figure 1 for the provisioning form flow. The ASP Originating Busy/No Answer Triggers With Extended Ringing feature is a secured feature. The feature must be activated by setting the SFID 189 ACT field on the SFSYS form (5713-1 Record) to "Y". The ASP base feature must also be active by setting the SFID 126 ACT field on the SFSYS form to "Y".

3. TRANSLATION REQUIREMENTS

To implement this feature, two new fields were added. For 5E11, the following fields were added to the OFCOPT form (5509 Record): ORIG BUSY TRG and ORIG NO ANS TRG. For 5E12 and later, the fields were renamed to ORIG BL TRIG and ORIG NA TRIG and moved to the new ASPOPT form (5670 Record).

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
ASPOPT	5670	4	31G	8.49
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to define global office parameters for a switch. For 5E11, the ORIG BUSY TRG and ORIG NO ANS TRG fields were added. For 5E12 and later, the fields were renamed and moved to the new ASPOPT form (5670 Record). This feature also makes use of the ORIG NO ANS TIME field.

NOTE: For 5E11, the Recent Change View 8.1 fields are ASP BL TRIG NBR and ASP NA TRIG NBR.

ASPOPT form (5670 Record) - This form is used to define ASP (Advanced Services Platform) office parameters for a switch. For 5E12 and later, the ORIG BL TRIG and ORIG NA TRIG functionality was moved from the OFCOPT form to this form. This feature also makes use of the ORIG NO ANS TIME field.

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features. To activate the ASP Originating Busy/No Answer Triggers With Extended Ringing feature, the SFID 189 ACT field on this

form must be set to "Y".

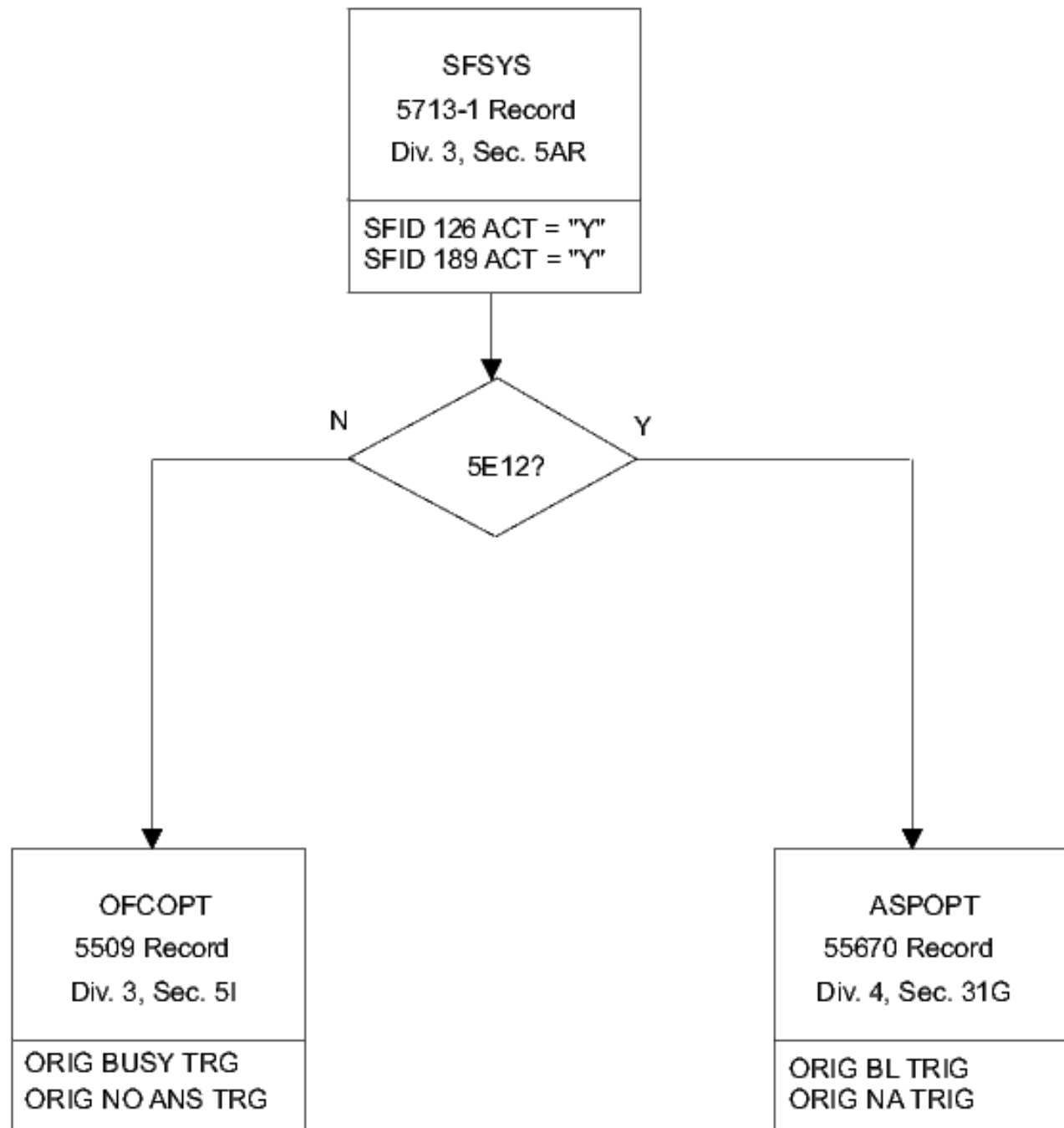


Figure 1 ASP ORIGINATING BUSY/NO ANSWER TRIGGERS WITH EXTENDED RINGING FORM FLOW

SEC. 4A190: ASP ENHANCEMENTS TO MULTIPLE RATE CENTER SUPPORT

1. BACKGROUND

SSPs (Service Switching Points) with multiple rate areas must use the appropriate routing and charging data

for each rate area.

The ASP (Advanced Services Platform) Enhancements to Multiple Rate Center Support feature allows triggers to be assigned a DAS (Digit Analysis Selector), which can be used to indicate the rate area in which the trigger exists. As a result, trigger subscribers are allowed to receive routing and charging treatment appropriate for their rate area.

2. FEATURE DESCRIPTION

Available with 5E10 and later, the ASP Enhancements to Multiple Rate Center Support is a secured feature using SFID 190 and must be purchased before being activated. The feature number for this feature is 99-5E-3426.

The primary use for this feature is to allow the switch-owner to provide line-like attributes to triggers. A typical example is to allow post-query routing and charging resulting from a 3/6/10-digit trigger to act as if the trigger were a line.

This feature is an enhancement to the ASP Multiple Rate Center Support secured feature. For more information on this feature, see Division 2, Section 4A162. The ASP 0.1B secured feature must also be active for this feature. For more information of this feature, see Division 2, Section 4A126.

This feature allows the assignment of a DAS to a trigger number. When a call is made which encounters an ASP trigger, if a DAS is assigned to the trigger number, that DAS is used for analysis of the routing number returned by the SCP (Service Control Point). This analysis determines routing and charging for the post-query leg of the call.

2.1 Feature Interactions

This feature has an effect on switch-based STR (Send_To_Resource) processing. When an STR interactive announcement is played and "normal" digit collection is requested, the DAS used to validate the collected digits is selected following the rules described in the OFCOPT section below.

This feature interacts with the AIN 0.2 Send To Outside Resource (SFID 229) secured feature as follows:

The DAS which is used to translate the DestinationAddress parameter in a STOR message received from the SCP, continues to be the SCP DAS defined on OFCOPT form.

For any Analyze_Route or Forward_Call received after a STOR operation, the DAS used to translate the CalledPartyID is selected following the rules described in the OFCOPT section below.

This feature has an effect on the ASP BLNA (Busy Line/No Answer) Subsequent Event Detection secured feature (SFID 147). After the switch has reported a Busy or No Answer event, the DAS used to translate the CalledPartyID received when an Analyze_Route message is received, is selected following the rules described in the OFCOPT section below. Generally, whatever DAS is used to route the call on the first leg where the Next Event List was received (which would obey the rules of this feature), would be the DAS used for collecting and analyzing digits for a Send To Resource message requesting normal digit collection as well as translating any digits received in a routing message that is received after a Busy or No Answer event.

3. FEATURE ASSIGNMENT

For the form flow for this feature, see Figure 1.

3.1 Secured Features

This is a secured feature, therefore, before it can be activated the ACT field for SFID 190 on the SFSYS form (5713-1 Record) must be set to "Y". In addition, since this feature depends on the ASP Release 0.1B secured feature, the ACT field for SFID 126 on the SFSYS form must be set to "Y".

3.2 NSTRIG

If this feature is enabled, any valid DAS (from 1 - 99 for 5E14 and earlier (1 - 254 for 5E15 and later) can be defined in the POST QUERY DAS field on the NSTRIG form, when the following fields on the NSTRIG form (5324 Record) are defined as follows:

- APPLICATION field is "ASP"
- AIN REL field is "R0" or "R0D1" protocol.

The value of the POST QUERY DAS field applies to calls from any type of facility that encounters any originating ASP trigger, or a TAT (Terminating Attempt Trigger). The CalledPartyID in the SCP Analyze_Route or Forward_Call Response message, is translated in the ODP (Office Dialing Plan) identified by the POST QUERY DAS.

3.3 ASPOPT

If the trigger number's POST QUERY DAS field is not entered, the following applies:

- For 3/6/10-digit triggers, the SCP DAS on the ASPOPT form is used.
- For subscribed triggers, if the ASP Multiple Rate Center Support (for more information of this feature, see Division 2, Section 4A162) secured feature is additionally enabled, and the appropriate ASPOPT field enabled, the call routes through the originator's DAS or the DAS associated with the TAT. If this secured feature is not enabled or the appropriate ASPOPT form (5509 Record) field not enabled, then the SCP DAS is used.

When a Continue message is received for a detected 3/6/10-digit trigger or Default Routing for 3/6/10-digit triggers occurs, the association of a DAS in the POST QUERY DAS field does not affect post-query digit analysis and digit analysis occurs in the "previous" DAS; i.e., the one in which the 3/6/10-digit trigger was **detected**.

For example, subscriber A is assigned DAS 1 and dials a 3/6/10 digit trigger. The 3/6/10 digit trigger has a POST QUERY DAS value of 2 on the NSTRIG form. The SCP returns an AnalyzeRoute and the digits are analyzed in DAS 2 where a second 3/6/10 digit trigger is detected. That trigger also has a POSTQUERY DAS value on the NSTRIG form, and it's set to 3. The SCP returns a Continue message in response to the second Info_Analyzed query. DAS 2 is used for post-query digit analysis since that's the DAS in which the second trigger was detected.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
NSTRIG	5324	3	3AK	9.3 5
SFSYS	5713-1	3	5AR	8.22

NSTRIG form (5202 Record) - This form is used to identify a network service application. The field POST

QUERY DAS was added to this form. This field specifies the DAS to be used during the post-query routing of calls encountering any type of ASP trigger.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 190 to "Y". Before activating this feature, the base 5E9.1 ASP Rel 0.1B feature must be activated by setting the ACT field to "Y" for SFID 126 on the SFSYS form.

5. GLOSSARY

ASP	Advanced Services Platform
DAS	Digit Analysis Selector
ODP	Office Dialing Plan
SCP	Service Control Point
SFID	Secured Feature ID
SSP	Service Switching Points
STOR	Send to Outside Resource
STR	Send to Resource
TAT	Terminating Attempt Trigger

Activated
Feature

SFSYS 5713-1 Record Div. 3, Sec. 5AR
SFID 126 ACT="Y" SFID 190 ACT="Y"

Define DAS

NSTRIG 5324 Record Div. 3, Sec. 3AK
POST QUERY DAS APPLICATION AIN REL

Alternate DAS

OFCOPT 5509 Record Div. 3, Sec. 5I

Figure 1 FORM FLOW FOR ASP ENHANCEMENTS TO MULTIPLE RATE CENTER SUPPORT

SEC. 4A191: IS-634 A2 INTERFACE

1. FEATURE DESCRIPTION

The IS-634 A2 Interface feature is available as a 5E13 Software Update. It allows service providers to choose any base station that complies with the IS-634 standard. For example, terrestrial circuits for voice paths from the 5ESS-2000 Switch to the base stations are known as IS-634 A2 Interface trunks. They are given trunk group and member numbers which are known at the ECP (Executive Control Processor) in the 5ESS-2000 Switch. These are 56K/64K trunks with 24 or 30 channel (DS0) digital facilities (DS1) in which each channel is a PCM (Pulse Code Modulation) voice trunk. All signaling for controlling calls on these trunks is done out-of-band using the ECP/DCS (Executive Control Processor/Digital Cellular Switch) message set. The speech handlers reside at the base stations. Even though the vocoder resides in the base station, echo cancellers are turned on for IS-634 A2 Interface Trunk calls, in case of a handoff to a non-A2 trunk. From the 5ESS perspective, while these calls have an air interface of CDMA, the digital interface is a PCM trunk much like a cell site trunk.

A new TRKCLS of "A2" was added to handle the connections to these base stations. The trunk group and member of this new trunk type are used in CDMA messages where normally speech handler information is transmitted. This leads to some confusion as to whether IS-634 A2 Interface is a CDMA feature or a CDMA "Service" and what exactly is a CDMA call? For the purpose of the IS-634 A2 Interface feature, the following definitions apply:

From the ECP perspective, the call is a CDMA call because it is a CDMA air interface.

From the 5ESS-2000 Switch perspective, the air interface is PCM trunk circuits.

The IS-634 A2 Interface feature is not dependent on the CDMA feature. Initially, CDMA was the only air interface supported by the IS-634 A interface. Since it does not make a difference to the 5ESS-DCS what the air interface is, there is no relationship between the IS-634 A2 Interface feature and CDMA. No support is required from the 5ESS-DCS to support soft handoffs since soft handoffs are supported by the base station. The 5ESS-DCS will continue to support hard handoffs between Lucent cells and non-Lucent cells.

The IS-634 A2 Interface feature is a secured feature which must be activated before it can be provisioned. To activate this feature, SFID 191 must be set to "Y" on the SFSYS form (5713-1 Record).

The feature number for this feature is 99-5E-3457.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 191 must be set to "Y".

TKGRP Form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The following data conditions must exist for the IS-634 A2 Interface:

TRKCLS must be "A2",

TRKCLS must NOT be "A2" when FAR E911 is "Y",

all corresponding trunk members of the trunk group (defined on the TRUNK form (5204 Record)) must have a DEN or NEN defined on the TRUNK form,

IN START DIAL and OUT START DIAL (on the Trunk form) must not be entered,

TRK DIR must be "2W",

DCSTRK must be "Y",

PBX/CPE ID must not be entered,

VPA TYPE must not be entered or must be entered as "NOVPA",

DAS must not be entered,

SCR must not be entered,

INPULSING must be "DCS",

OUTPULSING must be "DCS",

an ATSDATA (Automatic Trunk Testing Scheduler) form (5052 Record) must not be entered for this feature.

SEC. 4A192: ICLID ENHANCEMENT FOR MLHG

1. BACKGROUND

Prior to this feature, analog MLHG (MutiiHunt Line Group) members, which are not required to have an individual DN assigned (e.g., not the first member), use a group DN (which may be the DN assigned to the first member, depending on the MLHG type) as the calling party DN when such an MLHG member originates a call and the MLHG member does not have an individual DN assigned.

2. FEATURE DESCRIPTION

Available with 5E10 and later Software Releases, the ICLID (Incoming Call Line Identification) Enhancement for MLHG feature is a secured feature using SFID 192 and must be purchased before being activated. This feature is enabled/disabled with OFID 653. The feature number for this feature is 99-5E-3673.

The ICLID Enhancement for MLHG feature allows an analog MLHG member to have the MLHG's group DN used as the calling party number for call originations. When the feature is active, these analog MLHG members use as their calling party DN the group DN that is used (currently) as their calling party DN when they do not have an individual DN assigned. When this feature is active, this group DN will be used by features which use the calling party DN, including the features: ICLID, Call Forwarding, and ASP SCP queries.

NOTE: If a BTN and DN are assigned, the BTN is used instead of the Group DN. If a DN is assigned without a BTN, the DN is used instead of the Group DN.

3. FEATURE ASSIGNMENT

This is a secured feature and is activated by setting the ACT field for SFID 192 on the SFSYS form (5713-1 Record) to "Y". In addition, the feature is enabled/disabled by setting the ACT field for OFID 653 to "Y" or "N", respectively, on the FOSYS form (5713-2 Record).

4. TRANSLATION REQUIREMENTS

5. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
FOSYS	5713-2	3	5AS	8.31

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 192 to "Y".

FOSYS form (5713-2 Record) - This form is used to activate transparency features. This feature is enabled by setting the ACT field for OFID 653 to "Y".

SEC. 4A193: (E911) TRUNK FAILURE ALARMS

1. FEATURE DESCRIPTION

The (E911) Trunk Failure Alarms feature is available for 5E11 and later. This feature provides a selectable alarm level (minor, major, or critical) whenever the pre-set AML (Automatic Maintenance Limit) threshold for the trunk group has been exceeded, provided one or more trunk groups in the office are

- Incoming trunks dedicated to E911 trunks and
- E911 trunks are assigned only to these dedicated trunk groups with no mixing of service types within any of the trunks groups.
- 2-way, outgoing, or announcement trunk
- EDSL D-Channel trunks

The feature number for this feature is 99-5E-3190.

2. FEATURE ASSIGNMENT

The (E911) Trunk Failure Alarms feature is a secured feature. It must be activated on the SFSYS form (5713-1 Record) by setting the ACT field for SFID 193 to "Y".

This feature provides the flexibility to set the AML alarm level for AML trunks on the TKGRP form (5202 Record). The AML ALARM field can be set to "MINOR", "MAJOR", or "CRITICAL". The default alarm level will be "MAJOR". It is recommend the the alarm level be set to "CRITICAL" for E911 trunks.

2.1 Recent Change Provisioning

A user can assign an AML ALARM (having a value of "MAJOR", "MINOR", or "CRITICAL") to any 2-way, outgoing, announcement, EDSL D-Channel trunks or an incoming trunk dedicated E911 services on RC/V 5.1. The user may assign/update an AML ALARM to a value other than the default, "MAJOR", when the secured feature, (E911) Trunk Failure Alarms, has been purchased by the office.

When a user assigns/updates a TGN to have an E911 TYPE of "DED", "DIRANI" or "DIRNOANI", a warning message will be provided to the user that recommends that AML ALARM be set to "CRITICAL". The user then has the option of changing the value of AML ALARM or ignoring the warning.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 193 must be set to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The AML ALARM field allows users, who have purchased this feature, to set the AML alarm level to "MINOR", "MAJOR", or "CRITICAL".

SEC. 4A194: A/B LINK AND NO PATH ACCESS DELAY AND BLOCKAGE FOR TRFC30 SEC. 11

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-070-100 Appendix A Traffic and Plant Measurements*.

SEC. 4A195: TCAP MESSAGE TANDEM

1. FEATURE DESCRIPTION

The TCAP (Transaction Capabilities Application Part) Message Tandem feature is a secured feature using SFID (Secured Feature ID) 195. This feature has feature number 99-5E-2821 and is available for the 5E11 and later software releases.

The TCAP Message Tandem features allows the STP (Signal Transfer Point) to process 6-digit GTTs (Global Title Translations) when an NPA-NXX is distributed between more than one switch. The telephone network sends CCS7 (Common Channel Signaling CCITT Version 7) TCAP queries, initially routed by directory number, to activate or support LASS (Local Area Signaling Services) and ISVM subscriber features. The destination for these queries is determined by the CCS7 STP through GTT tables of the subscriber's directory number, converting the directory number to switch network address. When translating on a number group basis, a single database entry can account for up to 10,000 DNs. When DNs with the same NPA-NXX are shared between different central office switches, the destination DN for these messages cannot be determined based on only the NPA-NXX. Without more granular GTT, the TCAP message will be directed to the wrong

switch, and the subscriber's LASS and ISVM services will not operate properly. The TCAP Message Tandem feature allows the STP to send all LASS AC/AR or ISVM TCAP queries for a given NPA-XXX to one switch which will re-address the query to the correct destination. This feature minimizes administrative work, especially for small STPs that lack the memory and real-time processing to perform 10-digit GTTs.

2. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1) - This form is used to enable secured features for the operating company. This feature is a secured feature and is activated by setting the ACT field for SFID 195 to "Y" on the SFSYS form. This feature has an RTU (Right To Use) fee and is restricted until the purchaser has made the necessary financial arrangements with Lucent Technologies.

SEC. 4A196: MLPP ON SS7 - STAGE 1

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-300 Defense Switched Network Applications*.

SEC. 4A197: MLPP ON SS7 - STAGE 2

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-300 Defense Switched Network Applications*.

SEC. 4A198: NUMBER PORTABILITY - NPA-NXX GROWTH

1. FEATURE DESCRIPTION

Available with 5E12 and later, the Number Portability - NPA-NXX Growth Secured Feature has feature number 99-5E-3730 and uses SFID (Secured Feature ID) 198.

Previous to the "Number Portability - NPA-NXX Growth" feature (through the 5E11 Software Release) the 5ESS-2000 Switch could support up to 250 office codes populated with DN's (Directory Numbers) on the switch (i.e. office codes defined via the NOC (Normalized Office Code) form (RC/V 8.2), versus office codes defined in digit analysis which cause routing on trunks to other switches). The office codes defined on the switch had to be unique, that is the office code could only be associated with one NPA (Numbering Plan Area).

If the Secured NPA-NXX Growth Feature is activated, the 5ESS-2000 Switch will support up to 8,000 NPA-NXX codes. In addition, the office codes can be non-unique, that is the office code value can be associated with two or more NPA codes. The office code value then becomes ambiguous. It will take an area code to identify which of the office codes is identified with that value. Previously since all the office codes were unique, 7 digits was usually sufficient to identify what directory number was identified in ODA forms or RC/V Views, craft I/O messages and messages on data links with external CPE (Customer Premises Equipment). Now that office codes can be associated with more than one area code on the same switch, most of these cases will require 10-digit numbers to uniquely identify which directory number is addressed.

In the context of this document a DN is defined as follows:

- Unique DN - a DN associated with a unique office code.
- Non-unique DN - a DN associated with a non-unique office code.

Thus if two DNs have the same office code but different area codes, the last 4 digits of the DNs do not need to match, to say that the DNs are non-unique.

▲ **WARNING:** OS (Operational Support) Systems, whether they be within your company, or external vendors, the following issues should be raised:

- Some OS Systems maintain internal data bases which store the DNs associated with a switch. These data bases may need to change to store 10-digit DNs.
- Communications with the switch will require 10-digit DNs in order to uniquely specify a DN associated with an office code that is non-unique.
- All the switch interfaces that employ some form of a directory number will undergo a significant change to support unique 10-digit directory numbers.
- Even 5E12 users that do not use this feature will see some impact from this feature.

2. USER CONSIDERATIONS

The following observations are made regarding service providers using the 5ESS-2000 Switch who expect to deploy this feature.

- Service providers should begin reviewing internal procedures for instances where the need will arise to specify 10-digit numbers in communications with either the switch or supporting OSs, and begin to plan to change their internal procedures to accommodate the change.
- Service providers need to open a dialogue with their OS providers to determine what changes they will need in their OSs, and the time frame for these changes.

■ **NOTE:** Even service providers that do not employ this feature will see some impact from it, due to:

- the RC/V display capability,
- some craft I/O messages, and
- for switches provisioned to support the PINNACLE ACD (Automatic Call Distributor) feature, the interface with the AIU (Application Interface Unit) and MIS (Management Information System).

3. APPLICATIONS

There are at least two applications for this feature.

1. In an NPA split situation, where there are lines in an office code on the switch that will retain the old NPA, and also lines in that same office code on the switch that will pick up the new NPA, this feature will

allow all those lines to continue to be supported by the same 5ESS-2000 Switch. Previously, the lines in either the old or the new NPA had to be rehomed on a different switch, or they had to undergo a number change. This occurred because previous to this feature the same switch could not support an office code that was associated with two different area codes. NPA overlays are similarly supported.

2. The second application is in a number portability environment. If a subscriber served by Switch "A" has their service moved to Switch "B" and retains their DN, Switch "B" grows a new office code, and possibly a new NPA as well. This feature allows (1) more office codes to be populated on Switch "B", and (2) the same office code to be populated in more than one area code on Switch "B", thus better supporting the needs of number portability.

4. IMPACTS

This document discusses the impacts of this feature on the areas listed below:

- RC/V
- Administrative Craft I/O Messages
- Traffic Counts
- IMLT (Integrated Mechanized Loop Test)
- External Switch Interfaces
 - LASS (Local Area Signaling Services) - COT (Customer-Originated Trace)
 - LASS - BCLID (Bulk Calling Line Identification)
 - MSS (Message Service Systems)
 - ACD-MIS (Automatic Call Distributor - Management Information System)
 - LTOLLCON (Local Toll Connecting Trunks) - Used for third party ANI service
 - PRI (Primary Rate Interface), when provisioned to support Calling Party number screening
 - PRI (Primary Rate Interface), when provisioned to support Calling Party number screening
 - ASI-Proxy (Advanced Services Interface)
 - EDS (Electronic Directory Service)
- ISDN SPID

NOTE: These areas have interfaces with OS (Operational Support) Systems and/or external switch interfaces. Corresponding changes may be needed in the OS systems and external equipment interfacing with the switch. Some of the impacts occur only if this secured feature is turned on. Other impacts occur during a generic retrofit, whether or not the feature is turned on.

4.1 RC/V Impacts

Since the same NXX code value can be assigned with two or more NPA codes, 7-digit directory numbers will no longer be sufficient to uniquely identify a line. Thus RC/V Views containing DNs (and TNs (Telephone Numbers)) are changed. OS Systems providing RC/V support must be compatible with these changes. The following summarizes the new RC/V operation. For more details and exceptions to these general rules see, Lucent Technologies "Recent Change Reference 5E12 Software Release" Practice 235-118-253.

Both when this feature is active and when this feature is not active:

- In general, either 7 or 10-digit directory numbers may be entered into the RC/V Views, in both key fields and non-key fields.
- Although the DN may be entered as a 7-digit number, in non-key fields displays of DN information in these fields will show their full 10-digit representation.
- DNs entered in key fields may be entered with either their 7 or 10-digit representation, and the key field will display the DN with the same number of digits that was entered.
- With regard to the following Class A Views which treat the directory number as a range of TNs, the directory number information will be required to be 10 digits. If less than 10 digits is entered for either end of the range, an error message will be returned, even if either or both ends of the range are unique DNs.

— A.2 MULTIPLE LINE QUERY

— A.9 PRESUBSCRIBED INTER-LATA (Local Access Transport Area) CARRIER REPORT

— A.12 SCD (SELECTIVE CARRIER DENIAL) CARRIER REPORT

— A.13 LINE PARAMETER QUERY

When this feature is not active:

- Since all the office codes remain unique, in general 7-digit DNs will be accepted.

When this feature is active:

- In general, either 7 or 10-digit directory numbers may be entered into the ODA forms (RC/V Views), in both key fields and non-key fields. However, when 7-digit directory numbers are entered in an ODA form (RC/V View), whether in key fields or non-key fields, the 7-digit directory numbers will be accepted only if the directory number is associated with an office code that is uniquely defined on the switch. If a 7-digit directory number is entered that is associated with an office code that is not unique, that is the office code value is associated with more than one area code on the switch, the switch does not know precisely which DN is specified, and the request will fail.

4.2 Administrative Craft I/O Messages

Similar to the RC/V screens, if an input message contains a DN as a parameter, the DN must be uniquely identified to the switch. If the switch provides a DN in a field in an output message when office codes are non-unique, in general 10 digits will be presented to avoid ambiguity about which DN is specified. OS Systems interacting with the administrative craft I/O channels must be compatible with these changes. For details and all exceptions to these general rules see, Lucent Technologies "Input/Output Manual" Practice

235-600-700/750, for the 5E12 Software Release.

For input messages:

- Both when this feature is active and when this feature is not active, either 7 or 10-digit directory numbers may be entered for DNs into the input messages.
- When this feature is not active, since all the office codes remain unique, 7-digit DNs will be accepted since they will be unique.
- When this feature is active,
 - Either 7-digit or 10-digit directory numbers may be entered into an input message. However, when 7-digit directory numbers are entered the 7-digit directory numbers will be accepted only if the directory number is associated with an office code that is uniquely defined on the switch. If a 7-digit directory number is entered that is associated with an office code value that is not unique, that is the office code value is associated with more than one area code on the switch, the switch does not know precisely what DN is specified, and the input message request will fail.

When directory numbers are entered in an input message with all 10 digits, whether the associated office code is unique or not, the switch will process the requested operation.

For output messages:

- A RC/V controlled attribute on View 8.1 called "ROP DISP DN 10" will allow the switch to output either 7-digit DNs or 10-digit DNs. This control defaults to the current operation which sends 7 digits to the interface. While all the office codes on the switch are unique, whether this feature is active or not active, this attribute can be changed so either 7 or 10 digits are sent out. When this feature is active and one or more office codes become non-unique, although the value of the attribute can be changed, the attribute no longer controls how many digits are printed to represent DNs. The switch internally recognizes that one or more office codes are non-unique and prints 10-digit DNs for all office codes to avoid ambiguity about which DN is specified. This attribute similarly controls the Customer Originated Trace output message with regard to whether 7 or 10-digit called party DNs are output.

Some cases will remain where 7-digit DNs will need to be entered and/or output even for DNs in non-unique office codes, and other cases occur where a 10-digit DN or TN is required even if the office code is unique. For example, in the VFY:OFC command the parameter "DIG" specifies which DN is called. It needs to agree with the dialing plan used by the DN specified as the originator. These cases will be identified in the 5E12 version of the Input/Output Messages Manual.

Examples of other exceptions include:

- The OP:OFR input message will allow only 7-digit TN ranging. However, it will also allow a new secondary optional range of NPAs. If a 7-digit TN is non-unique, all the 7-digit TNs will be dumped to the office record. No error will be provided. For example,

```
op:ofr:form=5109,tn=2200100-2870100
```

will dump all TNs within that range, giving the full 10-digit TN in the output. If there are non-unique TNs, they will all (i.e., all NPAs) be dumped in the output. However, including the optional "npa=" parameter,

such as

```
op:ofr:form=5109,tn=2200100-2870100,npa=630
```

will dump all TNs within the range, (full 10-digit output), but only for area code 630. This operation occurs both when this feature is active and when this feature is not active.

- When the TN information is entered for the tst:grc input message (also available as grc:test),

```
TST:GRC,NAME=a[SECT=b],TN=c[-d]
```

```
GRC:TEST,NAME=a[SECT=b],TN=c[-d]
```

it can be entered as a single TN or a range of TNs. The following rules will apply:

- If a single TN is entered the general rule established above applies.
- If a range of TNs is entered, then a check will be made to ensure that the range is entered using 10-digit TNs. If less than 10 digits are entered for either end of the range, then an error message will be returned.

This operation occurs both before the NPA-NXX Growth feature is activated and after the feature is activated.

- The VFY:CPU input message supports the specification of both a single TN or a range of TNs. The following operation occurs both when this feature is active and when this feature is not active.
 - When a single TN is entered it must be entered as a 10-digit TN.
 - If a range of TNs is entered, only a range specified with 10 digits for both ends of the range will be supported. Otherwise, an error message shall be returned.
 - The output resulting from the VFY:CPU command will always be in 10-digit format, without regard to the value of the setting of the "administrator" control or the "non-unique" control.
- Input Message: ALW:AMATRC: If the NPA-NXX Growth feature is active, the AMA (Automatic Message Accounting) trace (i.e. ALW:AMATRC) will only allow tracing on entered 10-digit numbers.
- Output from VFY:MLHG Input Message: The output representing DN information resulting from the VFY:MLHG input command will always be in 10-digit format. This is true whether the feature is active or not active.
- VFY:OFC input message: The vfy:ofc input message currently will accept either a 7-digit or a 10-digit originating DN (i.e. the "a" field in both the input and output messages), per the general rules for I/O messages. The corresponding DN in the output message shall be formatted as follows:
 - If the input DN was entered as a 7-digit number, the corresponding output DN shall be output as either a 7-digit DN or a 10-digit DN. If either the "ROP DISP DN 10" attribute on View 8.1 is set to print 10-digit DNs, or the switch has at least one non-unique office code, 10-digit DNs will be printed. Otherwise, 7-digit DNs will be printed.

- If the input DN was entered as a 10-digit DN, the corresponding output DN shall be output as a 10-digit DN.
- OP:ACSR/DUMP:ACSR Output Messages: The following is supported both when this feature is active and when this feature is not active. The DN output from these messages shall always be in 10-digit format.
 - OP:ACSR (administrative I/O output message)
 - DUMP:ACSR (administrative I/O output message)
- With regard to the DN information that was input, the following administrative I/O input messages shall follow the general rules for administrative I/O input commands.
 - OP:ACSR (administrative I/O input message)
 - DEL:ACSR (administrative I/O input message)

4.3 Measurements TRFC30

Measurements TRFC30, sections 128 and 199 have been used to provide traffic data on directory numbers, and have listed the DNs as 7-digit numbers. Sections 235 and 236, corresponding respectively to sections 128 and 199, will specify the DNs in 10-digit format.

- If this feature is not active, sections 128 and 199 will continue to be used.
- If this feature is active, new sections 235 and 236 are provided to provide the directory numbers in 10-digit format.

Recent Change Views 13.7, 13.8 and 13.10 (13.10 is new in 5E12) will be used with these new section numbers.

OS Systems monitoring the traffic channels must be compatible with these changes.

4.4 IMLT (Integrated Mechanized Loop Test)

The IMLT and the IMLT/ISDN will be affected by this feature.

When this feature is not active, the IMLT and the IMLT/ISDN will:

- continue to use a 7-digit DN to communicate with the switch, and
- will also accept 10-digit DNs.

When this feature is active, the IMLT and the IMLT/ISDN will need to:

- support 10-digit DNs to test DNs in non-unique office codes, and

- will be able to test directory numbers in unique NXXs by specifying either 7 or 10-digit DNs.

OS Systems providing IMLT support must be compatible with these changes.

4.5 Summary Table

The following table summarizes the above text. The entries for RC/V, Craft I/O and MLT indicate for each case whether 7 or 10 digits will be accepted by the switch. The TRFC30 row shows when the old sections will be used, and when the new sections will be used.

Capability	Feature Not Active	Feature Active		
		All NXXs Unique	At Least One NXX Non-Unique	
			To specify Unique DN	To Specify Non-Unique DN
RC/V Entry	7 or 10*	7 or 10*	7 or 10*	10*
RC/V Display	10*	10*	10*	10*
Craft I/O Entry	7 or 10*	7 or 10*	7 or 10*	10*
Craft I/O Output	7*, **	7*, **	10*	10*
TRFC30 Traffic	Sections 128 and 199	Sections 235 and 236	Sections 235 and 236	Sections 235 and 236
Integrated MLT	7 or 10	7 or 10	7 or 10	10

* Check the RC/V Reference Manual or the Craft I/O Manual for exceptions to the rule.

** A RC/V option allows the craft to force the output message to contain 10-digit DNs.

4.6 External Equipment Impacts

The following switch features/interfaces exchange directory number information with equipment located on the customer's premise or elsewhere in the switching center. If non-unique directory numbers are supported, the customer premise equipment may need to be configured or upgraded to support 10-digit directory numbers, as specified in the following text:

- COT - The LASS Customer Originated Trace feature currently prints the called number (i.e. COT originator's DN) as a 7-digit number. Under control of the field mentioned in the Craft I/O section called "ROP DISP DN 10", the called party number can be printed out as either a 7-digit DN or as a 10-digit DN. The attribute defaults to maintaining the current operation of printing 7-digit DNs, but can be changed both before this feature is activated and after this feature is activated. However, note that when this feature is active and one or more office codes are non-unique, the "ROP DISP DN 10" field no longer will affect what is printed. The customer trace output message will always print the COT originator's DN as a 10-digit DN.

BCLID - The called party number is currently sent to the CPE as a 7-digit DN. If the 7-digit number that is currently sent is sufficient for the subscriber to uniquely define the DN, they do not need to receive 10-digit DNs, even if the office code is non-unique in the switch office. If a business customer is subsequently assigned two or more DNs with the same office code, but the two DNs are associated with different area codes, the switch can be provisioned to send 10-digit called party numbers to the BCLID interface, and the business customer would then be required to configure or upgrade their customer premise equipment to accept 10-digit called party numbers.

The field "BCLID DN 10" on RC/V View 4.62 controls what is sent on the BCLID interface. It defaults to sending the current 7-digit called party DN.

The ability to provision the BCLID interface to send the called party DN as a 10-digit number is available

both when this feature has not been activated and after this feature is activated.

■ **NOTE:** The CALLING party DN is already sent via the BCLID interface as a 10-digit number.

MSS - The interface with existing MSS (Message Service System) systems is grandfathered so that existing systems that exchange 7-digit DN information with the switch may continue to do so. This is accomplished by having the switch remember the area code associated with each office code while the office codes are still unique (e.g. at retrofit). When the office codes become non-unique but the switch is still provisioned to support a 7-digit interface with the MSS, the switch will examine received office codes and prepend them with the remembered area code. It will send messages to the MSS in 7-digit format. Through this process, so long as the 7-digit number is still unique to the MSS system, the MSS system can continue to use the 7-digit DN interface.

However, if an existing office code is also opened up on the switch in a different area code, making the existing office code non-unique (i.e. office code 555 exists in area code 630 on the switch, and then office code 555 in area code 312 is opened on the switch), if the MSS service provider wants to support lines in the new 312-555 NPA-NXX, it must exchange DNs in the full 10-digit format. This is true even if the MSS Service provider does not provide service to anyone in the original 630-555 NPA-NXX. The switch only remembers the area code that was associated with that office code value when it was unique, not the new area code, and will prepend a received 7-digit number with the wrong area code if the switch is not provisioned to accept 10-digit DNs from the MSS. Thus both the MSS CPE and the switch must be provisioned to support the exchange of 10-digit DNs.

Similarly, a MSS service provider may want to extend their service to DNs in non-unique office codes. Using the above example, the MSS service provider already provides service to a DN in 630-555, and now also wants to provide service to a DN in 312-555. In this case the MSS CPE will also need 10-digit DNs to uniquely identify the directory number. In this case the CPE equipment connected to the switch's MSS interface needs to be configured or upgraded to exchange the DN as a 10-digit directory number, and the switch also must be provisioned to exchange DNs in 10-digit format.

The ability to provision the MSS interface to exchange 10-digit numbers is available both when this feature has not been activated and after this feature is activated. The field "ALW DUP NXX" on RC/V View 24.7 controls whether the switch supports a 7-digit MSS interface or a 10-digit MSS interface. It defaults to supporting the current 7-digit DN interface.

If the MSS NXXs are part of an NPA split where DNs exist on the same switch in both the old NPA and the new NPA, the DNs in the new area code will no longer be associated with the default NXX, and thus will require a 10-digit interface between the switch and the CPE.

ACD-MIS - The PINNACLE ACD (Automatic Call Distributor) capability exchanges DN information with customer premise equipment across two interfaces, (1) the PINNACLE Call Event Messages data link, and (2) a standard RC/V OS interface, both which are upgraded to support 10-digit DNs. These interfaces will change during retrofit to 5E12.

Prior to retrofit, all switches that support PINNACLE ACD and are retrofitting to Software Release 5E12 should notify the AIU and MIS administrators of the date when the retrofit will occur. Notification should occur soon enough so the administrators can order the required AIU and MIS software, and plan the transition with switch personnel. The AIU and MIS administrators will need to update their respective systems to indicate that they are connected to a switch that is operating on Software Release 5E12. In addition, the MIS administrators will need to execute a conversion utility to update 7-digit TNs to 10-digit TNs. The update to the AIU and MIS are required whether or not this feature is activated.

- LTOLLCON - There are some applications where service providers may be delivering ANI information from originating switches directly to third party providers, possibly pay-per-view vendors, via LTOLLCON (Local Toll Connecting) trunks. Service providers need to work with the third party providers to assure the pay-per-view vendors can support the additional office codes and especially area codes which may be employed through the use of this feature. This is an unusual non-traditional interface to have with a third party vendor, so extra care should be taken to identify if this situation is occurring in your company. Since ANI is delivered as a 7-digit number, a trunk group per NPA will be required, just as it is today for switches supporting multiple area codes.
- PRI - If a PRI (Primary Rate Interface) is used to initiate calls to the switch, and both:
 - the PRI is connected to a PBX (Private Branch Exchange) or other device that is supporting multiple area codes, and
 - the PRI is provisioned to support Calling Party number screening,
 the Calling Party Number Information Element (IE) should be sent to the switch as a 10-digit number.
- ASI-Proxy - When the Subscriber ID for a line has not been provisioned, the ASI-Proxy feature defaults to sending the DN of the line to the IP (Intelligent Peripheral). Currently the DN is sent as 7 digits. If the 7 digits are ambiguous, the switch can be provisioned to send a full 10-digit DN. The IP in this case must also be provisioned/capable of accepting a full 10-digit DN. The attribute on RC/V View 8.1 called "ASISID10" controls this capability. It can only be set to send 10 digits if the NPA-NXX Growth feature is active.
- EDS - Any Electronic Directory Service AP (Application Processor) CPE (Customer Premises Equipment) supporting DNs that are assigned in NPAs other than the default NPA must send 10-digit DNs to the switch in Electronic Directory Service messages. Similarly, the EDS AP CPE must be able to accept 10-digit DNs from the switch for DNs associated with NPAs that are not the default NPA. These considerations affect the Auto Call capability, which allows the initiation of a call from the AP EDS CPE, and the Directory Query EDS feature. If the EDS NXXs are part of an NPA split where DNs exist on the same switch in both the old NPA and the new NPA, the DNs in the new area code will no longer be associated with the default NXX, and thus will require a 10-digit interface. This is similar to the interface with the MSS CPE mentioned above.
- FM (Facilities Management) TOD (Time-of-Day). Code List Names for FM - TOD (also known as TOD Group Names) prior to this feature consisted of up to eight character names. The name could be provisioned by the craft using any combination of alpha-numeric characters (i.e. numbers 0-9 or alphabets A-Z) except they were not to start with the letter "T". If the switch was generating a default Code List Name for a TN the switch used the letter "T" followed by the 7-digit DN.

The situation with the introduction of the NPA-NXX Growth feature is the same, except the Code List Names for TOD can be up to eleven characters long. With the introduction of this feature the switch uses the letter "T" followed by the 10-digit DN, now including the NPA of the DN, if the switch is generating a default Code List Name for a TN.

Only default Code List Names generated by the switch are impacted by this feature. (Note, this assumes that the craft did not create any eight character Code List Names beginning with the letter "T", which were reserved for switch generated default Code List Names.) At retrofit, default eight character Code List Names (i.e. beginning with the letter "T") are converted to default eleven character Code List

Names.

Although the switch will be supporting a name up to eleven characters, the CPE at the other end of the data link may or may not have been upgraded to support names up to eleven characters. The interface with existing FM-TOD CPE systems is being grandfathered so that existing systems that exchange eight character default Code List Names with the switch may continue to do so. This is being accomplished by having the switch remember the area code associated with each office code while the office codes are still unique (e.g. at retrofit). When the office codes become non-unique but the switch is still provisioned to support an eight character default Code List Names with the FM-TOD CPE, the switch will examine received office codes and prepend them with the remembered area code. The switch will send messages to the FM-TOD CPE in eight character default Code List Name format. Through this process, so long as the eight character default Code List Names is still unique to the FM-TOD CPE system, the FM-TOD CPE system can continue to use the eight character default Code List Names interface.

However, if an existing office code is also opened up on the switch in a different area code, making the existing office code non-unique (i.e. office code 555 exists in area code 630 on the switch, and then office code 555 in area code 312 is opened on the switch), if the FM-TOD CPE service provider wants to support lines in the new 312-555 NPA-NXX, it must exchange Code List Names in the full eleven character format. This is true even if the FM-TOD CPE Service provider does not provide service to anyone in the original 630-555 NPA-NXX. The switch only remembers the area code that was associated with that office code value when it was unique, not the new area code, and will prepend a received eight character Code List Name with the wrong area code if the switch is not provisioned to accept eleven character default Code List Names from the FM-TOD CPE. Thus both the FM-TOD CPE and the switch must be provisioned to support the exchange of eleven character Code List Names.

Similarly, a FM-TOD CPE service provider may want to extend their service to DNs in non-unique office codes. Using the above example, the FM-TOD CPE service provider already provides service to a DN in 630-555, and now also wants to provide service to a DN in 312-555. In this case the FM-TOD CPE will also need eleven character Code List Names to uniquely identify the directory number. In this case the CPE equipment connected to the switch FM-TOD CPE interface needs to be configured or upgraded to exchange the Code List Name as a eleven character Code List Name, and the switch also must be provisioned to exchange eleven character Code List Names.

The ability to provision the FM-TOD CPE interface to exchange eleven character Code List Names is available both when this feature has not been activated and after this feature is activated. Recent Change attribute "ALW DUP NXX" on View 24.7 controls whether the switch supports an eight character default Code List Name FM-TOD CPE interface or a eleven character default Code List Name FM-TOD CPE interface. It defaults to supporting the current eight character Code List Name interface.

If the FM-TOD CPE NXXs are part of an NPA split where DNs exist on the same switch in both the old NPA and the new NPA, the DNs in the new area code will no longer be associated with the default NXX, and thus will require an eleven character interface between the switch and the CPE.

After reading the above discussions on impacts to the external equipment interfaces and the impacts to the OA&M (Operations, Administration and Maintenance) of the switch, these impacts should be considered with regard to a NPA split environment. Previously both the OA&M and the external connections to the switch were for the most part not affected by a NPA split since OA&M and the external switch interfaces were carried on with 7-digit DNs, and the NPA was rarely significant in these interactions. When non-unique office codes are introduced to the switch this changes. The OA&M and external interfaces now are supported with the NPA, and careful consideration must be given to each interface to determine what is needed to successfully support the NPA split, and how and when the external equipment, including both OSs and CPE, must change to support the new NPA.

4.7 ISDN SPIDs

There are no changes to the underlying rules for provisioning USPIDs (User Service Profile Identifier) on the switch. However, note the following discussion on how USPIDs are formed, and the implications for the service provider.

A USPID (User Service Order Profile Identifier) is assigned for each USOP (User Service Order Profile) assigned on an ISDN line. The USPID, the provisioned portion of the SPID, is chosen by the service provider when the USOP is assigned to the ISDN line, and is:

1. entered via a RC View into the switch and
2. programmed into the CPE's SPID.

Each USPID MUST BE UNIQUE on the switch. For Custom ISDN, the USPID is the same as the SPID and can be from one to 10 digits long. For National ISDN, the USPID can be from one to eighteen digits long, and the SPID includes the USPID plus a two digit TID. Although the SPID can be up to twenty digits long in National ISDN, the National ISDN Council has recommended the use of a fourteen-digit SPID which provides for a 10-digit DN.

A common algorithm used by the service provider to assign USPID values, especially for Custom ISDN, produces a 10-digit USPID that includes the 7-digit DN (i.e. without the NPA). When this feature is active, depending on the information encoded in the additional 3 digits, using 7-digit DNs may no longer produce unique USPIDs. The service provider must adopt a different algorithm for creating SPIDs, taking into consideration the 10-digit limitation for Custom USPIDs, and all currently assigned Custom and National USPIDs (i.e., USPIDs already programmed in the CPE's SPID cannot be changed without also reprogramming the CPE).

Thus since the 7-digit DN is no longer a guarantee of a unique DN on the switch, service providers should examine the algorithms they use for generating SPIDs, with the expectation of changing the algorithms to insure that the SPIDs are unique.

5. ROUTING INFORMATION

"Routing Information" is defined as the digits a switch sends to the next switch, associated with a specific trunk circuit, to complete a telephone call to the next switch. The digits may be sent in the voice band on an MF (Multi-Frequency) trunk, or in a SS7 (Signaling System 7) IAM (Initial Address Message) message on a SS7 trunk.

This feature does not alter the principles or rules employed to set up a routing plan for completing calls between switches. However, if an office code has been unique on a switch, but that office code is opened up in a second area code on the same switch, the routing plan must take into account that the office code is not unique. For instance, calls may have completed to the original NPA-NXX using the last 5 digits of the dialed number. Clearly the routing digits must uniquely define the destination DN. The digits specified for routing calls to the new NPA-NXX must uniquely define the new NPA-NXX. (1) This might cause the routing digits used to reach the original NPA-NXX to change. (2) The new NPA-NXX cannot also route on the last 5 digits of the DN.

6. 10-Digit Dialing

The "Number Portability - NPA-NXX Growth" feature provides the ability for certain features, listed below, to

operate properly in a dial plan that consists of 10-digit dialing, and only 10-digit dialing, where 10 digits are required to reach all directory numbers, even directory numbers on the same switch in the same area code as the calling party's directory number. In the context of this section, a dial plan that requires the subscriber to dial 10 digits for all directory numbers will be called mandatory 10-digit dialing. If only 7-digit dialing is used, or if the dial plan allows the subscriber to use either 7-digit dialing or 10-digit dialing (called permissive 10-digit dialing in this section), this feature is not required to support mandatory 10-digit dialing.

The ability to support mandatory 10-digit dialing is also provided under SFID 275, "10-Digit Office Dialing Plan" feature (See 4a275 for details on SFID 275.). However, the two features are compatible with each other and both may be active in a switch at the same time.

Use of any of the features in the following list requires the purchase of SFID 198 or SFID 275 in an office that has mandatory 10-digit dialing:

- ISDN Intercom
- ISDN Attendant Direct Station Select
- Series Completion to a Multi-Line Hunt Group
- Directed Call Pickup of a Pre-Stored DN
- Terminal Group Attendant
- ACD/BRCS
 - Queue Dialing
 - Agent Intercom
 - Service Observe
 - Third Party Call Control
- Remote Access, including RACF (Remote Access to Call Forwarding) and RASI(Remote Access to ASI-Proxy) (The Remote Access capability changes an announcement in the RAF and SAS frames. This requires the circuit pack supporting the announcement to be upgraded to support the new announcement.)
- Automatic Customer Station Rearrangement

When both the 10-Digit Office Dialing Plan feature and the "Number Portability - NPA-NXX Growth" feature are inactive (i.e., not purchased), the above features will not work in an office with mandatory 10-digit intra-switch dialing. If the office is in a permissive state (7 or 10-digit intra-switch dialing is allowed), the features will work correctly.

When either the "10-Digit Office Dialing Plan" feature or the "Number Portability - NPA-NXX Growth" feature is active, or both are active, the above features work correctly in an office with mandatory or permissive 10-digit intra-switch dialing.

7. FEATURE ASSIGNMENT

7.1 Feature Activation/Deactivation

To activate this feature, the ACT field for SFID 198 must be "Y" on the SFSYS form (5713-1 Record).

The NOC form now allows 8,190 NPA-NXX codes to be assigned to the switch.

Prior to setting a "non-unique" NXX, i.e., when each NXX is assigned to only one NPA, the following text describes the format of the DN sent to both the ROP and to the LASS Customer Originated Trace data link, and whether the craft have any control over the format of the DN sent to these devices:

- The default is to send 7-digit DNs.
- The "ROP DISP DN 10" can be set to send 10-digit DNs.
- The "ROP DISP DN 10" can continue to be reset/set to send either 7 or 10 digits.

Once a single NXX has been assigned to more than one NPA the following text describes the format of the DN sent to both the ROP and to the LASS Customer Originated Trace data link, and whether the craft have any control over the format of the DN sent to these devices:

10-digit DNs are sent to the aforementioned interfaces.

The "non-unique" control is set and cannot be reset.

Thus when the first NXX is assigned to more than one NPA the "non-unique" control is set. The "non-unique" is not accessible to the craft (i.e. they cannot reset it). Also, the "non-unique" control has precedence over the "ROP DISP DN 10" attribute, so although the "ROP DISP DN 10" can be both set and reset, its value does not control what format of DN is sent to the interfaces.

DN processing:

- If a 10-digit DN is entered on a form, the DN will be accepted even if the feature is not active.
- If a 7-digit DN is entered on a form and the NXX is assigned to only 1 NPA, the DN is accepted.
- If a 7-digit DN is entered on a form and the NXX is assigned to more than one NPA, an error condition will be reported.

8. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACBLPA	5616-2	4	17B	1.20
ACCTLPA	5623-4	4	24D	1.42
ACDTN	5631-1	4	32A	6.10
ACQS	5425	3	4Z	26.11
ACSRLPA	5959-3	6	2C	1.49
ACVTLP	5967-3	6	10C	1.46
AMLBDLS	5447	3	4AV	21.34
ANNDG	5532	3	5AF	8.60
ANNTR	5533	3	5AG	8.62
APGFP	5620-2	4	21B	24.4
ARSFD	5608-1	4	9A	12.11
ARSLPA	5608-3	4	9C	1.21
ARSMPA	5608-4	4	9D	1.21

ARSSCRN	5608-6	4	9F	10.6
ARSTPA	5608-5	4	9E	5.21
ASILPA	5630-2	4	30B	1.61
ASPLPA	5632-2	4	31B	1.64
ATHLPA	5619-5	4	20E	1.41
BCLIDGP	5629-2	4	29B	4.62
BCLIDLPA	5629-4	4	29C	1.62
BFG	5625	4	26A	12.9
CAICOM	5984	6	3D	23.23
CARSCR	5551	3	6B	1.60
CFGGRP	5964	6	7A	12.5
CFWLPA	5614-3	4	15B	1.22
COTH	5513	3	5M	11.2
CQPARM	5640	4	32E	6.4
CWTLPA	5603-2	4	4B	1.24
DRLPA	5606-2	4	7B	1.25
DSL	5907	5	1H	23.2
DSLAP	5963	6	6A	24.7
DSLQMON	5904	5	1E	23.17
DSLUSR	5908	5	1I	23.2
EDSLPA	5961-3	6	4C	1.38
EMRNM	5108	3	1H	4.9
EMROFC	5116	3	1P	4.9
FTRKEY	5613	4	14A	4.3
HGRPAS	5115	3	1O	4.14
IDPLPA	5601-6	4	2F	1.26
ICMGP	5960-2	6	3B	4.24
ICMLPA	5960-3	6	3C	1.45
INDIT	5309	3	3V	9.5
LDIT	5300	3	3C	9.3
LINE	5109-1	3	1I	1.6
LINEFA	5112	3	1L	1.8
LINESCRN	5416	3	4Q	26.2
LSACLPA	5970-2	6	13B	1.47
LSARLPA	5971-2	6	14B	1.48
LSSLE	5981	6	24	4.48
MCRTIDX	5304	3	3Q	10.4
MDRLPA	5624-4	4	25D	1.33
MEASSUM	5563	3	5BG	13.9
MLDIT	5300-3A/B	3	3C	9.15
MLHG	5110	3	1J	3.5
MLHLN	5111	3	1K	1.6
MSLPA	5962-3	6	5C	1.37
MSUSP	5530	3	5AD	8.13
MTNDR	5550	3	6A	1.9
MULTITN	5114	3	1N	3.3
MWLPA	5602-3	4	3B	1.27
NOC	5501	3	5A	8.2
OFCOPT	5509	3	5I	8.1
PFAINWT	5609-4	4	10D	7.4
PFALPA	5609-6	4	10F	1.28
PFASFG	5609-3A/B	4	10C	7.3
PIDEF	5117	3	1Q	4.39
PPLPA	5618-3	4	19C	1.31
PPSCRN	5618-2	4	19B	10.31
PHRASE	5534	3	5AH	8.63
PSCUG	5924	5	3E	23.10
PSMTN	5925	5	3F	23.12
PSPVC	5923	5	3D	23.11
PULPA	5605-3	4	6C	1.23
PUMPA	5605-4	4	6D	1.23
PUOFD	5605-1a	4	6A	12.13
RAR	5301	3	3F	10.10
RDIT	5300-7a	3	3H	9.9
RDTAPORT	5911A/B	5	1L	22.17
RTIDX	5303	3	3P	10.2
SCFD	5627-1	4	27A	12.51
SCLIST	5627-5	4	27E	4.2
SCLPA	5627-2	4	27B	1.51

SCMPA	5627-3	4	27C	1.51
SCTPA	5627-4	4	27D	5.51
SHTN	5902-1	5	1C	23.20
TGATTD	5611	4	12A	4.4
TGSRLPA	5607-3	4	8B	1.29
TKGRP	5202	3	2A	5.1
TLWS	5511	3	5K	14.3
TODCL	5610-2	4	11B	4.5
TODLPA	5610-3	4	11C	1.30
TODMPA	5610-4	4	11D	1.30
TODTPA	5610-5	4	11E	5.30
XAT	5909-1	5	1J	23.40

ACBLPA form (5616-2) - The 5616-2 Record contains non-mlhg line parameters for Auto Call-Back Feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

ACCTLPA form (5623-4) - The 5623-4 Record contains information needed to describe the Account Code line parameters. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

ACDTN form (5631-1) - The 5631-1 Record is used by the ACD/BRCS (Automatic Call Distributor/Business and Residential Custom Services) feature to define the ACD directory number or the DAA (Direct Agent Access) directory number. For 5E12 and later, added data rules to the TN field.

ACQS form (5425) - The 5425 Record defines the characteristics of an Automatic Charge Quotation Service (ACQS) establishment. For 5E12 and later, changed the valid values for TRUE BILL TN and added data rules to the TRUE BILL TN field.

ACSRLPA form (5959-3) - The 5959-3 Record defines the Automatic Customer Station Rearrangement line parameters. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

ACVTLPA form (5967-3) - The 5967-3 Record defines the per port data associated with the Attendant Control Constructed Feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

AMLBDSL form (5447) - The 5447 Record is used to collect data for OSPS external data base digital subscriber lines. For 5E12 and later, changed the valid values for PKT TN and added a data rule to the PKT TN field.

ANNDG form (5532) - The 5532 Record contains a list of inflection commands and phrases used to convert a digit string into a set of phrase identifications. For 5E12 and later, added new default data.

ANNTR form (5533) - The 5533 Record lists phrases that identify the announcement trailer. For 5E12 and later, added new default input data.

APGFP form (5620-2) - The 5620-2 Record form indicates if the customer has Trunks measurement specified. This also indicates what group types are using Facilities Management and/or Traffic Data to Customer Location capabilities. For 5E12 and later, changed the valid values for GROUP NO/GROUP NAME.

ARSFD form (5608-1) - The 5608-1 Record contains information needed to describe the Automatic Route Selection feature definition. For 5E12 and later, changed the valid values for PRIVATE DN.

ARSLPA form (5608-3) - The 5608-3 Record provides a mean to create an ARS Line (keyed by TN) form which overwrites the Default Parameters on the corresponding ARSFD form. For 5E12 and later, changed the valid values for TN and PRIVATE DN. Also added data rules to the TN field.

ARSMPA form (5608-4) - The 5608-4 Record provides a mean to create an ARS Line (MLHG/TERM) form

which overwrites the Default Parameters on the corresponding ARSFD form. For 5E12 and later, changed the valid values for PRIVATE DN.

ARSSCRN form (5608-6) - The 5608-6 Record is used on a per parameter basis, an index screens out disallowed routes for the ARS feature. For 5E12 and later, added the NPA field and added a data rule to the NXX field.

ARSTPA form (5608-5) - The 5608-5 Record provides a mean to create an ARS Trunk (keyed by TGN/MEMB) form which overwrites the Default Parameters on the corresponding ARSFD forms. For 5E12 and later, changed the valid values for PRIVATE DN.

ASILPA form (5630-2) - The 5630-2 Record provides a mean to create an ASI Line (keyed by TN) form which overwrites the Default Parameters on the corresponding ASIFD form. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

ASPLPA form (5632-2) - The 5632-2 Record defines the per port data associated with the Advanced Services Platform Feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

ATHLPA form (5619-5) - The 5619-5 Record contains information needed to describe the Authorization Code line parameters. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

BCLIDGP form (5629-2) - The 5629-2 Record defines the group parameter data associated with a BCLID group. For 5E12 and later, added the BCLID TN 10 field.

BCLIDLPA form (5629-3) - The 5629-3 Record defines BCLID (Bulk Calling Line ID) Line Parameters. For 5E12 and later, changed the valid values for TN.

BFG form (5625) - The 5625 Record contains information for the BRCS Feature. For 5E12 and later, changed the valid values for DPU TN, PRIVATE DN, SC1 LIST, and SC2 LIST fields and added data rules to the DPU TN field.

CAICOM form (5984) - The 5984 Record contains information needed to describe ISDN Call Appearance Intercom (CA-ICOM). Used to assign an Intercom Group to call appearances on a Standard ISDN EKTS CACH terminal and to assign the Primary ISDN TN of that terminal to a position in For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

CARSCR form (5551) - The 5551 Record is used for the assignment of selective carrier screening to lines. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

CFGGRP form (5964) - The 5964 Record is used to define configuration groups for terminal assignments. For 5E12 and later, changed the valid values for PARAM and added a data rule to the ACTION field.

CFWLPA form (5614-3) - The 5614-3 Record contains non-mlhg line parameters for call forwarding feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN and FEATURE fields.

COTH form (5513) - The 5513 Record is used to gather and build data associated with cutover by thousands group. for 5E12 and later, added the NPA field and added data rules to the OFFICE CODE field.

CQPARM form (5640) - The 5640 Record is used to supply call queue information. For 5E12 and later, changed the the description for the ACD OR DAA TN field.

CWTLPA form (5603-2) - The 5603-2 Record contains non-mlhg line parameters to construct a Call Waiting feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

DRLPA form (5606-2) - The 5606-2 Record contains non-mlhg line parameters to construct a Distinctive Ringing Feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

DSL form (5907) - The 5907 Record is used to collect data for digital subscriber lines. For 5E12 and later, added the CUT NPA field, changed the valid values for PPB1 and PPB2 TN, PPB1, PPB2 LNR HNT and added data rules to CUT DGTS, PPB1 and PPB2 TN, and PPB1 and PPB2 LNR HNT TN fields. Also added data rules to DISCN. Display Only fields CKT NEW TN, DPKT NEW TN, ODB NEW TN, PPB1 NEW TN, and PPB2 NEW TN are added.

DSLAP form (5963) - The 5963 Record is used for defining the communication path between an application process running in the 5ESS-2000 Switch, and an application running in an application processor. For 5E12 and later, added the ALW DUP NXX field.

DSLQMON form (5904) - The 5904 Record allows for providing a list of Multi-Line Hunt Group Numbers that this DSL Monitor will Monitor. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

DSLUSR form (5908) - The 5908 Record is used to collect data for digital subscriber lines. For 5E12 and later, changed the valid values for CKT TN, DPKT TN, ODB TN, CKT MLHG TN, SERHL, DPKT MLHG TN, DPKT LNR HNT TN, ODB MLHG TN, ODB LNR HNT TN. Also added data rules to DPKT TN, DPKT MLHG TN, DPKT LNR HNT TN, ODB LNR HNT TN, SERHLN, CKT TN, ODB TN, CKT MLHG TN, ODB MLHG TN, and ODB LNR HNT TN fields.

EDSLPA form (5961-3) - The 5961-3 Record associates a Directory Number with an (EDS) Electronic Directory Service feature and an EDS group. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

EMRNM form (5108) - The 5108 Record is used to define the remote (Remote Site) and/or Local SM Emergency TN assignments for Remote Site Stand-Alone or SM isolation operation. For 5E12 and later, changed the valid values for ALT TN and added a data rule to the ALT TN field.

EMROFC form (5116) - The 5116 Record is used to define the AM Emergency TN alternate routing assignments for Isolation or Stand-Alone operation of SM(s) or Remote Site(s) that contain the called Emergency TN(s). For 5E12 and later, changed the valid values for ALTERNATE TN and added data rules to the ALTERNATE TN field.

FTRKEY form (5613) - The 5613 Record provides the Feature Key Function List. For 5E12 and later, changed the valid values for TN and added a data rule to the TN field.

HGRPAS form (5115) - The 5115 Record provides Hundreds Groups Assignment of the Routing SM to support Distributed Line Terminations for Phase 1 of Distributed Call Processing or of the Route Index (which defines the block of 100 TN's reserved for a particular special Route Index). For 5E12 and later, added the NPA field and added Data Rules to the OFFICE CODE field.

ICMGP form (5960-2) - The 5960-2 Record contains information needed to describe the ISDN Intercom group parameters. For 5E12 and later, changed the valid values for PRIMARY TN.

ICMLPA form (5960-3) - The 5960-3 Record contains line parameters to construct an ISDN Intercom feature. For 5E12 and later, changed the valid values for TN and added data rules to the FEATURE field.

IDPLPA form (5601-6) - The 5601-6 Record is used when assigning ID features to non-Multi-Line Hunt lines to assign ID feature parameters to the lines if the default parameters associated with the ID feature are

inappropriate or unspecified. For 5E12 and later, changed the valid values for TN.

INDIT form (5309) - The 5309 Record provides information pertaining to the disposition of incoming calls. That is, it directs incoming calls based on the trunks' directing codes to appropriate translators for either local terminating or tandem treatment. For 5E12 and later, added the BUILD 10 DIGITS and NPA fields. Also added data rules to the NPA and OFFICE CODE fields.

LDIT form (5300) - The 5300 Record defines valid dialed or impulsed digits. For 5E12 and later, added the NPA field to the form and conflict resolution list. Also added data rules to the PORTED IN, OFFICE CODE and NXX fields.

LINE form (5109-1) - The 5109-1 Record is used to create all line records with Telephone Numbers. For 5E12 and later, changed the the TN description under the GENERAL section. Changed valid values for TN and SERHLN and added data rules to the TN field, ALT BILL TN, and SERHLN fields. Display Only field NEW TN is added.

LINEFA form (5112) - The 5112 Record contains information for Feature Assignment, keyed by TN. For 5E12 and later, changed the valid values for TN and added data rules to the TN and FEATURE fields.

LINESCRN form (5416) - The 5416 Record is used to assign a screen code and routing flags to a line or a range of lines. For 5E12 and later, changed the valid values for TRUE BILL TN.

LSACLPA form (5970-2) - The 5970-2 Record contains telephone number parameters to assign an Automatic Callback feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

LSARLPA form (5971-2) - The 5971-2 Record contains telephone number parameters to assign an Automatic Recall feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

LSSLE form (5981) - The 5981 Record contains screening lists associated with LASS selective feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

MCRTIDX form (5304) - The 5304 Record contains options for MC Route Index Expansion. For 5E12 and later, changed the valid values for NEXT ROUTE.

MDRLPA form (5624-4) - The 5624-4 Record provides a means to create a MDR line (keyed by TN) form which overwrites the Default Parameters on the corresponding MDRFD form. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

MEASSUM form (5563) - The 5563 Record is used to define components that have been selected for measurements for some sections of the 30 minute measurements report. For 5E12 and later, added ECDN and EPCS values to the SECTION NAME field. Also changed the valid values for START1COMP.

MLDIT form (5300-3 A/B) - The 5300-3 A/B Record is used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS-2000 Switch. For 5E12 and later, added the NPA field.

MLHG form (5110) - The 5110 Record is used to create Multiline Hunt Group information. For 5E12 and later, changed the valid values for LISTED TN, SUBTN 1-8, and HIGHEST LISTED TN and added data rules to the LISTED TN, HIGHEST LISTED TN, and SUBTN 1-8 fields.

MLHLN form (5111) - The 5111 Record is used to create MLH Line Members. For 5E12 and later, changed the valid values for TN and SERHLN and added a data rule to the TERM field. Also added a data rule to the

SERHLN field.

MSLPA form (5962-3) - The 5962-3 Record contains information needed to describe the Message Service line parameters. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

MSUSP form (5530) - The 5530 Record contains information needed for scan point assignments. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

MTNDR form (5550) - The 5550 Record provides assignment of a distinctive ringing pattern for Individual Lines. For 5E12 and later, changed the valid values for TN and MASTER TN fields. Also added a data rule to the TN field and MASTER TN fields. Display Only field NEXT KEY TN is added.

MULTITN form (5114) - The 5114 Record provides Multiple TN's for mlhg's. For 5E12 and later, changed the valid values for TN, SUB TN, and NEXT TN fields. Also added data rules to the TN, SUB TN and NEXT TN fields.

MWLPA form (5602-3) - The 5602-3 Record contains line parameters for Multiway calling feature. For 5E12 and later, changed the valid values for TELEPHONE NUMBER and added data rules to the TELEPHONE NUMBER field.

NOC form (5501) - The 5501 Record is used to assign NOC's and Route Indices and Charge Indices for Regular Intercept, Blank Number Intercept, Out-of-service Intercept and Denied Intercept for each local office code. For 5E12 and later, changed the NPA field to a required field, and added the BASE NPA, and UNIQUE OFFCOD fields. Also added a data rule to the OFFICE CODE field.

OFCOPT form (5509) - The 5509 Record provides the office option global parameters residing in the Central Processor. For 5E12 and later, added the ASI SID 10 and ROP DISP DN 10 fields.

PHRASE form (5534) - The 5534 Record defines and describes phrase IDs which are provided on the DSU2-RAF. For 5E12 and later, added new default input data.

PFAINWT form (5609-4) - The 5609-4 Record assigns an MLHG INWATS TN to an SFG via an MC Route Index on the the MCRTIDX and PFASFG forms.. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

PFALPA form (5609-6) - The 5609-6 Record provides a means to create a PFA line (keyed by TN) form which overwrites the Default Parameters on the corresponding PFAFD form. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

PFASFG form (5609-3A/B) - The 5609-3A/B Record provides PFA Simulated Facility Group definition. For 5E12 and later, changed the valid values for ATT TN and added a data rule to the ATT TN field.

PIDEF form (5117) - The 5117 Record associates a Personal Identification Number (PIN) with a line. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

PPLPA form (5618-3) - The 5618-3 Record contains non-mlh line parameters to construct an AUTOVON Precedence & Preemption feature. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

PPSCRN form (5618-2) - The 5618-2 Record contains screening information for Precedence & Preemption features. For 5E12 and later, added the NPA field and added a data rule to the OFFICE CODE field.

PSCUG form (5924) - The 5924 Record is used to assign a DSL line that has Packet Switching, to CUG (Closed User Group). For 5E12 and later, changed the valid values for PKT TN and added data rules to the

PKT TN field.

PSMTN form (5925) - The 5925 Record is used to assign Modem Pool access TNs (MLHG) to DSL lines that have Packet Switching. For 5E12 and later, PKT TN and ACCESS TNs are expanded to 10 digits. Also added data rules to the PKT TN field.

PSPVC form (5923) - The 5923 Record is used to assign PVC (Permanent Virtual Circuit) Logical Channel Numbers to DSL lines that have Packet Switching. For 5E12 and later, changed the valid values for PKT TN and added data rules to the PKT TN field.

PULPA form (5605-3) - The 5605-3 Record contains line parameters to construct a Call Pick Up feature. For 5E12 and later, changed the valid values for TN. Expanded DPU TN to 10 digits. Changed DIRECT PICKUP TN to DPU TN. Also added data rules to the FEATURE and DPU TN fields.

PUMPA form (5605-4) - The 5605-4 Record contains mlh line parameters to construct a Call Pick Up feature. For 5E12 and later, changed the valid values for DPU TN and added data rules to the DPU TN field. Added a data rule to the MLHG field.

PUOFD form (5605-1a) - The 5605-1a Record contains feature options and default parameters to construct a Call Pickup Originating feature. For 5E12 and later, changed the valid values for DPU TN and added data rules to the DPU TN field.

RAR form (5301) - The 5301 Record provides the data for the screening matrix. For 5E12 and later, added the NPA field and added a data rule to the NXX field.

RDIT form (5300-7a) - The 5300-7a Record defines valid dialed or impulsed digits. For 5E12 and later, added the NPA field to the form and conflict resolution list. Also added data rules to the PORTED IN, OFFICE CODE, and the NXX fields.

RDTAPORT form (5911A/B) - The 5911A/B Record collects RDTA port information used at the access switch. For 5E12 and later, changed the valid values for the D CHAN TN, B1 CHAN TN, B2 CHAN TN, and PRI TN fields and added data rules to the D CHAN TN, B1 CHAN TN, B2 CHAN TN, and PRI TN fields.

RTIDX form (5303) - The 5303 Record defines characteristics of the Route Index. For 5E12 and later, changed the valid values for NEXT ROUTE.

SCFD form (5627-1) - The 5627-1 Record defines Speed Call features. For 5E12 and later, changed the valid values for SC LIST.

SCLIST form (5627-5) - The 5627-5 Record defines subscriber Speed Call lists. For 5E12 and later, changed the valid values for SC LIST.

SCLPA form (5627-2) - The 5627-2 Record is used for assigning SC feature parameters to non-mlhg lines. For 5E12 and later, changed the valid values for SC LIST and added data rules to the SC LIST fields.

SCMPA form (5627-3) - The 5627-3 Record is used for assigning Speed Call features Parameter to mlhg lines. For 5E12 and later, changed the valid values for SC LIST.

SCTPA form (5627-4) - The 5627-4 Record is used for assigning Speed Call features Parameter to trunks. For 5E12 and later, changed the valid values for SC LIST.

SHTN form (5902-1) - The 5902-1 Record is used to specify Primary or Secondary TN that is shared by several other TNs. For 5E12 and later, changed the valid values for TN, SERHLN, and SHARELIST TNs. Also added data rules to the key TN, Shared List TN, and SERHLN fields, and Secondary Only section.

TGATTD form (5611) - The 5611 Record provides Terminal Group Attendant and Data Information. For 5E12 and later, changed the valid values for ATTENDANT TN. Also added a data rule to the ATTENDANT TN and SDN DAS fields.

TGSRLPA form (5607-3) - The 5607-3 Record provides a means to create a line (TN) parameter view via key fields, data fields, default values, display types and help messages. For 5E12 and later, changed the valid values for TN and added data rules to the TN field.

TLWS form (5511) - The 5511 Record defines each TLWS (Trunk and Line Work Station) associated with a 5ESS Switch. For 5E12 and later, changed the valid values for LOCAL TALK & MONITOR TN and added data rules to the LOCAL TALK & MONITOR TN field.

TKGRP form (5202) - The 5202 Record used to define each Trunk Group in a 5ESS-2000 Switch. For 5E12 and later, added the NPA SOURCE field.

TODCL form (5610-2) - The 5610-2 Record defines a TOD code list. For 5E12 and later, changed the valid values for CODE LIST NAME.

TODLPA form (5610-3) - The 5610-3 Record assigns a TOD code list to a line. For 5E12 and later, changed the valid values for TN and CODE LIST NAME. Also added data rules to the TN field.

TODMPA form (5610-4) - The 5610-4 Record assigns a TOD code list to a MLHG/TERM. For 5E12 and later, changed the valid values for CODE LIST NAME.

TODTPA form (5610-5) - The 5610-5 Record assigns a TOD code list to a TGN/MEMB. For 5E12 and later, changed the valid values for CODE LIST NAME.

XAT form (5909-1) - The 5909-1 Record is used to make all X.25 packet switching channel assignments on DLTU T1 and DNU-S DS1 facilities. For 5E12 and later, changed the valid values for PKT TN and LNR HNT TN. Also added data rules to the PKT TN, LNR HNT TN, BILL TN and DEN fields. Display Only field PKT NEW TN is added.

9. GLOSSARY

ACD	Automatic Call Distributor
AIU	Application Interface Unit
AP	Application Processor
ASI	Advanced Services Interface
BCLID	Bulk Calling Line Identification
CPE	Customer Premises Equipment
DN	Directory Number
IAM	Initial Address Message
IMLT	Integrated Mechanized Loop Test
IP	Intelligent Peripheral

LASS	Local Area Signaling Services
LATA	Local Access Transport Area
LTOLLCON	Local Toll Connecting Trunks
MF	Multi-Frequency
MLT	Mechanized Loop Test
MSS	Message Service System
NOC	Normalized Office Code
NPA	Numbering Plan Area
NXX	Office Code (Part Of Dialed Number)
PRI	Primary Rate Interface
RACF	Remote Access to Call Forwarding
RASI	Remote Access to ASI-Proxy
SS7	Signaling System 7
TN	Telephone Number
USOP	User Service Order Profile
USPID	User Service Order Profile Identifier

SEC. 4A199: AMA ACCESS BILLING

1. FEATURE DESCRIPTION

Available with 5E11 and later, the AMA Access Billing feature is a secured feature using Secured Feature ID 199. The feature number is 99-CP-3818.

The AMA Access Billing feature provides the ability to identify a serving wire-center location (i.e., Vertical & Horizontal coordinate) for carrier access usage charges computation with IXC (Inter-eXchange Carrier), CMC (Cellular Mobile Carrier) or CNA (Connecting Network Access) handled calls originating from or terminating to a ported number. This feature adds the LRN (Local Routing Number) of the switch serving a ported DN (using an appended LNP (Local Number Portability) BAF (Bellcore AMA Format) module) to originating IXC and CMC and to terminating IXC, CMC and CNA access records generated for calls from or to a ported DN. Recording the LRN of the switch serving a ported DN (or at least the NPA-NXX digits of the LRN) in the access records, allows the billing systems to correctly identify the serving switch and compute distance based on the correct wire-center for the ported number. For ported DN's served by a RSM (Remote Switching Module), an LRN unique to the RSM may be optionally recorded to handle situations where an RSM is serving as a community dial office replacement and has a location (Vertical & Horizontal coordinate) different from that of the host switch.

Known IXC, CMC and CNA originating access AMA call codes:

1

IXC and CMC Originating Access AMA Call Codes	
CC063	Originating Cellular Mobile Carrier Type 2B
CC064	Originating Cellular Mobile Carrier Type 2A
CC110	Originating InterLATA Station Paid
CC111-CC114	InterLATA WATS
CC117	InterLATA CSDC
CC131	Originating PG-A
CC134	Originating FG-B
CC141	IC Number Service Call
CC149	Originating Access High Bandwidth Call (NxDS0)
CC164	ASP Call Using FGA
CC173	Private Virtual Network Non-SSP End Office
CC263	Originating Access to IEC Virtual Network

Known IXC, CMC and CNA terminating access AMA call codes:

IXC, CMC and CNA Terminating Access AMA Call Codes	
CC065	Terminating Cellular Mobile Carrier Type 1/2B
CC066	Terminating Cellular Mobile Carrier Type 2A
CC119	Terminating InterLATA
CC121	CSDC Terminating Access
CC132	Terminating PG-A
CC135	Terminating PG-B
CC150	Terminating Access High Bandwidth Call (NxDS0)
CC172	Terminating Private Virtual Network Calls
CC720	Connecting Network Access

A per-line or per-trunk group indicator is used to identify facilities serving a ported DN for the purpose of limiting the appended BAF module to only those IXC and CMC access records generated for calls from a ported DN. Lines or trunks that are members of either a Terminal Group or MLHG (Multi-Line Hunt Group) are identified as ported on a per-group basis and not on an individual facility basis.

The AMA Access Billing feature is dependent on the Basic LRN AMA feature 99-CP-3667 to provide the LNP BAF module structure. The secured feature ID for the Basic LRN AMA feature is 180. See Division 2, Section 4A180 for more information.

Scenario

The following paragraphs are an example of a scenario where this feature would append an LNP BAF module to the AMA records so that billing can be correctly calculated.

An IXC switch launches an LNP query to bypass the incumbent LEC (Local Exchange Carrier) network and terminate the call directly to the correct serving exchange in the ALEC (Alternate LEC) network. In the local network, the AMA Billing feature appends the LNP BAF module to the IXC AMA access records at both the originating end-office and the terminating LATA Access Tandem.

- A. Both the calling Line A and the called Line B are ported.
 1. Line A's ported indicator is Y on the MLHLN form (5111 Record).
 2. Line B's number is in a portable NPA-NXX and LNP processing determines an LRN for Line B. (Line A dials Line B.)
- B. The originating exchange performs digit analysis on the dialed digits (e.g., 10XXX, 1+) to determine how to route the call.
- C. The switch routes the call to the IXC network based on the dialed digits.
- D. The IXC exchange processes the call and determines that B is in a portable NPA-NXX.

- E. The IXC exchange sends a query to the SCP (LNP-Service Control Point) based on the dialed digits.
- F. The LNP-SCP sends an "Analyze_Route" response containing the LRN of the serving exchange.
- G. The IXC exchange receives the LNP-SCP response and analyzes the data. The LRN is translated in a Post_Query DAS associated with the LNP trigger and an ISUP route out of the switch is determined. The dialed number is stored in the GAP parameter, the LRN is in the CDPN (Called Party Number) parameter and the FCI Translated Called Number Indicator is set to indicate an LNP query has been done (set to "translated number").
- H. The call is routed to the serving exchange based on the LRN.
- I. The serving exchange receives and processes the contents of the IAM message. It replaces the CDPN parameter's contents with the dialed digits stored in the GAP parameter. The switch does digit analysis on the dialed digits from the GAP and finds the subscriber on the switch.
- J. The serving exchange completes the call to the subscriber.
- K. The originating exchange generates a Feature Group D Originating InterLATA Station Paid AMA access record (CC110) for the IXC handled call. An LNP BAF module is appended to the IXC access record containing the LRN for Line A. In this case, the LRN is the JIP (Jurisdiction Information Parameter) of the switching module serving Line A, if populated, or the originating exchange JIP obtained from office data.
- L. The terminating exchange generates a Feature Group D Terminating InterLATA AMA access record (CC119) for the IXC handled call. An LNP BAF module is appended to the IXC access record containing the LRN of the terminating exchange. Since the LNP query was performed by the IXC, the LRN of the terminating exchange is obtained from the incoming SS7 ISUP CDPN parameter.

2. FEATURE ASSIGNMENT

Figure 1 shows the assignment of PNIs (Ported Number Indicators).

2.1 Detailed Feature Specifications

Valid trunk classes of service for porting are PDID, EDSL, EDSLHM, PF, PFLASH and PFCPE.

Valid line classes of service for porting are ATND, CHGCALL, COIN, HOTMOTL, HOTPBX, INDIV, ISDN, ISDNAT, PBX, SATSTLN, TWOPTY, 2PTY, 4PFS, 4PSS, 4WINDIV, 5PTY, 8PSS and 10PTY.

For lines assigned the LTSB-1DN feature, all ports (both non-lead and lead) have the same PORTED value. Lines with LTSB-2DN feature are treated as separate DNs, each one may be marked "ported" independent of the other DN of the STSB-2DN pair.

Dependent DNs of an MDNL arrangement are considered ported when the Master DN is marked as ported (PORTED = Y).

If an ISDN BRI terminal has appearances of two or more DNs, it may serve a mix of both ported and non-porting DNs.

The PORTED indicator of the Primary appearance of a shared DN is the same for all appearances of that shared DN.

2.2 Jurisdiction Information Parameter

A per-SM JIP (Jurisdiction Information Parameter) is provided for SMs to be used in lieu of the per-office JIP when the SM serves as a community dial office replacement with a wire-center different than that of the host office. The per-SM JIP is used in IXC/CMC/CNA Access AMA recording for calls originating or terminating to/from ported DNs on the SM. This per-SM JIP overrides the office JIP for outgoing SS7 ISUP signaling on calls originating from an SM or SMs in which it is set to a non-null value.

The LRN field of the LNP module is populated with the JIP of the originating switch. The last four digits (least significant digits) of the LRN field is filled with zeros (0) since the office JIP is only six digits long.

If the per-office JIP is not assigned in the originating office and no per-SM JIP is defined for the originating SM, then the LNP module is not generated.

Scenarios

Scenario 1:

When a switch serving as an access tandem or intermediate exchange generates an IXC or CMC originating AMA access record, the switch appends an LNP module to the access AMA record containing the LRN of the originating switch. The LRN of the originating switch may be obtained from the JIP of the received SS7 IAM. If a JIP is not available from the SS7 IAM, the LNP module is not generated or appended to the AMA access record.

The LNP module also contains a Party Identifier set to "Originating party data", an LRN Source Indicator of the Supporting Information field set to "Incoming Signaling" and a Query Status Indicator of the Supporting Information field set to "no query done". This includes IXC exchange originating access AMA records generated following processing of an AIN trigger at the intermediate switch.

Scenario 2:

When a switch serving as a terminating access tandem receives a call from an IXC/CMC or over a trunk group marked for CNA recording with an FCI parameter indicating "Translated number" and a "ported number GAP" in the SS7 ISUP IAM; the access tandem appends a terminating LNP module to the IXC/CMC/CNA terminating exchange access AMA record, if any, generated by the access tandem for the call.

The LNP module is populated with the LRN of the terminating switch received in the CDPN parameter of the SS7 ISUP IAM. Additionally, the LNP module includes a Party Identifier set to "Terminating party data", an LRN Source Indicator in the Supporting Information field set to "Incoming signaling", and a Query Status Indicator in the Supporting Information field set to "No query done".

If the access tandem does not receive an FCI parameter indicating a "Translated Number" in the SS7 ISUP IAM for the call, then the switch follows the procedures defined in this document to determine whether or not to perform an LNP query.

Scenario 3:

When the terminating access tandem receives an FCI parameter in the SS7 ISUP IAM that does not indicate "Translated number" for the call (that is, no LNP query has been performed), and the access tandem subsequently encounters an LNP trigger on the called number and performs an LNP query which results in the SCP returning an LRN for the called number; the access tandem appends a terminating LNP module to the IXC/CMC/CNA terminating exchange access AMA record, if any, generated by the access tandem for the call. The LNP module is populated regardless of whether or not the office option (FOSYS ID 665) for LNP BAF module generation is active.

Scenario 4:

When a switch serving as a terminating office receives a call over a trunk group marked for CNA recording or a directly connected trunk from an IXC/CMC with an FCI parameter, indicating that an "LNP query was done" and a "ported number GAP" in the SS7 ISUP IAM; the switch appends a terminating LNP module to the IXC/CMC/CNA terminating access AMA record, if any, generated by the terminating switch for the call.

The LNP module is populated with the LRN of the terminating switch received in the CDPN parameter of the SS7 ISUP IAM. Additionally, the LNP module includes a Party Identifier set to "Terminating party data", an LRN Source Indicator in the Supporting Information field set to "Incoming Signaling" and a Query Status Indicator in the supporting Information field set to "No query done".

If the terminating switch receives an FCI parameter in the SS7 ISUP IAM indicating a "Translated Number" for the call, but the IAM does not contain a "ported number GAP", the switch does not generate an LNP module for the call.

Scenario 5:

When a switch serving as a terminating office receives a call over a trunk group marked for CNA recording or over a directly connected trunk from an IXC or CMC and the call is received over either an MF trunk or via SS7 without an FCI parameter indicating "Translated number", the terminating switch appends a terminating LNP module to the IXC/CMC/CNA terminating exchange access AMA record generated by the switch, if any, when the call terminates to a ported DN.

The JIP of the terminating switch is recorded in the LRN field of the LNP module. Additionally, the LNP module includes a Party Identifier set to "Terminating party data", and LRN Source Indicator in the Supporting Information field set to "Switch data" and a Query Status Indicator in the Supporting Information field set to "No query done".

2.3 Call Processing Determination of Ported Originating Terminal

The following algorithm is used during call processing when a terminal originates a call to determine if the originator is ported.

1. Is the port the correct class of service?

ODA does not verify that all members of a TG or MLHG have valid service classes for porting.

2. Is the port in either a TG or an MLHG?

If the port is in a group where PORTED is "Y", then the port is ported.

If the port is in a group where PORTED is "N", then the port is not ported.

If the port is not in either group, continue.

3. If a line or DSL, is the line/DSL individually ported? If a trunk, is the trunk group ported?

If the line or trunk group has PORTED equal to "Y", then the port is ported.

2.4 Call Processing Determination of Ported Terminating Terminal

1. The determination of a DN as a ported number is obtained from digit analysis for NPA-NXXs marked

as "ported IN" in the LDIT. If the NPA-NXX of a called number is so marked in the LDIT and the called DN is found on the switch, then it is determined to be a ported number, served by the terminating exchange.

2. An RT_DNTRAN tuple may not exist for PBX(s) served by trunk groups. In this case, the outgoing trunk group serving the PBX is marked as serving "ported DNs" via the per-trunk group PORTED indicator.

If a call terminates to a PBX trunk, then the same algorithm described above in "Call Processing Determination of Ported Originating Terminal" applies.

3. TRANSLATION REQUIREMENTS

See Figure 2 for the feature assignment form flow for the AMA Billing feature.

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2
IMINFO	5510	3	5J	18.1
LINE	5109-1/2/3	3	1I	1.6
MLHG	5110-1/2/3	3	1J	3.5
SHTN	5902	5	1C	23.20
TGATTD	5611	4	12A	4.4
TKGRP	5202-1/2	3	2A	5.1

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user and 4) defines the On Demand B-channel packet switching attributes of a DSL user. The PORTED field was added to indicate whether members of a given terminal group have been ported into an office via the NP feature.

IMINFO form (5510 Record) - This form is used to gather and build miscellaneous data related to a given SM. The JIP field was added to specify the ISUP parameter used, on a per-SM basis, when generating the IAM, and is used with the NP feature.

LINE form (5109 Record) - This form defines the Office Equipment Number and features for each telephone number in the 5ESS-2000 switch. The PORTED field was added to indicate whether the TN has been ported into this office via the LNP feature.

MLHG form (5110 Record) - This form is used to define Multi-line Hunt Groups. The PORTED field was added to indicate whether the MLHG has been ported into the office via the NP feature.

SHTN form (5902 Record) - This form is used to assign a Primary or Secondary TN or MLHG/TERM to ISDN Terminals. The PORTED field was added to indicate whether the associated TNs have been ported into the office via the NP feature.

TGATTD form (5611 Record) - This form is used to define information (such as attendant DN, Source Billing and SDN DAS) on a Terminal Group basis. The PORTED field was added to indicate whether members of a given terminal group have been ported into the office via the NP feature.

TKGRP form (5202 Record) - This form defines each trunk group in a 5ESS-2000 switch. The trunk information entered is information common to the entire group. Trunk information for an individual member of a group is entered on a TRUNK form. The PORTED field was added to indicate whether the TN has been ported into the office via the NP feature.

4. GLOSSARY

NP	Number Portability
TN	Telephone Number
JIP	Jurisdiction Information Parameter

ITEM	TYPE OF ASSIGNMENT	DESCRIPTION	FORM FIELDS	
1	PNI to PBX w/ Ported DNs	The craftsperson sets the PNI for an MF Trunk Group. The craftsperson makes the following update to the TKGRP form.	*1. TGN	112. PORTED=Y
	WARNING: The PORTED indicator on the trunk group view does not apply if the trunk is a member of a TG. The PORTED indicator on the TG view takes precedence over the trunk group setting.			
2	PNI to Analog Line w/ Ported DNs	The craftsperson makes the update to the LINE form.	*1. TN = (valid DN)	125. PORTED = Y
	WARNING: The PORTED indicator on the individual line assignment views does not apply if the line is a member of either a MLHG or a TG. The PORTED indicator on these views takes precedence over the individual setting.			
3	PNI to Analog Line w/ Ported DNs	The craftsperson makes the update to the LINEFA form.	*1. TN = (valid DN)	44. PORTED = Y
	WARNING: The PORTED indicator on the individual DSL assignment views does not apply if the DSL is a member of either a MLHG or a TG. The PORTED indicator on these views takes precedence over the individual setting.			
4	PNI to ISDN BRI Line w/Ported DNs	The craftsperson makes the update to the DSLUSR form.	*1. CKT TN = (valid DN)	160. PORTED = Y
5	PNI to ISDN BRI Line w/Ported DNs	The craftsperson makes the update to the DSLUSR form.	*1. TN = (valid DN)	104. PORTED = Y
6	PNI to Secondary-Only Shared DN	The craftsperson makes the update to the SHTN form.	*1. TN = (valid secondary-only DN)	77. PORTED = Y
7	PNI to MLHG serving ported DNs	The craftsperson makes the update to the MLHG form.	*1. MLHG = (valid MLHG Number)	58. PORTED = Y
	NOTE: Setting the per-RSM JIP does not require that the NP-AMA Access Billing feature be purchased.			
8	PNI to Terminal Group serving ported DNs	The craftsperson makes the update to the TGATTD form.	*1. GROUP ID = (valid TG ID)	12. PORTED = Y
9	Setting the Per-RSM LRN for AMA Billing feature			

Figure 1 ASSIGNMENT OF PORTED NUMBER INDICATORS

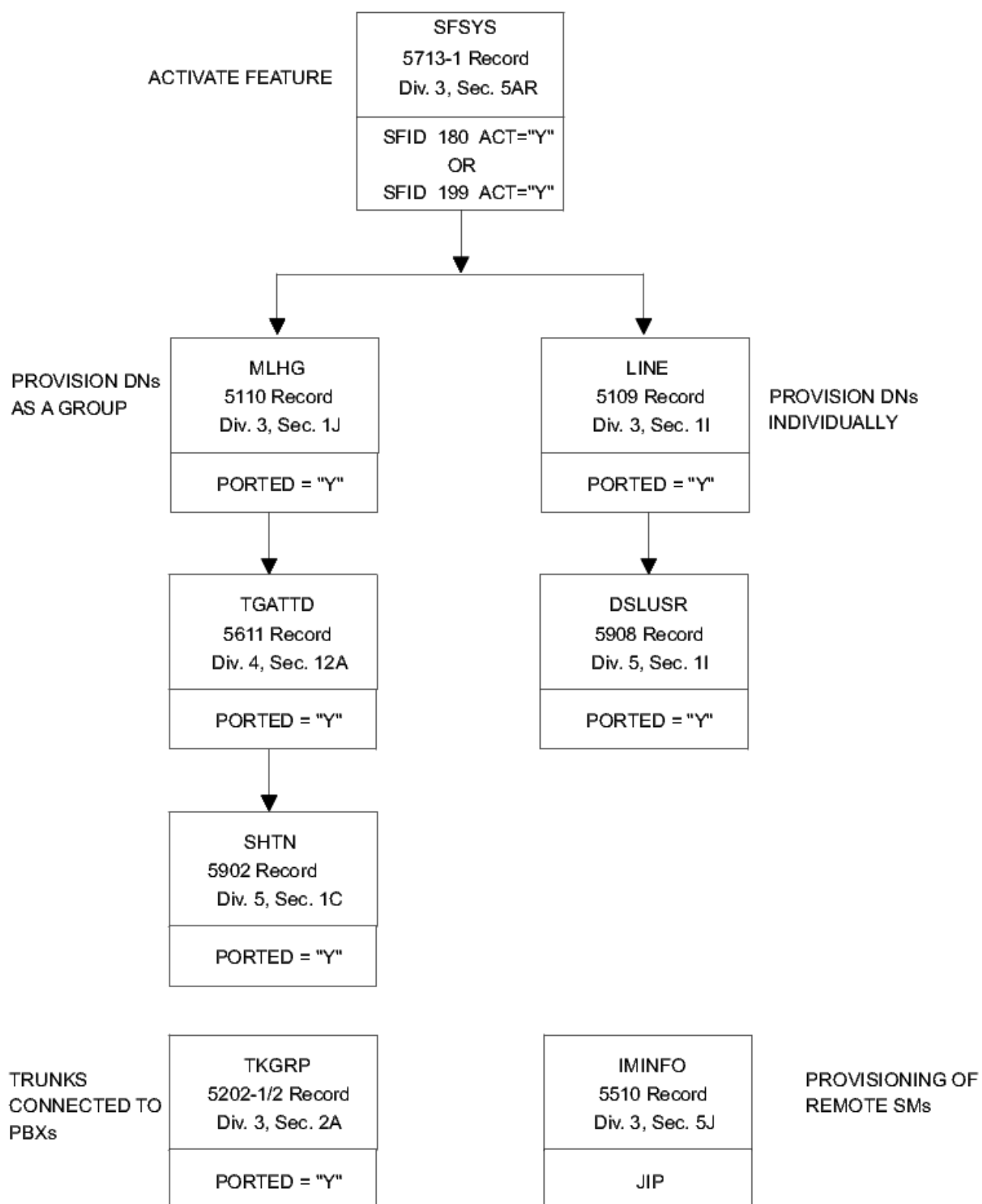


Figure 2 AMA BILLING FORM FLOW

SEC. 4A200: AUTOMATIC SPID (SERVICE PROFILE IDENTIFIER) DOWNLOAD

1. FEATURE DESCRIPTION

The Auto SPID feature is available for 5E10 and later. This feature applies to National ISDN service. The feature number for this capability is 99-5E-3520.

The Auto SPID feature automates the ISDN installation process by sending ISDN provisioning information to the ISDN terminal equipment. This information is then used by the ISDN terminal to initialize and provide network access to an end-user. The automatic exchange of important provisioning information such as directory numbers, bearer capability and SPIDs (service profile identifiers) between the switch and CPE frees end-users from having to program these network details into their equipment. Without the Automatic SPID feature, the service provider must provide to the end-user, a unique SPID to be programmed into each terminal on the interface.

Indirectly, the feature also simplifies the provisioning process since service providers can use IOCs (ISDN order codes), i.e., packaged sets of features and the switch translations that make them work. Since features packaged with IOCs require a directory number and/or SPID to be sent to the switch, Auto SPID can send the needed information to the ISDN terminal automatically.

With the Auto SPID feature, a FIT (Fully-Initializing Terminal) is manufactured with a pre-programmed SPID. The pre-programmed SPID, called a Universal SPID, is a value recognized by the switch, prior to terminal downloading, as an indication that the switch can download the SPID(s) assigned by the telephone company to the terminal. This process makes SPID(s) and their function entirely transparent to the end-user.

Binding is the association of a terminal (TE1) with its USOP (User Service Order Profile). A FIT that supports Auto SPID initialization procedures will first request its SPID to be sent from the switch and then use it in subsequent initialization requests. For Auto SPID requests, the terminal sends in two initialization requests; one with the Universal SPID and the second with the SPID that was then sent to it from the switch. In this case, it's the second initialization request with the SPID that initiates binding. Fully-initializing terminals that do not support Auto SPID require the SPID to be programmed into the equipment manually.

For additional information, see Division 2, Section 1AM on National ISDN features.

2. FEATURE ASSIGNMENT

To activate this feature, the ACT field for SFID 200 must be set to "Y" on the SFSYS form (5713-1 Record). The value 010101010101 for the USPID field has been reserved to support this feature, therefore this value should not be entered on the DSLUSR form. In a retrofit from 5E9(2) and earlier to 5E10, if the value 010101010101 has been used, a different value must be selected and the CPE (Customer Premises Equipment) reprogrammed before this feature is activated.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	11	23.2 23.8
SFSYS	5713-1	3	5AR	8.22

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user, and 4) defines the On Demand B-channel packet switching attributes of a

DSL user. The value 010101010101 is reserved for this feature and cannot be entered as a value in the USPID field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 200 must be set to "Y" to activate this feature.

4. GLOSSARY

CPE	Customer Premises Equipment
FIT	Fully Initialized Terminal
SPID	Service Profile Identifier
TEI	Terminal Endpoint Identifier
USOP	User Service Order Profile
USPID	User Service Profile Identifier

SEC. 4A201: DENY AUTO CALLBACK ON INTRALATA PIC CALLS - PER CIC CONTROL

1. FEATURE DESCRIPTION

Deny Automatic Callback on IntraLATA PIC Calls - Per CIC Control is a secured feature using SFID (Secured Feature ID) 201 and must be purchased before being activated. The feature number for this feature is 99-CP-3587.A.

The Deny Automatic Callback on IntraLATA PIC Calls - Basic feature was deployed on the 5ESS-2000 Switch in a software update for the 5E10 Software Release and for the Beginning Managed Introduction of the 5E11 Software Release.

The enhanced version, Deny Automatic Callback on IntraLATA PIC Calls - Per CIC Control is being deployed in a software update for 5E10 and 5E11 Software Releases and for the Beginning Managed Introduction of the 5E12 Software Release.

The Deny Automatic Callback on IntraLATA PIC Calls - Basic feature provides blocking of AC (Automatic Callback) for intraLATA toll calls not carried by the LEC (Local Exchange Carrier) to private DNs (previous incoming call received with an indication of privacy). The Deny Automatic Callback on IntraLATA PIC Calls - Per CIC Control feature is a feature enhancement which replaces the Deny Automatic Callback on IntraLATA PIC Calls - Basic feature. When the Deny Automatic Callback on IntraLATA PIC Calls - Per CIC Control feature is installed, AC will also be allowed for calls carried by those non-LEC carriers for which there is an indication, on a per CIC (Carrier Identification Code) basis, that the blocking should not apply. AC blocking does not apply for LEC CICs. The user blocked from accessing AC is given AC Block to Private Number denial announcement and the AC Block to Private Number traffic measurement is pegged.

The Deny Automatic Callback on ICLATA feature can be overridden for a CARRIER ID by setting the AC ICLATA OVR field on the ICF form to "Y".

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 201 is set to "Y" on the SFSYS form and the OFS ID field on the

FOSYS form is set to 666.

For the denial treatment, set the AC BLOCK RTI field on the LASSOP form to the Automatic Callback announcement route index.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31
ICF	5305-1/2	3	3R	10.3
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - For 5E5 through 5E8 Software Releases, the FOSYS (Feature Optioning SYStem) form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. For 5E9(1) and later, these TFOS IDs (Transparency Feature IDs) are called OFS IDs (Optioned Feature System IDs). Transparency Features have been developed to replicate features that exist on the 1A ESS Switch. Added OFS ID 666 (Deny Automatic Callback on IntraLATA PIC Calls).

ICF form (5305 -1/2 Record) - This form is used to define the characteristics of Inter-LATA (Local Access Transport Area) carriers. For 5E10 and later, added the AC ICLATA OVR field.

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. Added SFID 201 (Deny Automatic Callback on IntraLATA PIC Calls).

SEC. 4A202: LDP MULTIPLE CIC SUPPORT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-110 Long Distance Platform*.

SEC. 4A203: LDP Data Calls

1. FEATURE DESCRIPTION

This feature is documented as part of the Toll Digital Exchange Basic Call Processing for Toll 5ESS Switch features. Please see Division 2, Section 4A165 for more information on the LDP Data Calls feature.

SEC. 4A204: DECOUPLING OF AM/CM FOR CM ONLY INITIALIZATION

1. FEATURE DESCRIPTION

The Decoupling of AM/CM (Administration Module/Communication Module) for CM Only Initialization feature provides a CM only initialization to use in the manual recovery of the 5ESS Switch. This includes EAI (Emergency Action Interface) and input message control capabilities as well as recovery from the failure of the CM to initialize. For further information on this feature refer to the Lucent Technology document number *235-105-220 (Recovery) Section 11.1.4*. The procedures here can only be done when the feature SFID is active.

The feature number associated with this feature is 99-5E-3484.

SEC. 4A206: DATA ONLY FOR PRI (PRIMARY RATE INTERFACE)

1. FEATURE DESCRIPTION

The feature number for the Data Only for PRI feature is 99-5E-3780. This secured feature uses SFID (Secured Feature ID) 206 and is deployed on the 5ESS Switch in a software update for the 5E10 and later Software Releases.

This feature allows the switch operator to limit the calls coming into the switch via a PRI to only data calls, by subscription. If the PRI is provisioned to originate data calls only, an attempt to originate a voice call will be blocked and an appropriate ISDN (Integrated Services Digital Network) message will be sent back to the originating equipment clearing the call. For the purposes of this feature, only 56 kbps or 64 kbps digital data is considered to be data. A call with a Bearer Capability of voice or 3.1 kHz audio will be considered voice and will be denied origination on a data-only PRI.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 206 on the SFSYS form (5713-1 Record) is set to "Y" and the TKGRP form (5202-1 Record) is provisioned.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-1	3	2A	5.1

SFSYS form (5713 Record) - This form is used to enable Secured Features.

TKGRP form (5202 Record) - This form is used to define a trunk group. The trunk information that is entered on these records is information that is common to the entire group. The ALW DATA ONLY field on the TKGRP form must be set to "Y".

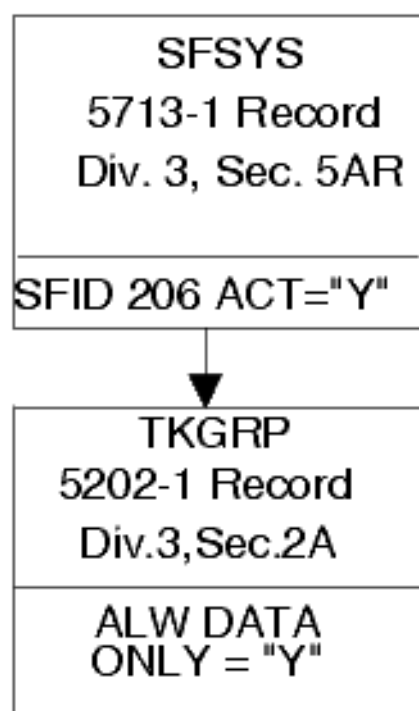


Figure 1 FORM FLOW FOR DATA ONLY FOR PRI

SEC. 4A207: Multiple ANI Processing With LDP

1. FEATURE DESCRIPTION

This feature is documented as part of the Toll Digital Exchange Basic Call Processing for Toll 5ESS Switch features. Please see Division 2, Section 4A165 for more information on the Multiple ANI Processing with LDP feature.

SEC. 4A208: CALL INFORMATION DISPLAY

1. FEATURE DESCRIPTION

The feature number for the CID (Call Information Display) feature is 99-5E-4382. This secured feature (SFID 208) is being deployed as a software update for the 5E10 and 5E11 Software Releases.

The feature can be used for tracing an originated ASP (Advanced Service Platform) trigger call. The tool incorporates certain existing capabilities of the 5ESS switch, while introducing new software for data collection and formatting. The trace can be set for one test line at a time and will dump the ASP query(s) and response(s) along with the digit analysis data, and routing data associated with the call.

For further feature information see ASP Release 0.1B feature document (235-190-126).

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 208 is set to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used by the SEE (System Equipment Engineer) to enable the feature for the operating company. The secured feature ID 208 on the SFSYS form must be set to "Y" to provide offices with control of this feature.

SEC. 4A209: REPEAT DIAL INTERWORKING with AIN ORIGINATING BUSY TRIGGER

1. FEATURE DESCRIPTION

Available with 5E11 and later, the Repeat Dial Interworking with AIN Originating Busy Trigger feature is a secured feature controlled by Secured Feature ID 209. The feature number is 99-CP-3749.

This feature provides additional capabilities on the 5ESS-2000 Switch that allow a Repeat Dial (that is, LASS Automatic Recall) activation service to be implemented after encountering an Originating AIN Busy trigger. The result is a simpler method of invoking the LASS AR (Automatic Recall) feature after the caller has dialed a number that is busy.

The purpose of the Repeat Dial feature is to enhance the functionality provided by the "Originating Busy/No Answer Office Triggers with Extended Ringing" secured feature (SFID 189). The Originating Busy/No Answer Office Triggers with Extended Ringing feature allows the SSP (Service Switching Point) to query the SCP (Service Control Point) upon detection of a user busy condition for calls originated by lines at the SSP. When a busy condition is detected, a "Busy" Query is launched and the SCP Response could reroute the call to another number or to an announcement. The ability to return the LASS Automatic Recall activation code and activate AR on behalf of the originator IS NOT allowed by SFID 189 or by existing functionality. That is the functionality enhancement provided by the Repeat Dial Interworking with Originating Busy Trigger feature, the ability of the SSP to receive and process an SCP generated Collect_Information message. The Collect_Information message contains an AR (Automatic Recall) activation code (possibly preceded by an Escape to POTS code). Option ID 524 must additionally be unlocked to allow escape from an IDP (Individualized Dialing Plan) to the ODP (Office Dialing Plan) with LASS AR. Typically, the Collect_Information message would be received after an interactive announcement session with the caller that received busy tone. The interactive announcement would explain the options available (such as, cost and "press 1 to activate AR").

Before the Feature Lock (SFID 209) that controls the Repeat Dial Interworking feature can be activated for the office, the feature lock for the Originating Busy/No Answer Office Triggers (SFID 189) must be activated. Activating and provisioning SFID 189 results in an Originating Busy Query whenever any type of originating line encounters a busy condition. SFID 209 can then be activated which allows the 5ESS-2000 Switch to receive an R0.1 Collect_Information message from the SCP. A Collect_Information message must contain an AR activation code. If the digits returned in the Collect_Information message do not equate to the AR activation code, the call does not invoke AR and the call is processed by error handling. The caller that encountered the busy that resulted in the Originating Busy Query must: 1) be defined with a Class of Service that allows AR to be invoked, and 2) have the ability to use LASS AR through subscription or general availability.

This feature is also dependent on the existence of active ASP functionality on the 5ESS-2000 switch. The ASP 0.1B (SFID 126) feature and the Originating Busy/No Answer Triggers with Extended Ringing (SFID 189) feature must both be unlocked (and the Originating Busy Trigger provisioned) in order to use this feature.

In addition, the existing LASS AR feature and its supporting announcements must be active on the 5ESS-2000

switch where this feature will be used. Service logic must also be available on the SCP connected to the 5ESS-2000 switch in order to control the operation of this feature.

1.1 Overview of the Repeat Dial Interworking with Originating Busy Triggers

This feature interacts primarily with the LASS AR feature in that the feature activation code that invokes AR for a given subscriber can now be delivered to the 5ESS-2000 switch in a message from an ANI SCP. This simplifies the user interface to the AR feature. After the activation code is received, it is interpreted by the switch in the same way that it would be if the subscriber had dialed it.

This feature does not alter the internal count that is kept of the number of ASP triggers that are encountered on a call (that is, the ASP serial trigger count). This feature causes this count to be reset to zero because the activation of AR represents the beginning of a new call attempt.

This feature is dependent on the existence of active ASP functionality on the 5ESS-2000 switch. The ASP 0.1B feature (SFID 126) and the Originating Busy/No Answer Triggers with Extended Ringing feature (SFID 189) must both be unlocked (and the Originating Busy trigger provisioned) in order to use this feature.

The capabilities provided by this secured feature affect several ASP areas. A brief overview of these capabilities is contained in the following paragraphs.

1.2 User Perspective

Rather than having to remember when and how to use AR (such as, remembering the activation code to dial), the Repeat Dial feature simplifies the AR activation process by providing the ability to prompt a caller if they want to make use of AR when a call they are making reaches a busy line. If they decide to use AR, then the existing AR feature can be automatically invoked for them, and they can be advised to hang up and wait for notification when the call can be completed. The existing AR feature monitors the busy line, and rings back the caller when it is no longer busy. The caller picks up their phone in response to the ring back, and the call is put through.

1.3 End-User Scenario

A typical end-user scenario involving the Repeat Dial feature would be the following:

1. Caller places a call, and an O_Called_Party_Busy trigger is detected due to the called party being busy. A Busy Query is sent to the SCP.
2. The SCP replies with a STR (Send_To_Resource) message, prompting caller to press 1 if they would like to invoke Repeat Dial.
3. Caller presses 1 to request Repeat Dial (also known as, LASS Automatic Recall). SSP sends Resource_Clear message including the caller's digit entry. (If the caller does not press any key, or presses a key other than "1", the Resource_Clear response to the SCP would reflect this. The SCP would then likely send a "Continue" message to the SSP and the caller would be given busy treatment.)
4. Responding to the caller's request for Repeat Dial service, the SCP replies with the Collect_Information message, which includes the digits corresponding to the AR activation code (for example, "**66") in the CollectedDigits parameter. (An Escape to POTS dial code is allowed to precede the AR code in this parameter, but it must be appropriate for the line.)
5. The SSP selects the DAS associated with the originating facility, and analyzes the contents of CollectedDigits to verify that the digits represent a LASS Automatic Recall activation code (possibly

preceded by an Escape to POTS).

NOTE: The SCP DAS and any DAS associated with the Originating Busy trigger are not used when interpreting the contents of the CollectedDigits parameter. If the caller's line is in an IDP (Individualized Dialing Plan), then analysis of the digits begins in the IDP. If there is no IDP, then the DAS associated with the caller's line is always used. The Multiple Rate Center features (99-5E-3192 and 99-5E-3426) which can normally alter the DAS that is used, have no impact on the DAS used for interpreting the digits in CollectedDigits.

1. Normal AR invocation occurs as if the caller had dialed the AR code.

If the called party's line has become idle before the Collect_Information message is received with the AR activation code, then the call is routed to that line immediately. If the called party's line has not become idle (that is, it is still busy), then a switch announcement can tell the caller to hangup while the AR feature monitors the line for availability. When that monitoring indicates that the called party's line has become idle, the caller is rung back, and the call is routed to the called party.

The scenario assumes that the AR feature is available to the caller, either through individual subscription to LASS AR or the AR had been made generally available in the office serving the caller. If this were not the case and invocation of AR was attempted for a line, the caller would receive an error treatment like that provided if that person had picked up their phone and dialed the AR code.

NOTE: Once an Originating Busy trigger has fired, it is not considered to be within the authority of the 5ESS-2000 switch to prevent the playing of announcements that offer AR invocation just because AR is not available to a given user. The switch is required to follow the legitimate directions provided by the SCP even when they lead inevitably to error treatment being given to the user. However, the 5ESS-2000 switch service provider does have controls available that can be used to prevent the firing of the Busy trigger, which in turn would prevent use of the Repeat Dial feature to activate AR when it is not desirable to do so. See the Inhibiting Originating Busy/No Answer Triggers (99-5E-3760) and Call Screening for ASP Originating Busy/No Answer Triggers (99-5E-3761) secured features for further information. For more information concerning these features, see Division 2, Section 4A210 and Section 4A212, respectively.

1.4 Call Processing Associated with the Repeat Dial Interworking With Originating Busy Triggers Feature

It is the receipt of the Collect_Information message associated with an ASP Originating Busy Trigger that enables the Repeat Dialing call processing.

It is also expected that an interactive announcement interaction occurs between the Busy query and the Collect_Information response, using either "Send to Resource" or "Send to Outside Resource" functionality.

2. TRANSLATION REQUIREMENTS

There are no changes/additions to any forms, fields or crosschecks required for this secured feature. The only provisioning required is on the SFSYS form, set:

- the ACT field for SFID 189 to "Y".
- the ACT field for SFID 209 to "Y".

SEC. 4A210: ASP INHIBITING OF ORIGINATING BUSY/NO ANSWER OFFICE TRIGGERS

1. FEATURE DESCRIPTION

Available with 5E11 and later, the ASP (Advanced Services Platform) Inhibiting of Originating Busy/No Answer Office Triggers feature is a secured feature controlled by Secured Feature ID 210. The feature number is 99-5E-3760.

This feature enhances the functionality provided by the ASP Originating Busy/No Answer Triggers with Extended Ringing feature (SFID 189). The Originating Busy/No Answer Office Triggers with Extended Ringing feature allows the SSP to query the SCP upon detection of a user busy or no answer condition. The provisioning for SFID 189 allowed two "office-wide" originating triggers (Busy and No Answer) to be enabled. If these triggers were enabled, then calls originated by lines at the SSP that detected user busy or no answer encountered the appropriate trigger. The intent of the ASP Inhibiting of Originating Busy/No Answer Office Triggers feature, is to provide more granular control of office-wide Originating Busy and No Answer triggers. SFID 210 provides this control on an individual line basis, on groups of lines (such as, an IDP Group, Class of Service, or Terminal Group) and on a Screening Index basis.

Three other secured features are associated with the ASP Originating Busy/No Answer Triggers with Extended Ringing secured feature (SFID 189). They are:

1. Provisioning of Originating Busy/No Answer Triggers as Subscribed Triggers (99-5E-4035)
2. Call Screening for ASP Originating Busy/No Answer Triggers (99-5E-3761)
3. Repeat Dial Interworking with ASP Originating Busy Triggers (99-CP-3749)

These secured features provide additional controls and enhancements to the Originating Busy/No Answer Office Triggers with Extended Ringing secured feature.

The functionality provided by the ASP Inhibiting of Originating Busy/No Answer Office Triggers feature enhances the functionality provided by the ASP Originating Busy/No Answer Triggers with Extended Ringing secured feature (SFID 189). Therefore, it is important to have basic knowledge about SFID 189 before understanding the capabilities provided by the ASP Inhibiting of Originating Busy/No Answer Office Triggers feature. Refer to Division 2, Section 4A189 for further information on SFID 189.

When SFID 189 is unlocked and provisioned, Busy and No Answer Triggers may be encountered on all calls originated by analog and ISDN lines at an SSP under most conditions. SFID 189 is enabled on an "office-wide" basis. This could result in undesired queries. For example, individual lines or an IDP Group might not want to interact with the capabilities provided by this feature. Also the switch-owner might wish to block a certain type of Screening Index from accessing the capabilities provided by SFID 189.

With the functionality provided by the SFID 210 (ASP Inhibiting of Originating Busy/No Answer Office Triggers) feature, if the analog or ISDN line encounters a busy or no answer condition, a query may not be launched. If an originator is inhibited through the use of SFID 210, and encounters an active Originating Busy or No Answer Trigger, the Trigger is ignored and busy or no answer treatment is provided as appropriate.

2. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for the ASP Inhibiting of Originating Busy/No Answer Office Triggers feature.

The ACT field for SFID 210 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
DSLUSR	5908	5	1I	23.2
LINE	5109-1/2/3	3	1I	1.6
MLHLN	5111-1/2/3	3	1K	1.6
SCRIDXPA	5543	3	5AQ	8.24

SFSYS form (5713-1 Record) - This form is used to enable secured features. SFID 189 and SFID 210 must be set to "Y" to enable the ASP Inhibiting of Originating Busy/No Answer Office Triggers feature.

DSLUSR form (5908 Record) - This form has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user and 4) defines the On Demand B-channel packet switching attributes of a DSL user. The OFC OBL INH and the OFC ONA INH fields were added to inhibit triggers on an individual line basis.

LINE form (5109 Record) - This form defines the Office Equipment Number and features for each telephone number in the 5ESS-2000 switch. The OFC OBL INH and the OFC ONA INH fields were added to inhibit triggers on an individual line basis.

MLHLN form (5111 Record) - This form is used to define individual terminal numbers assigned to a specific MLHG. The OFC OBL INH and the OFC ONA INH fields were added to inhibit triggers on an individual line basis.

SCRIDXPA form (5543 Record) - This form is used to assign parameters to a line or trunk on a per screening index basis. The OFC OBL INH and the OFC ONA INH fields were added to inhibit triggers on an individual line basis.

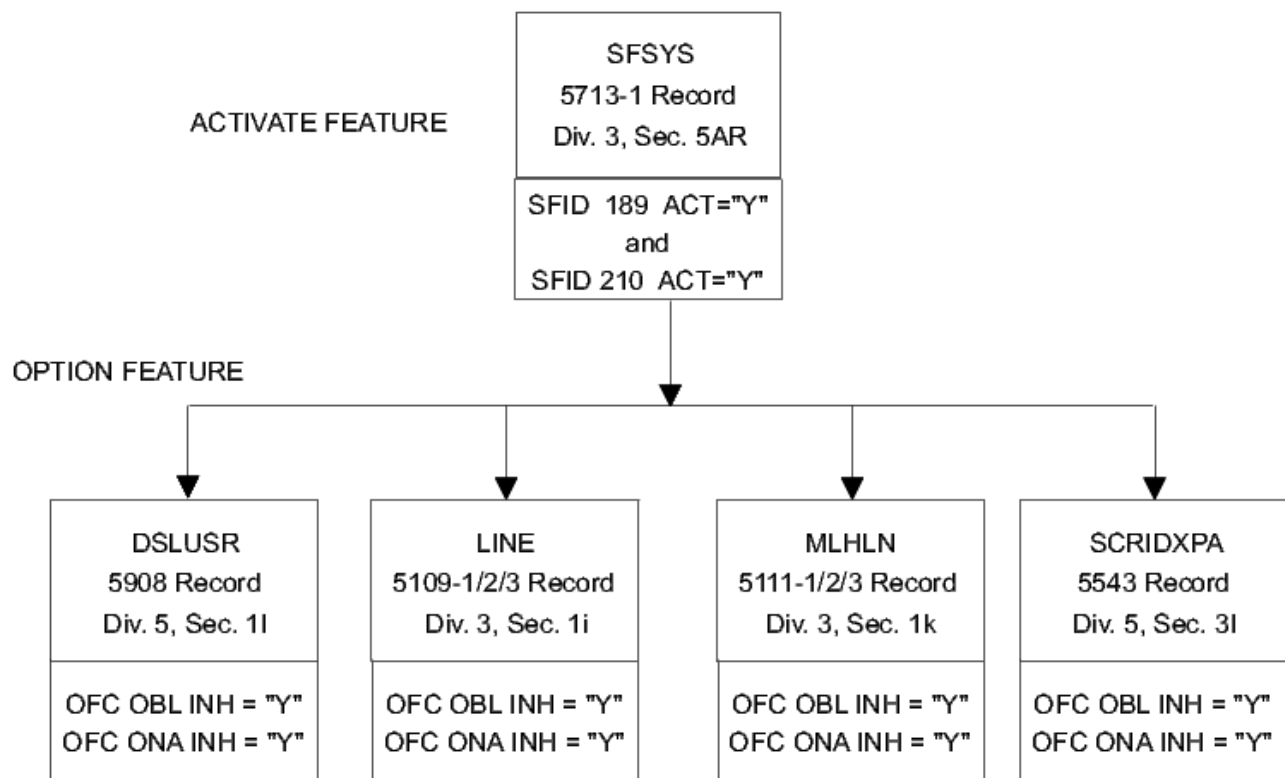


Figure 1 ASP INHIBITING OF ORIGINATING BUSY/NO ANSWER TRIGGERS FORM FLOW

SEC. 4A211: ASP PROVISIONING OF ORIGINATING BUSY/NO ANSWER TRIGGERS

1. FEATURE DESCRIPTION

Available with 5E12 and later, the ASP (Advanced Services Platform) Provisioning of Originating Busy/No Answer Triggers feature is a secured feature controlled by Secured Feature ID 211. The feature number is 99-5E-4035.

This feature provides the ability to associate an Originating BLNA (Busy Line/No Answer) trigger to an individual line through the assignment of an originating ASP (BRCS) Business and Residential Custom Services feature. When assigned to the line, the individual Originating BLNA trigger takes precedence over the office Originating BLNA trigger.

Three other secured features are associated with the ASP Originating Busy/No Answer Office Triggers with Extended Ringing secured feature (SFID 189). They are:

1. ASP Inhibiting of Originating Busy/No Answer Office Triggers (99-5E-3760)
2. Call Screening for ASP Originating Busy/No Answer Triggers (99-5E-3761)
3. Repeat Dial Interworking with AIN Originating Busy Trigger (99-CP-3749)

The functionality provided by the ASP Provisioning of Originating Busy/No Answer Triggers feature enhances the functionality provided by the ASP Originating Busy/No Answer Office Triggers with Extended Ringing secured feature (SFID 189). Therefore, it is important to have basic knowledge about SFID 189 before

understanding the capabilities provided by the ASP Provisioning of Originating Busy/No Answer Triggers feature. Refer to Division 2, Section 4A189, for further information on SFID 189.

2. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for the ASP Provisioning of Originating Busy/No Answer Triggers feature.

The ACT field for SFID 211 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

In 5E12, new Originating BLNA triggers may be assigned by means of an ASP BRCS feature. When an ASP BRCS feature is assigned with one of the new BLNA triggers and the trigger is marked active, it has precedence over the office wide BLNA trigger defined on the OFCOPT form. Like the office BLNA triggers, the BLNA triggers defined on these two ASP forms must be defined on the NSTRIG form first.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPF	5632-1	4	31A	12.64
ASPLPA	5632-2	4	31B	1.64
ASPMPA	5632-3	4	31C	1.64
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

ASPF form (5632-1 Record) - This form defines various combinations of options available with ASP features. The OBL TRIG NBR, OBL TRIG ACT, ONA TRIG NBR, ONA TRIG ACT and the ONA TIMER fields were added to support the ASP Provisioning of Originating Busy/No Answer Triggers feature.

ASPLPA form (5632-2 Record) - This form defines the per port data associated with ASP features. For 5E12 and later, the OBL TRIG NBR, OBL TRIG ACT, ONA TRIG NBR, ONA TRIG ACT and the ONA TIMER fields were added to support the ASP Provisioning of Originating Busy/No Answer Triggers feature.

ASPMPA form (5632-3 Record) - This form defines ASP Multi-Line Hunt line parameters. The Line (MLHG/Term) Parameter form is used when an ASP constructed feature is assigned to a Multi-Line Hunt line, and the desired parameters on the ASPFD form. The OBL TRIG NBR, OBL TRIG ACT, ONA TRIG NBR, ONA TRIG ACT and the ONA TIMER fields were added to support the ASP Provisioning of Originating Busy/No Answer Triggers feature.

NSTRIG form (5324 Record) - This form identifies network service applications. Populate the trigger number that will be used for Busy/No Answer on the form.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous options and parameters. Populate the office-wide Originating BLNA parameters, ORIG BUSY TRG and ORIG NO ANS TRIG on this form. The trigger numbers must have been previously defined on the NSTRIG form.

SFSYS form (5713-1 Record) - This form is used to enable secured features. SFID 189 and SFID 210 must be set to "Y" to enable the ASP Provisioning of Originating Busy/No Answer Triggers feature.

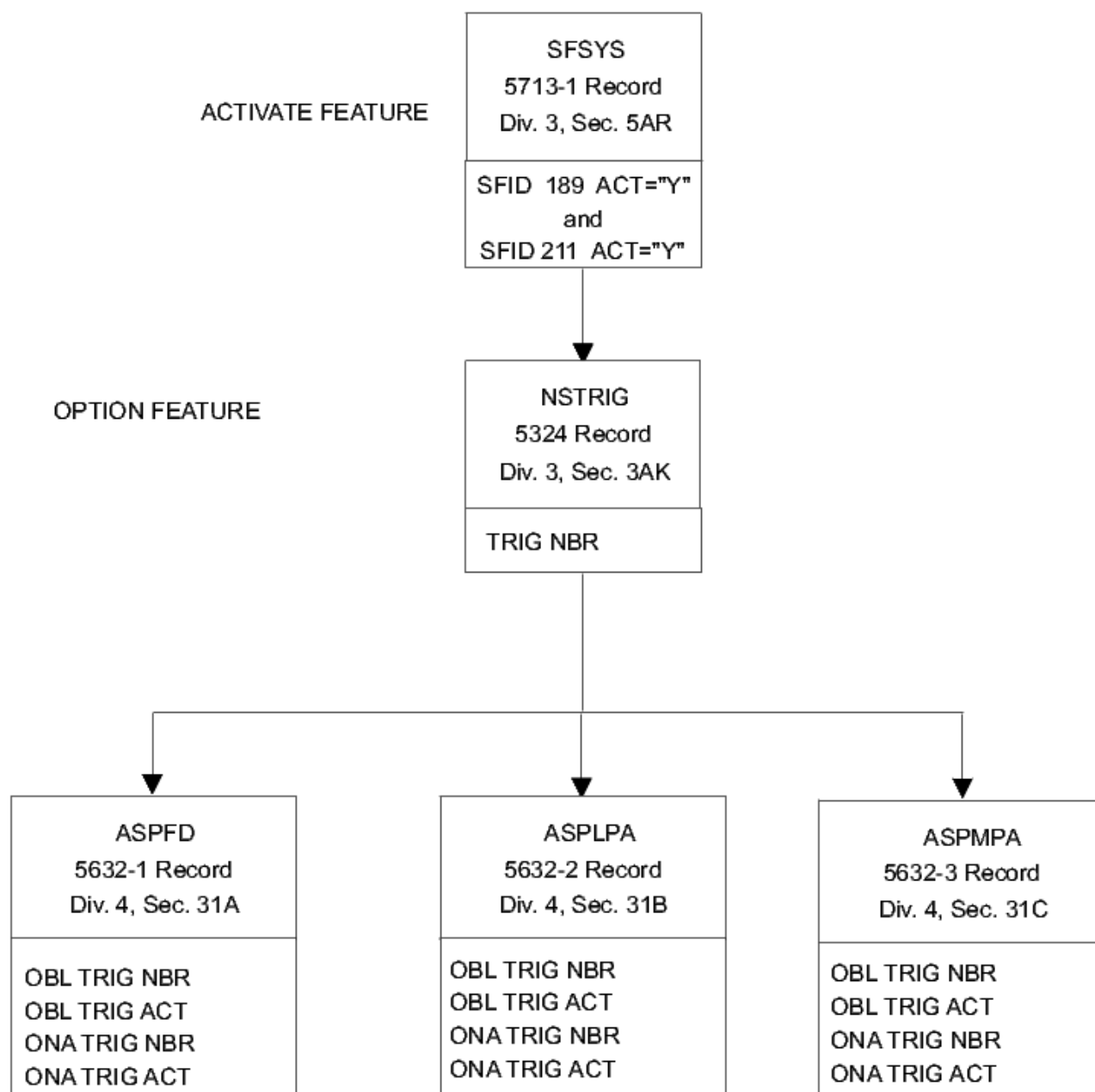


Figure 1 ASP PROVISIONING OF ORIGINATING BUSY/NO ANSWER TRIGGERS FORM FLOW

SEC. 4A212: CALL SCREENING FOR ASP ORIGINATING BUSY/NO ANSWER TRIGGERS

1. FEATURE DESCRIPTION

Available as a 5E11 Software Update and in the Beginning Managed Introduction of the 5E12 Software Release, the Call Screening for ASP Originating Busy/No Answer Triggers feature is a secured feature (SFID 212) having feature number 99-5E-3761.

This feature enhances the functionality provided by the Originating Busy/No Answer Office Triggers with

Extended Ringing secured feature (SFID 189). For more information concerning this feature, see Division 2, Section 4A189. The Originating Busy/No Answer Office Triggers with Extended Ringing feature allows the SSP to query the SCP upon detection of a user busy or no answer condition. The provisioning for SFID 189 allows two "office-wide" originating triggers (Busy and No Answer) to be enabled. If these triggers are enabled, then calls originated by lines at the SSP that detected user busy or no answer encounter the appropriate trigger.

The Call Screening for ASP Originating Busy/No Answer Triggers feature provides more granular control of Originating Busy and No Answer triggers. The capabilities of the Call Screening for ASP Originating Busy/No Answer Triggers feature (SFID 212) allows inhibit indicators to be provisioned that block (screen) office-wide Originating Busy and No Answer Triggers from being encountered. These inhibit indicators can be provisioned as follows:

- By digit string. A digit string (such as, 976) can be defined in one of the Digit Analysis tables (such as, PDIT, LDIT, and so on) to block the office-wide Busy and/or No Answer Triggers.
- By Carrier. A carrier can be defined to inhibit the office-wide Busy and/or No Answer Triggers from being encountered.
- Out-of-LATA calls. Calls made by originators that are routed outside of the LATA can be restricted from encountering the office-wide Busy and No Answer triggers. This is an office-wide restriction, and applies to all line originated calls that terminate outside the LATA.

Three other secured features are associated with the Originating Busy/No Answer Office Triggers with Extended Ringing secured feature (SFID 189). They are:

- Provisioning of Originating Busy/No Answer Triggers as Subscribed Triggers (99-5E-4035). For more information concerning this feature, see Division 2, Section 4A211.
- Inhibiting of ASP Originating Busy/No Answer Office Triggers (99-5E-3760). For more information concerning this feature, see Division 2, Section 4A210.
- Repeat Dial Interworking with ASP Originating Busy Triggers (99-5E-3749). For more information concerning this feature, see Division 2, Section 4A209.

These secured features provide additional controls and enhancements to the Originating Busy/No Answer Office Triggers with Extended Ringing secured feature.

2. FEATURE ASSIGNMENT

For the feature assignment call flow, see Figure 1.

2.1 Feature Activation

The Originating Busy/No Answer Office Triggers with Extended Ringing (SFID 189) secured feature must be enabled before the Call Screening for ASP Originating Busy/No Answer Triggers feature is enabled.

The Originating Busy/No Answer Office Triggers with Extended Ringing (SFID 189) secured feature is activated by setting the SFID 189 ACT field on the SFSYS form (5713-1 Record) to "Y". The Call Screening for ASP Originating Busy/No Answer Triggers feature is then activated by setting the SFID 212 ACT field on the SFSYS form to "Y".

When Originating Busy/No Answer Office Triggers with Extended Ringing is enabled, Busy and No Answer Triggers applies to all calls originated by analog and ISDN lines at an SSP under most conditions. When the analog or ISDN line encounters a busy or no answer condition, a query was launched. When SFID 189 is enabled on an office-wide basis, this could result in undesired queries. To prevent these undesired queries, the Call Screening for ASP Originating Busy/No Answer Triggers provides several methods of inhibiting the office-wide Originating Busy and No Answer Triggers.

2.2 Provisioning of the Inhibit Indicators

When the Call Screening for ASP Originating Busy/No Answer Triggers feature is activated by setting the SFID 212 ACT field on the SFSYS form, inhibiting of office-wide Busy and No Answer Triggers can be provisioned for digit strings, carriers, and out-of-LATA calls as follows:

- The service provider may want to designate certain digit strings (such as, 976) from encountering the Busy and No Answer Triggers. For example, an originating line dials a 976 number and 976 is provisioned in the originator's dialing plan to inhibit Busy and No Answer Triggers. If this call results in a busy or no answer condition, then the office-wide Originating Busy or No Answer Trigger is not encountered.

For a digit string, the field names for the inhibit indicators are INH OBL and INH ONA. These fields allow values of "Y" and "N", where the default value is "N". "N" indicates do not inhibit. The digit analysis forms that allow provisioning of these fields include, PDIT form (5300-2 Record), LDIT form (5300-3 Record), IDDD form (5307 Record), RDIT form (5300-7/8 Record), and MLDIT form (5300-3A/B Record).

Note: Digit Strings on PDIT that can set the INH OBL and INH ONA fields to "Y" are limited to the following specific digit strings: 0-, 00, 0+, 1+, 01+, and 010.

- The service provider may want to inhibit the office-wide Busy and/or No Answer Triggers for one, some or all of the carriers in the SSP office. For example, Carrier XYZ does not want to be associated with Originating Busy and No Answer Triggers. The Carrier XYZ is provisioned on the ICF form (5305 Record) to inhibit Originating Busy and No Answer Triggers. Calls from an originating line in the SSP that route through the inhibited Carrier and encounter a busy or no answer condition are inhibited from encountering the office-wide Busy and No Answer Triggers.

Note: Inhibiting the triggers by carrier are valid only for the last carrier used to route the call out of the SSP.

For a specified Carrier, the field names for the inhibit indicators are OFC OBL INH and OFC ONA INH. These fields allow entries of "Y" and "N", where the default value is "N". "N" indicates do not inhibit. These fields appear on the ICF form (5305 Record).

Note: The OFC OBL INH and OFC ONA INH fields cannot be set to "Y" if the CARRIER TYPE is "LEC" or "PSUEDO".

- The service provider may want to block Busy and No Answer Triggers for ALL calls that route outside of the LATA (such as, InterLATA, International, and so on). Two Out-of-LATA inhibit fields are provisioned on the OFCOPT form (5509 Record) or ASPOPT form (5670 Record) to disable, for the entire SSP office, office-wide Busy and No Answer Triggers. When the appropriate field is set to "Y", a call from an originating line in the SSP office that routes outside the LATA and encounters a busy or no answer

condition, will ignore the office-wide Busy and No Answer Triggers. An Out-of-LATA call is determined by switch call processing in digit analysis. The Called Party digits from an originating line in the SSP are defined in digit analysis as a certain CALL TYPE. If the CALL TYPE is one that has been defined by this feature as being Out-of_LATA, then the trigger is inhibited.

Note: For inhibiting the triggers for out-of-LATA calls, it is the last call type that is used to determine if the triggers should be inhibited.

For Out-of-LATA calls, the field names for the inhibit indicators are INH OFC OBL OOL and INH OFC ONA OOL. These fields allow entries of "Y" and "N", where the default value is "N". "N" indicates do not inhibit. These fields appear on the OFCOPT form (5509 Record) for 5E11 and on the ASPOPT form (5670 Record) for 5E12 and later.

The capabilities of the Call Screening for ASP Originating Busy/No Answer Triggers feature provide inhibiting of the office-wide busy and no answer triggers. If an originator is inhibited through any one, or all of these inhibiting methods, and encounters an active Originating Busy or No Answer Trigger, the trigger is ignored and busy or no answer treatment is provided as appropriate.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPOPT	5670	4	31G	8.49
ICF	5305	3	3R	10.3
IDDD	5307	3	3T	9.6
LDIT	5300-3AB/5	3	3C	9.3
MLDIT	5300-3 A/B	3	3C	9.15
OFCOPT	5509	3	5I	8.1, 8.15
PDIT	5300-2	3	3B	9.2
RDIT	5300-7/8	3	3H	9.9

ASPOPT form (5670 Record) - This form is used to define the ASP global parameters residing in the CP. The INH OFC OBL OOL and INH OFC ONA OOL fields were added to support this feature in 5E12 and later.

ICF form (5305-1/2 Record) - This form is used to define the characteristics of Inter-LATA (Local Access Transport Area) carriers. The OFC OBL INH and OFC ONA INH fields were added for 5E11 and later.

IDDD form (5307 Record) - This form is used for International Direct Distance Dialing Country Access Codes. The INH OBL and INH ONA fields were added for 5E11 and later.

LDIT form (5300-3a/3b/5a/5b Record) - This form is used to define all area, office and service codes in a 5ESS-2000 Switch. The INH OBL and INH ONA fields were added for 5E11 and later.

MLDIT form (5300-3a/3b/5a/5b Record) - This form is used to define all area, office and service codes in a 5ESS-2000 Switch. This form allows multiple entries of incoming digits to be input when they have common attributes. The INH OBL and INH ONA fields were added for 5E11 and later.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. The INH OFC OBL OOL and INH OFC ONA OOL fields were added to support this feature for 5E11.

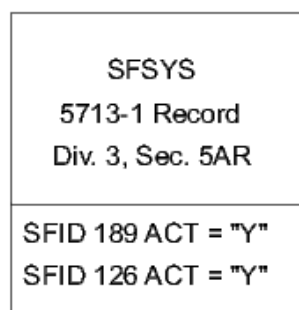
PDIT form (5300-2 Record) - This form is used to provide information defining feature and operator access

and to provide prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). The INH OBL and INH ONA fields were added for 5E11 and later.

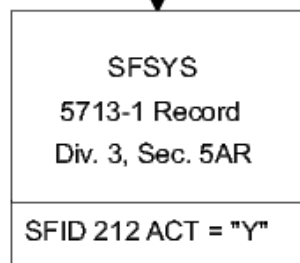
RDIT form (5300-7a/7b/8a/8b Record) - This form contains information for the translation of remaining dialed digit strings for digit analysis. The INH OBL and INH ONA fields were added for 5E11 and later.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 212 to "Y". Before activating this feature, the Originating Busy/No Answer Office Triggers with Extended Ringing secured feature must be enabled by setting the ACT field for SFID 189 to "Y".

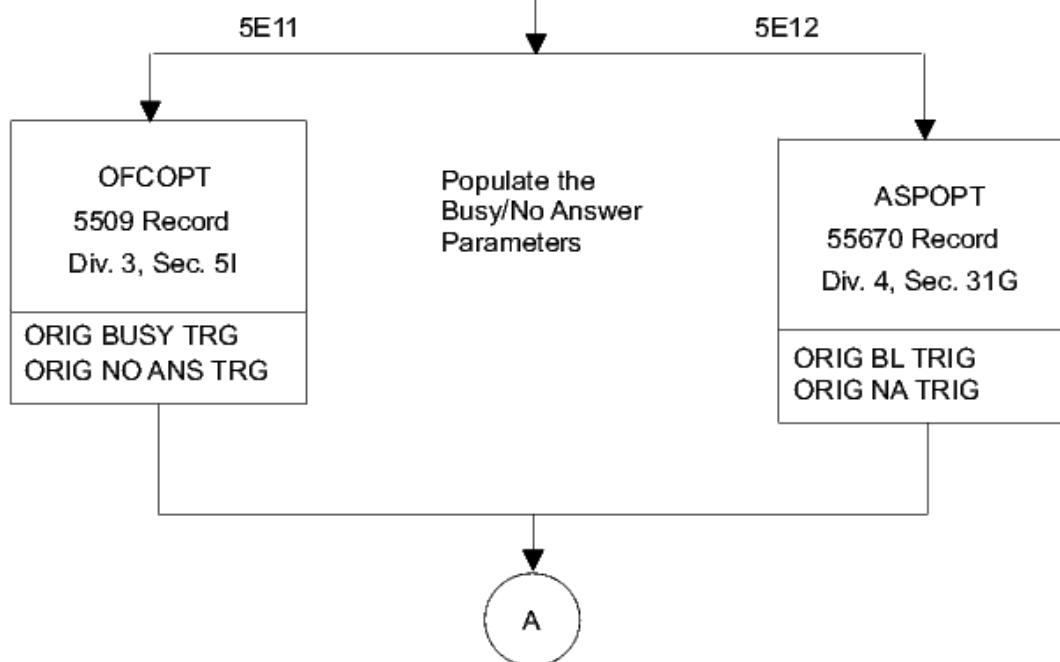
Enable the ASP Release 1.0 feature and also the ASP Originating Busy/No Answer Triggers With Extended Ringing feature.



Enable the Call Screening for ASP Originating Busy/No Answer Triggers feature.



Populate trigger numbers that will be used for Busy and No Answer.



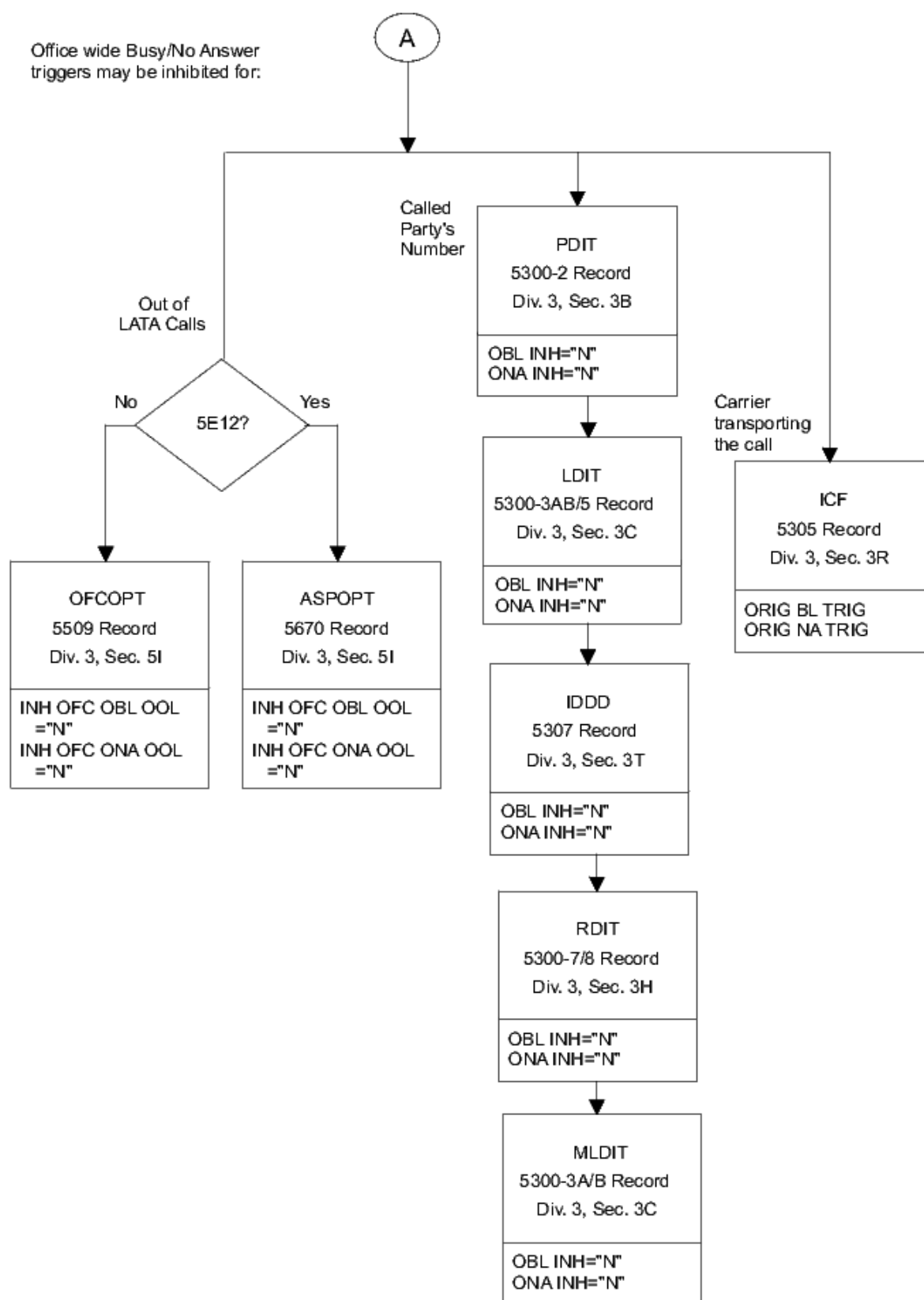


Figure 1 FORM FLOW FOR CALL SCREENING FOR ASP ORIGINATING BUSY/NO ANSWER TRIGGERS**SEC. 4A213: ROUTE INTERNATIONAL CALLS****1. BACKGROUND**

Presently, if the service provider of a toll 5ESS-2000 Switch wishes to connect to international carriers using international signaling protocols, the SCP (Service Control Point) returns an Analyze_Route message that contains in the PrimaryCarrierID parameter, the ID of the international carrier, and also contains a CalledPartyID parameter. The NoN and Digits values in the CalledPartyID parameter are translated through digit analysis and routing. An international Code Index and Route Index from ICF (InterLATA Carrier Feature) form (5305 Record) are selected for the international operator or non-operator route.

2. FEATURE DESCRIPTION

The feature number for the Route International Calls feature is 99-5E-3968. This secured feature (SFID 213) is being deployed as a software update for the 5E10 Software Release and for the Beginning Managed Introduction of the 5E11 Software Release. The Route International Calls By Country Code feature is available to a 5ESS Switch-2000 that is configured as a toll switch.

The feature enhances the post-query ASP (Adjacent Signaling Point) routing of international calls detected by the ASP Trunk Trigger for Toll. The post-query routing enhancements allow the 5ESS-2000 toll switch service provider with the ability to provide a unique route index for both international non-operator and operator traffic for a specified carrier. This enhances the current practice of routing to the carrier through the routes provided on the ICF for international non-operator and international operator traffic.

The capabilities of this secured feature allow a 5ESS-2000 Toll Switch service provider to select, for international calls, multiple Route Indexes per Carrier. The translations in the 5ESS-2000 Toll Switch must define these route indices and point them to the appropriate trunk groups. The SCP can select these route indexes by defining them in an Analyze_Route message PrimaryTrunkGroup parameter.

When the service provider wishes to utilize the capabilities of this secured feature, it must provision in the SCP, the appropriate service logic to select a unique route for an international call. The unique route is defined in an Analyze_Route message PrimaryTrunkGroup parameter. The Analyze_Route message must also include PrimaryCarrierID and CalledPartyID parameters.

3. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 213 must be set to "Y" on the SFSYS form (5713-1 Record).

The Route International Calls By Country Code feature affects ASP call processing of an Analyze_Route message as follows:

- Check if SFID 213 is unlocked.
- If SFID 213 is unlocked, check to see if the ASP Toll bit is set on the incoming trunk group TKGRP form (5202 Record).
- If SFID 213 is active and the ASP Toll bit is "Y", then the CalledPartyID is checked to be an international type of number (defined by the CalledPartyID NoN field being set to INTL or INTL OP). If these conditions are met, then the PrimaryTrunkGroup parameter is checked for the following:
 - The Route Type must be Hunt (not MC).

- The WATS Indicator must be NO.
- The Outpulse Indicator must be NO.

If these conditions are true in the Analyze_Route message, then the call proceeds through digit analysis and routing using the CalledPartyID and the PrimaryCarrierID parameters. THE INFORMATION IN THE PRIMARY TRUNK GROUP IS NOT USED TO ROUTE THE CALL AT THIS TIME! Call Processing continues up to the point where the international operator or non-operator Route Index and Code Index is selected (as defined on the ICF form). The route index defined by the PrimaryTrunkGroup parameter is inserted as an override to the ICF form Route Index and call processing resumes. The call completes to the SCP-defined route index.

It is important to note that any information defined in the AlternateTrunkGroup, SecondAlternateTrunkGroup, AlternateCarrier, or SecondAlternateCarrier parameters is discarded. The switch routes the call based on the value of the PrimaryTrunkGroup parameter returned by the SCP. The PrimaryCarrier returned from the SCP is used as the value of the carrier ID for signaling to the next switch, but is not used for routing purposes.

4. TRANSLATION REQUIREMENTS

No new fields nor data rules were added for this feature.

SEC. 4A214: TWO B-CHANNEL TRANSFER FEATURES

1. BACKGROUND

Currently, when an end-user's call over an ISDN (Integrated Services Digital Network) PRI (Primary Rate Interface) is transferred to another end user in the network over the PRI, the paths are joined at the controller, and the two B-channels remain in use for the duration of the transferred call. The two B-channels on the PRI remain held at the controller after the transfer. Thus, after a transfer, two B-channels are occupied on the PRI when neither of the users on the final connection reside on the controller.

As network operators deploy larger numbers of ISDN PRI-based controllers into their networks, the traffic-carrying capacity of the PRI becomes more important. Without this feature, the number of PRIs needed to support long duration transferred calls can be much greater than the number of PRIs required to support calls that are initially connected before transfer. In some applications the holding time of transferred calls can be 5 to 10 times the holding time of "pre-transferred" calls.

2. FEATURE DESCRIPTION

2.1 Two B-Channel Transfer on PRI

The feature number for this feature is 99-5E-3261. It is a secured feature (SFID 214) that is being deployed in the 5E13 Software Release.

This feature provides more efficient use of B-channels on a PRI after a call that has been established over a PRI has been transferred from the controller. The controller is a PBX or other intelligent peripheral.

TBCT (Two B-Channel Transfer) allows two calls over an ISDN PRI between two end-users and a controller to be transferred so that the two end-users are connected to each other, and the two B-channels on the ISDN PRI to the controller are released.

The controller, which is a PBX or other intelligent peripheral, interfaces to a 5ESS-2000 Switch over an ISDN PRI. The end users, who may be voice or data users, may be interfaced over analog or digital lines or trunks to the 5ESS-2000 Switch. The end users may also be interfaced to other switches in the network, which are interfaced to the 5ESS-2000 Switch over inter-switch trunks.

Initially there are at least two calls over the PRI between end-users and the controller. Each call uses a B-channel on the PRI. To be eligible for TBCT, at least one of the calls must be in an answered state; it may have been initiated by the end-user or by the controller. The other call may be in an answered state, or, if initiated by the controller, it may be in a ringing state.

If the controller determines that two of the calls are to be transferred to each other, the controller sends a request for two B-channel transfer to the 5ESS-2000 Switch. The protocol is based on the Bellcore specifications in Bellcore GR-2865-CORE.

When the 5ESS-2000 Switch receives the request from the controller, it checks the validity of the message containing the request, the states of the calls to be transferred, the compatibility of the bearer capabilities of the calls, whether the PRI groups associated with the B-channels in the request are provisioned for the feature, whether the PRI groups are members of the same PRI serving group (see below for explanation of PRI serving group), whether interactions with other services or features should prohibit execution of the transfer, and other criteria. If any of the checks fail, an error message is sent to the controller, and the calls remain connected to the controller. If the checks pass, the 5ESS-2000 Switch performs the TBCT operations. The two users' calls are then connected together at the switch, and the two B-channels, which were previously occupied on the PRI by the users' calls to the controller, are released. After the transfer, the two B-channels are available for new calls to the controller. Billing for the transferred calls continues as if the transfer had not occurred.

This feature supports two B-channel transfer for data calls as well as voice calls. Bearer capabilities of speech and 3.1 kHz audio are supported. Switched Fractional DS1/NxDS0/Wideband data rate calls are not eligible for PRI TBCT. The feature provides an additional capability, which increases the size of the pool of B-channels that can be associated with a request. The multiple interface capability allows transfers between B-channels that are on different PRI groups, that is, B-channels that are associated with different D-channels. A PRI serving group is introduced with this feature. A PRI serving group consists of members, each of which is a PRI group. All members of a PRI serving group must be on the same SM (Switching Module).

This feature also provides two counters that are available to control requests and usage of the feature on a per PRI group basis. If the two B-channels are from different PRI groups, one counter is incremented -- that of the PRI group with the B-channel that requests the transfer. One counter records the number of TBCT requests per 10-second interval. If the number of TBCT requests reaches a provisionable limit within the time interval, all additional requests are denied in the current time interval. The second counter records the number of active transfers, that is, the number of transferred calls that are currently active. If the number of active transfers reaches a provisionable limit, all subsequent TBCT requests are denied. (It is also possible for the number of active transfers to exceed the limit, for example if the limit is lowered while there are active transfers on the interface.) When a sufficient number of transferred calls are cleared, such that the number of active transfers no longer equals or exceeds the limit, new TBCT requests will be allowed. An audit is provided to ensure the integrity of the active transfers counter.

Traffic measurements are provided to record feature usage on a requesting PRI group basis. The number of valid TBCT requests, the number of successful TBCT transfers, the number of overflows of the active transfers counter, and the number of overflows of the transfer requests per current interval counter are measured.

The scope of this feature is limited to the functions provided by the 5ESS-2000 Switch as a central office that serves the controller, and does not include the capability to generate the requests for TBCT when the

5ESS-2000 Switch is operated as a controller.

2.2 ISDN TBCT Notification to Controller

The feature number for this feature is 99-5E-7268. This feature is an added enhancement to the TBCT on PRI feature. It is being introduced in a 5E13 Software Update. This feature is also secured under SFID 214. With the addition of the ISDN TBCT Notification to Controller feature the customer is able to tell when a previously B-Channel transferred call is cleared. This is indicated to the controller by using a new NOTIFY message which is made up of notification information elements. This new PRI NOTIFY message provides the controller with a call tag for each B-channel transferred call being released. This call tag corresponds to an earlier tag received by the controller when the original transfer took place. This NOTIFY message also provides updated information of the number of active and available transfers. Informing the controller when previously PRI B-channel transferred calls are cleared enables the controller to better manage B-channels and call transfers.

3. FEATURE ASSIGNMENT

For 5E13 and later, to enable these features, 99-5E-3261 and 99-5E-7628, the ACT field for SFID 214 on the SFSYS form (5713-1 Record) must be set to "Y".

See Figure 1 for provisioning form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9
PRIGRP	5211	3	2M	5.2
SFSYS	5713-1	3	5AR	8.22

MEASSUM form (5563) - This form is used to define components that have been selected for measurements for some sections of the 30-minute measurements report. For 5E13 and later, data rules were added.

PRIGRP form (5211 Record) - This form is used to establish the PRI GROUP and PRI TYPE for a D-Channel facility. For 5E13 and later, four new fields (TBCT ACTIVE, MAX ACT TBCT, MAX TBCT REQS, and TBCT SERV GRP) have been added to this form.

In a 5E13 Software Update, the NOTIFY CTRL field has been added to this form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 214 to "Y".

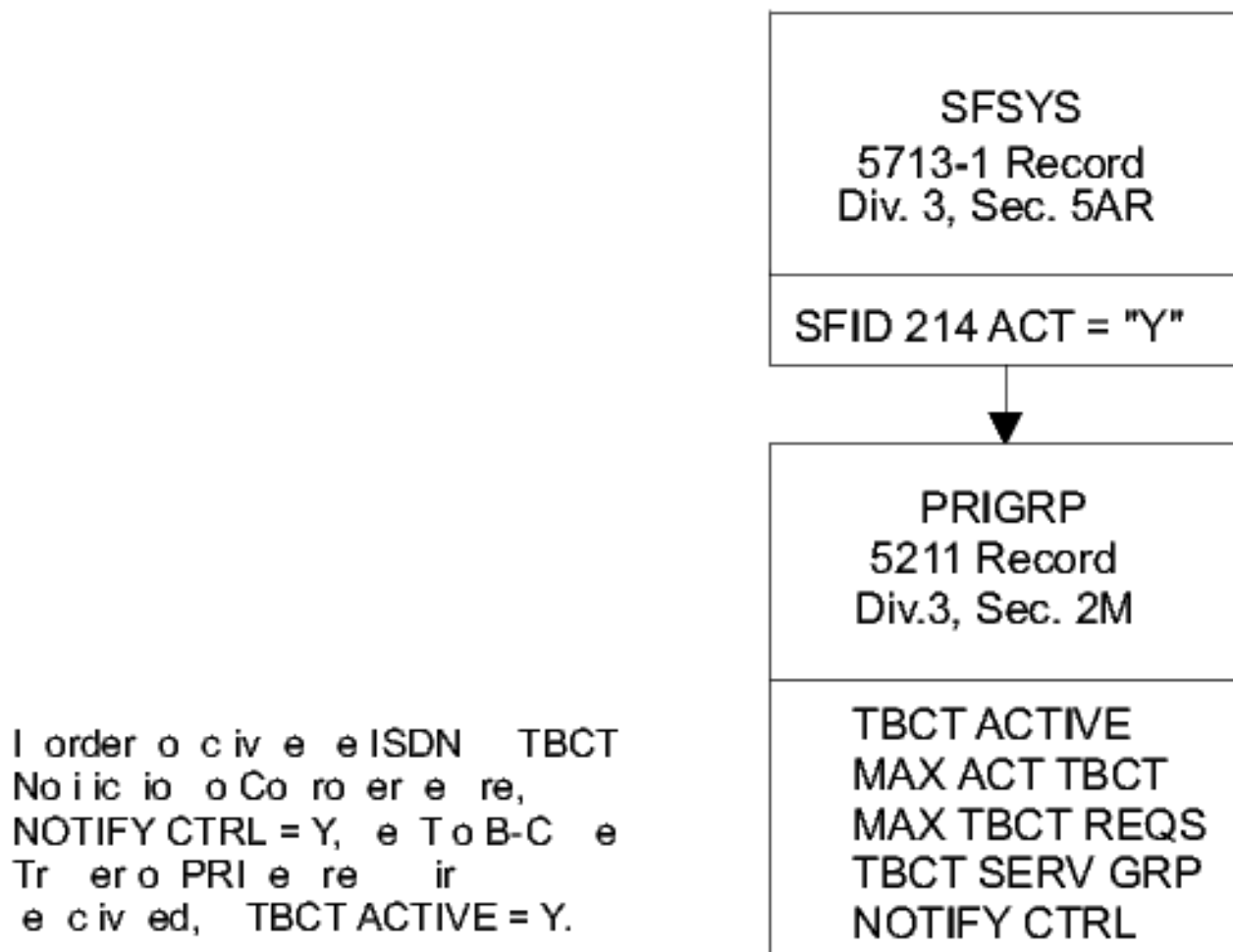


Figure 1 FORM FLOW FOR TWO B-CHANNEL TRANSFER ON PRI

SEC. 4A216: NP - NON-CONDITIONAL 10-DIGIT TRIGGER FOR LRN

1. BACKGROUND

The functionality provided by the NP - Non-Conditional 10-Digit Trigger for LRN (Local Routing Number) feature, SFID (Secured Feature ID) 216, enhances the functionality provided by the NP -Basic LRN SFID 174. For more information on this feature, see Division 2, Section 4a174. Therefore, it is important to have a basic knowledge about SFID 174 before attempting to understand the capabilities provided by SFID 216.

Prior to unlocking the functionality provided by SFID 216, when SFID 174 was unlocked and provisioned, an LNP Trigger would not apply to a DN (Directory Number) that was provisioned in the same switch as the originator. That is, when party (A) dialed party (B) that resides in the same switch as party A, the call would route to party B without generating an LNP (Local Number Portability) query. This implies that party A's LDIT (Local Digit Interpreter Table) has been properly provisioned with an LNP TRIG NBR on the LDIT form (5300 Record).

With SFID 216 unlocked and provisioned on party B's DN, even though party B resides in the same switch as party A, an LNP query will occur. This gives control to the SCP (Service Control Point) to determine where

party B truly resides.

Consult the Lucent Technologies 235-190-127 5ESS-2000 Switch Number Portability User's Guide for further information on SFID 174.

2. FEATURE DESCRIPTION

The feature number for the NP - Non-Conditional 10-Digit Trigger for LRN feature is 99-CP-3888. This is a Secured Feature (SFID 216) that is being deployed in the 5E11 Software Update Release and in the BMI (Beginning Managed Introduction) of the 5E12 Software Release.

The intent of this feature is to enhance the functionality provided by the NP - Basic LRN Secured Feature (SFID 174). The NP - Basic LRN feature will only allow a LNP (Local Number Portability) trigger when the Dialed Digits do not translate to a line provisioned on the switch. That is, if the Dialed Digits translate to a line that is provisioned on the switch, an LNP query will not occur. All other LNP trigger conditions except the check for provisioned DN (Directory Number) remain in effect for the dialed number. The NP - Non-Conditional 10-Digit Trigger for LRN feature overrides this conditional triggering provided by the NP - Basic LRN feature.

The provisioning of SFID 216 allows an LNP query to be made regardless of whether the line is being served by the switch. This option facilitates transitioning the DN from the old service provider to the new service provider. The NP - Non-Conditional 10-Digit Trigger for LRN feature may be provisioned for individual DNs, Secondary for individual DNs, Secondary Only DNs, or for a group of DNs. DNs associated with a MLHG (Multi-Line Hunt Group or TG (Terminal Group)) may be provisioned as a group by using Global Recent Change. The Line and DSL forms may be used as long as all members have NON COND TRIG set to "Y".

3. FEATURE ASSIGNMENT

For 5E11 and later, to enable this feature, the ACT fields for SFID 174 and SFID 216 respectively on the SFSYS form (5713-1 Record) must both be set to "Y".

See Figure 1 for provisioning form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2/23.8
LINE	5109	3	1I	1.6
MLHG	5110	3	1J	3.5
MLHLN	5111	3	1K	1.6
SFSYS	5713-1	3	5AR	8.22
SHTN	5902	5	1C	23.20

DSLUSR form (5908 Record) - This form is used to assign attributes to a user of a DSL (Digital Subscriber Line) BRI (Basic Rate Interface). For 5E11 and later, the NON COND TRIG field is being added to indicate whether or not a call to this DN requires a non-conditional query of the SCP prior to routing the call.

LINE form (5109 Record) - This form defines the office Equipment Number and features for each telephone number in a 5ESS-2000 Switch. For 5E11 and later, the NON COND TRIG field is being added to indicate whether or not a call to this DN requires a non-conditional query of the SCP prior to routing the call.

MLHG form (5110 Record) - This form is used to define Multi-Line Hunt Group parameters. For 5E11 and later, the NON COND TRIG field is used to indicate whether or not a call to this DN requires a non-conditional

query of the SCP prior to routing the call. However, this is a verify only field.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular MLHG. For 5E11 and later, the NON COND TRIG field is being added to indicate whether or not a call to this DN requires a non-conditional query of the SCP prior to routing the call.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 174 and 216 respectively, to "Y".

SHTN form (5902 Record) - This form is used to specify a Primary or Secondary TN (Telephone Number) that is shared by several other TNs. For 5E11 and later, the NON COND TRIG field is being added to indicate whether or not a call to this DN requires a non-conditional query of the SCP prior to routing the call.

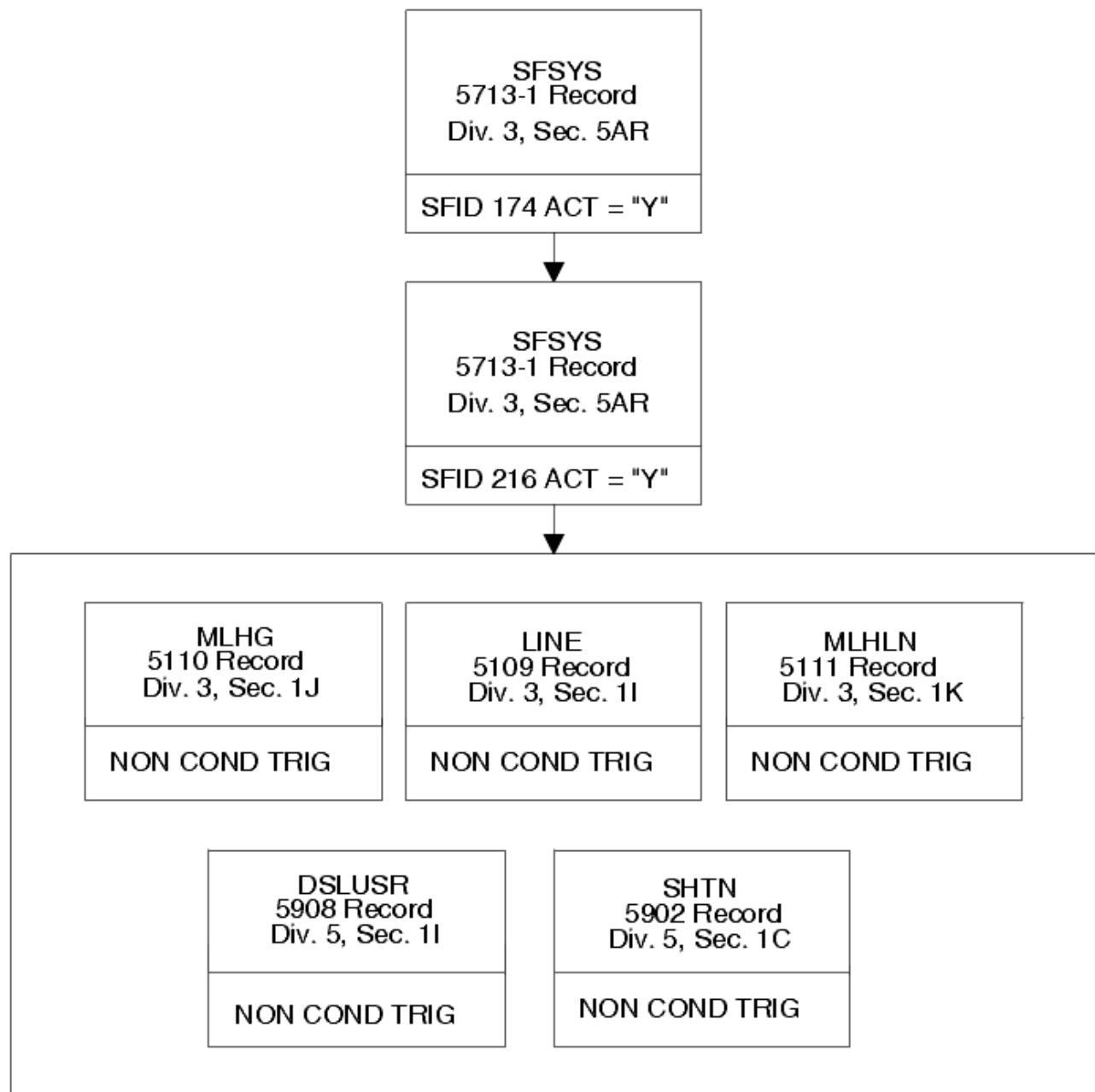


Figure 1 FORM FLOW FOR NP - NON-CONDITIONAL 10-DIGIT TRIGGER FOR LRN

SEC. 4A217: TOLL 5ESS-2000 SWITCH PLATFORM FOR MINT PROCESSING

1. FEATURE DESCRIPTION

The MINT (Multi-Vendor Intra-Network Trunk) capability extends the LDP (Long Distance Platform) functionality by defining MINTs (a MF or SS7 trunk connecting two Long Distance switches) and the new signaling/routing used to support calls that traverse them. MINT signaling, consisting of network-specific MINT information, is included in SS7 and MF messages.

The MINT capability can be divided into the following components which are further discussed in the next subsections.

- General MINT Capability:
 - MINT Signaling-Alpha signaling (99-5E-3782, SFID 217)
 - MINT Beta Signaling (99-5E-3782.A, SFID 247)
 - MINT Gamma Signaling (99-5E-3782.B, SFID 248)
- Terminating Network Selection Code (part of Feature 99-5E-3782)
- Route Search Limit (part of Feature 99-5E-3782)
- Satellite Circuit Processing (part of Feature 99-5E-3792)
- Reroute-on-Release (99-5E-3782.D, SFID 250)
- Reroute Queuing (99-5E-3782.C, SFID 249)
- Originating Network Selection Code (part of Feature 99-5E-3782)
- Time Dependent Routing (99-5E-3782.E, SFID 251)

1.1 General MINT Capability

The Basic MINT capability allows the LDP switch to support a trunk (MF and SS7) using MINT signaling. MINT signaling includes the addition of network-specific information shown in Figure 1. In addition, the Basic MINT capability includes:

- the ability to designate a trunk group as MINT,
- create MINT parameters/information for calls arriving over incoming NATs (Network Access Trunks),
- use of MINT signaling information to modify routing,
- modification of MINT information for incoming MINT trunk groups via trunk group options and
- interworking MINT trunks with other trunks supported by the LDP (Long Distance Platform) switch.

For incoming traffic that must be routed to a switch within the same network or between networks over MINTs, the LDP switch must populate an outgoing MINT signaling message. This applies to traffic arriving from another network (via NAT (Network Access Trunk) or MINT) and within the same network (via MINT or STINT (Standard Intra-Network Trunk)).

The LDP switch supports interfaces to multiple vendors via MINTs that use vendor-compatible signaling formats shown in Figure 1. Figure 1 summarizes the network-specific information supported in MF and SS7 MINT signaling, depending on the vendor-compatible signaling format required.

1.2 Terminating Network Selection Codes

The 5ESS-2000 LDP must add a T-NSC (Terminating Network Selection Code) to be used with MINT signaling. A T-NSC is used with both MF and SS7 signaling, and is needed for all three types of MINT signaling (i.e., Alpha, Beta and Gamma). Refer to Figure 1 for information on the T-NSC in the specific signaling type.

T-NSC may have a value from 0 to 999 and those Network Selection Codes are to be shared throughout the network. Other vendors may support a more limited range for their Terminating Network Selection Codes so interworking with them must be agreed upon when provisioning a trunk or switch.

When an LDP switch has the MINT features active, if a T-NSC is associated with that call, it becomes the T-NSC of Record, for that call. The T-NSC may be determined by call processing or it may be received in the incoming signaling. At any given moment, a call can have at most one T-NSC of Record. The T-NSC may be changed or overwritten but then the new value becomes the T-NSC of Record.

All calls that egress the switch over a MINT trunk must have a T-NSC.

1.3 Route Search Limits

RSL (Route Search Limit) is a capability that allows the service provider to specify the maximum number of routes that can be searched for an available route. This is useful in limiting the search to less expensive routes.

The RSL is a field in the SS7 IAM MINT signaling message (Alpha and Beta formats) that indicates how far down the route chain the switch will search. The route chain may contain non-MINT and MINT (both MF and SS7) outgoing routes. A RSL can be defined on each outgoing route and is only populated in the outgoing SS7 MINT signaling message (Alpha and Beta formats).

The maximum value the RSL may be set to 15, however, the RSL should correspond to the maximum number of routes that can be defined on a switch, plus a zero value. A zero RSL value indicates the RSL is not set and the entire route chain may be checked. The LDP switch currently support 5 routes per route chain. Other vendor switches may support a different number of routes. If the RSL is set to a value greater than the number of routes on the route chain, then the switch can only search to the end of the chain, and the higher RSL value is ignored. The LDP SCP (Service Control Point) alternate route capability can extend the number of route chains available.

Currently after a call arrives at the LDP switch, the LDP switch determines the outgoing route chain and searches for an available route. The RSL (if received) in the incoming MINT signaling message, will now be used to limit the search for available routes. The additional LDP switch actions to support the RSL capability are shown below.

- After the LDP switch determines the route chain, the route chain is searched for an available route.
 - For incoming SS7 MINT traffic using Alpha or Beta signaling formats, the LDP switch examines the RSL (received in the IAM message) to determine the maximum number of outgoing routes to search and begins the route search. For example, if the RSL is two, a maximum of two outgoing routes can be searched for availability. If the RSL is zero, the entire route chain may be searched.
 - For incoming MF MINT, SS7 MINT using Gamma format and non-MINT traffic; a RSL is not received. Therefore, the entire route chain can be searched.
- If an available route is found and it is a MINT, the outgoing MINT signaling message is routed to the next switch. The outgoing route could be a trunk supporting MINT or non-MINT signaling.

- If the LDP switch selects an outgoing SS7 MINT (for Alpha and Beta formats), a RSL is obtained. (A RSL is assigned to each outgoing route.) The LDP switch creates an outgoing MINT IAM (Initial Address Message which includes the Route Search Limit and sends the signaling message to the next (downstream) switch.

The downstream switch uses the Route Search Limit (received in the incoming MINT signaling) to conduct its route search.

- If the LDP switch selects an outgoing MF MINT, SS7 MINT using Gamma, or non-MINT; a Route Search Limit is not included in the outgoing signaling message.

If the LDP switch is unable to locate an available route, the LDP switch checks if queuing is inhibited for the incoming trunk group. If queuing is inhibited, a standard release message is sent to the upstream switch. If queuing is not inhibited, queuing would be attempted. See the Reroute-on-Release Section for actions taken for sending/receiving Release messages. See the Reroute Queuing Section for queue processing.

1.4 Satellite Circuit Processing

The Satellite Circuit capability allows the 5ESS-2000 Long Distance Switch to control the use of satellite circuits in routing a call over a MINT trunk. Satellite circuits are those trunks that route over satellite transmission facilities. Echo control is put in place and trunk guard timing is extended to compensate for the added round trip propagation in the signaling. While customers desire to use satellite circuits in their routing, they want the ability to limit their usage on a per call basis, due to transmission degradation. A call should never use more than one satellite circuit in its end-to-end routing.

For the MINT capability, there is a Satellite Circuit indicator specified in the MINT signaling. For an Alpha or Beta SS7 MINT trunk, it is in the IAM message. For an MF MINT trunk, or a Gamma SS7 MINT trunk, it is the second prepended digit before the CdPN.

If a call is going to be routed over a Satellite route, the LDP switch must first make sure a Satellite route has not already been used for this call.

If satellite circuits have NOT been used, the LDP switch may select a satellite circuit in its routing. If a satellite route is selected, the switch must update the appropriate satellite circuit status field for that call.

If satellite circuits have already been used in the routing of this call, the Satellite Circuit indicator will already be set and thus the LDP switch is not allowed to use them. The LDP switch must skip any satellite routes identified in the outgoing route list. The Satellite Circuit indicator is not modified and will remain set to show that a satellite route has been used.

1.5 Reroute-on-Release

The Reroute-on-Release is a capability that allows a call to be rerouted if unavailable routes are encountered in the call path. After a call arrives at a LDP switch, the LDP switch determines the outgoing route chain and searches for an available route up to the RSL. As part of existing LDP switch functionality, all possible outgoing routes out of the downstream switch office (primary and SCP alternate routes) would be searched.

- If the LDP switch is unable to locate an available route (at this downstream switch), the incoming trunk is checked to determine if queuing is inhibited. If queuing is inhibited and the call arrived over a SS7 MINT or SS7 STINT, the downstream switch sends a Release message (with Cause) to the upstream switch.

- If the upstream LDP switch receives a Release message, the Cause value is checked to determine if the "Reroute-on-Release" capability applies. That is, if the Cause value is "armed" for Reroute-on-Release. If the Cause value is "armed" for Reroute-on-Release, the upstream LDP switch continues searching its route chain for another route. This occurs independent of the original routing method used on the call (e.g., non-ASP, ASP routing).

The following table summarizes possible Cause values used with the Reroute-on-Release capability. These are standard CCITT and ANSI Cause values and are part of the Resource Unavailable Class. The service-provider is able to provision (via Recent Change) specific "Resource Unavailable Class" Cause values that trigger the Reroute-on-Release capability. This includes the ability to turn on/off existing Cause values (within the Resource Unavailable Class) that have been provisioned.

Cause Value	Description
32	Unspecified
33	Unspecified
34	No circuit value
35	Unspecified
36	Unspecified
37	Unspecified
38	Network out-of-order
39	Unspecified
40	Unspecified
41	Temporary failure
42	Switching equipment congestion
43	User information discarded
44	Requested Circuits/Channels not available
45	Unspecified
46	Precedence call block
47	Resource Unavailable, Unspecified

1.6 Reroute Queuing

The reroute queuing capability allows the LDP switch to queue a voice call if all routes are unavailable. It is assumed that the existing Modular Queuing feature (a BRCS feature) is used as a base.

Queuing can occur on any route in the primary route chain (if no SCP alternate routes are provided). If SCP alternate routes are provided, queuing can occur on any route in the last SCP alternate route chain. Queuing can be defined on a trunk group basis and turned on/off per trunk group. If all of the routes (from the outgoing route chain) are unavailable, the call will attempt to queue.

When a call arrives at a LDP switch, all routes out of an office are searched (primary and SCP alternate routes). If the LDP switch is unable to locate an available route, the LDP switch checks the incoming trunk to determine if queuing is inhibited. If queuing is NOT inhibited, the LDP switch attempts to queue the call.

The signaling message received over the incoming MINT is checked to determine the call queuing status and the outgoing trunk is checked for queue provisioning. The call queuing status is one of the fields specified in the SS7 IAM or MF signaling message received/sent on MINTs.

- If queuing has NOT been performed (i.e., the queue indicator in the MF or SS7 MINT signaling message is set to No), the LDP switch may perform queuing when it tries to route the call. If queuing is used, the switch must update the queue indicator for the MF or SS7 IAM MINT signaling message to reflect that queuing has been used.

All routes in the route chain can be checked to determine if queuing is assigned to an outgoing route. If an outgoing route is found in which queuing has been assigned, the call is queued. If the queue timer

times out, then every route in the route chain is attempted a second time. If the call overflows the route chain the second time, the call times out.

- If queuing has already been performed for this call, the queue indicator (in the MF or SS7 IAM MINT signaling message) will already be set to Yes so the LDP switch is not allowed to queue the call. The queue indicator is not modified and will remain set to Yes. The call would undergo existing LDP switch treatment for unavailable routes.

1.7 Originating Network Selection Code

The 5ESS-2000 LDP switch must add an Originating Network Selection Code to be used with SS7 Alpha and Beta MINT signaling.

An O-NSC (Originating Network Selection Code) may have a value from 0 to 999 and those Network Selection Codes are to be shared throughout the network. Other vendors may support a more limited range for their O-NSC so interworking with their switches must be agreed upon when provisioning a trunk or switch.

For the initial phase of the MINT capability the O-NSC will have limited usage. When a call ingresses an LDP switch over a NAT or a STINT, it will not have an O-NSC associated with the call. However, all calls that egress the switch over an Alpha or Beta SS7 MINT use a Network Specific IAM parameter, and one of the fields in the IAM parameter that must be populated is the O-NSC. The Office Default O-NSC will be populated in the outgoing SS7 MINT signaling. The Office Default O-NSC is defined by the Service Provider using a value from 0 to 999.

For calls ingressing the switch over an Alpha or Beta SS7 MINT, which uses a Network Specific IAM parameter, the O-NSC associated with the call is the one that is received in the incoming MINT signaling. Although the LDP switch only uses an Office Default value for the O-NSC, other vendors may provide a specific O-NSC value. For that reason, if the call then egresses the switch over an Alpha or Beta SS7 MINT, the O-NSC that came across in the incoming signaling will be the one sent out, and the office default will not be used. The O-NSC will not be used by call processing at the LDP switch, but will be "passed through" from ingress to egress SS7 MINT signaling, in case it is used by another vendor's switch.

It is assumed that an O-NSC will always be received on an SS7 MINT that uses a Network Specific IAM parameter. If there is ever an erroneous case where the O-NSC is not sent over an SS7 MINT then the office default O-NSC value is used in the outgoing MINT signaling.

An O-NSC will never be received when a call ingresses the LDP switch over a NAT, an MF MINT, a STINT or an SS7 Gamma MINT. For these cases, if an O-NSC is needed for the outgoing MINT signaling, the Office Default O-NSC must be used.

1.8 Time Dependent Routing

The LDP switch with MINT feature provides switch-based TDR (Time Dependent Routing). TDR allows time-of-day/day-of-week routing pattern changes for incoming calls. TDR supports up to 16 Time-of-Day changes allowing a range of start/end times that can be provisioned. The TDR capability is separate from the ARS (Automatic Route Selection) Time-Of-Day capability and does not require ARS.

TDR is assigned to a route via the TDR form, View 10.39. If TDR is assigned, calls ingressing the LDP switch over MINT's, STINT's and/or NAT's can use TDR. The LDP switch would apply Time Dependent Routing after the switch (or SCP) determines the outgoing route index.

The SCP also has a TOD/DOY capability. As a service-provider option, the TDR function can be performed at

the switch and/or SCP. If both switch-based TDR and SCP-based TOD/DOY are used, the Service Provider should use different Route Indices returned from the SCP to avoid overriding TDR processing.

2. FEATURE ASSIGNMENT

The MINT feature is being provided on the 5ESS-2000 LDP Switch for the Service Providers, craft people for the Service Providers that be the major administrators of this feature. As a result, this section is treated as a high-level view of Installation and Provisioning.

The following instructions assume that the features "5ESS-2000 Switch Long Distance Platform Basic Call Processing (Feature 99-5E-3127)" and "5ESS 2000-Switch Long Distance Platform ANI Table Processing (Feature 99-5E-3032)" are already on the switch.

ANI Processing includes accessing the ANI Table or Carrier Table for specific treatment of the call, based on the ANI or Carrier. For the MINT features to work correctly, the following steps are to take place. The steps are separated into two categories - the data that may be provisioned before the features are activated, and the data that cannot be provisioned until after the features are activated.

2.1 Data that may be provisioned before feature activation (Figure 2):

1. Define the T-NSC's (LDPTNSC form, View 8.53). T-NSC's are shared throughout the network so care should be taken in configuring them. Every T-NSC that is to be used at this switch must have an entry in the LDPTNSC form, View 8.53.

For each T-NSC entered, a dialing plan must be determined by specifying a DAS and a SCR. Both of those values must be populated, and must already have been defined. Both a DAS and a SCR must be populated, since that is how a T-NSC is defined. If only one of the two values were populated for a given T-NSC, then the routing of a call could vary even though the T-NSC is the same, and this contradicts the very meaning of a T-NSC. It is not required, but it is strongly recommended that a Line DAS be used when provisioning a T-NSC. A Trunk DAS may be used, but a Line DAS is recommended.

2. Populate the Office Default fields (OFCOPT form, View 8.1). Define an Office Default T-NSC and an Office Default O-NSC. Both may range from 0 to 999 and must be one of the T-NSC's defined on the LDPTNSC form, View 8.53.

In addition, an Office Default Test T-NSC must be specified as the T-NSC to be used for Test calls. Again, it is in the range of 0-999 and must have been defined on the LDPTNSC form, View 8.53.

Although the Office Default T-NSC and the Office Default Test T-NSC may range from 0-999, Beta MINT signaling does not support the full range of T-NSC values. If a service provider has Beta MINT's in their network, then Office Default T-NSC values should be in that more restricted range.

3. The service provider has the option to populate T-NSC's in the ANI Table. T-NSC's can be assigned to specific ANI's by using the LDP ANI Table (ANITBL form, View 8.51). The keys to the ANI Table are ANI/Carrier, so assigning a T-NSC to the ANI/Carrier pair implies the way a call would be routed for that ANI and Carrier.

NOTE: The T-NSC in the ANI Table would only be accessed when the ANI Processing field is set to "Y" (i.e., use the ANI Table) on the TKGRP form, View 5.1. If the ANI Processing field is set to

"N", then the ANI Table would not be accessed.

1. The service provider has the option to populate T-NSC's in the Carrier Table. T-NSC's can be assigned to Carriers in the LDP Carrier Table (LDPCTBL form, View 8.52). Again, assigning a T-NSC on the Carrier Table implies the way a Carrier's calls are routed through the network.

If the ANI Processing field is set to "N", then the Carrier Table would be the first place to be searched for a T-NSC.

2. The service provider also has the option to assign T-NSC's to the Default ANI Table and Default Carrier Table.
3. There may be cases where a Service Provider wants a T-NSC value arriving on an Incoming MINT to be translated to a different T-NSC value. This option may be exercised using the TGNTNSC form, View 8.54. An incoming trunk group/T-NSC pair may be defined to map to a Translated T-NSC for all MINT calls.

There is also the option to specify an incoming trunk group and "wildcard" T-NSC value so that every MINT call arriving over that trunk, no matter what the Incoming T-NSC value is, maps to a Translated T-NSC. The wildcard value is 1022.

4. If the service provider wants to make use of SCP queries when processing MINT calls, a T-NSC can be returned from an SCP. The T-NSC is found in the the AMA Digits Dialed WC parameter. The first three digits of this parameter is a Context ID which determines how the parameter is interpreted. The LDP NSC WC ID is an office parameter on the OFCOPT form, View 8.1. The SCP must know about the LDP NSC WC ID as well, since it is the one populating it when it wants to return a T-NSC to the LDP.

It is important that the SCP returns T-NSC values that the LDP switch recognizes.

5. If the Time Dependent Routing feature is going to be activated, the routing tables may be provisioned before the feature is activated. For each Route Index on the RTIDX form, View 10.2, a set of time dependent routing tables may be specified on the TDR form, View 10.39. The service provider has up to 16 time slots that may map the Route Index to a new Route Index. Each time interval must be defined by a Start Day, Start Time, End Day and End Time.

The 16 ranges are processed sequentially, so care must be taken when provisioning these tables lest a specified time slot gets overridden by a time slot that is provisioned later.

6. If the Reroute-on-Release feature is going to be used, the Cause Values on the RORLST form, View 8.55, may be activated and armed.

2.2 Data that must be provisioned after feature activation (Figure 3):

1. Activate the correct MINT Secured Feature ID's. The Basic MINT functionality is turned on with the LDP MINT SIG SFID. The LDP SFID must be activated before the LDP MINT SIG SFID may be activated. If the LDP Switch needs to interface with switches that support the Beta MINT signaling format, then the LDP BETA MINT SIG SFID must be activated. If the LDP Switch needs to interface with switches that support the Gamma MINT signaling format, then the LDP GAMMA MINT SIG SFID must be activated.

2. The Time-Dependent Routing Feature is secured with a separate feature lock (TDR SFID 251). The data for time dependent routing may be provisioned before the feature is unlocked but the tables are not accessed by call processing until the feature is unlocked.

TDR is a separate secured feature that works not only with MINT's but with STINT's as well.

3. The Reroute Queuing feature is secured with a separate feature lock (Q_REROUTE SFID 249). This feature must be unlocked before Reroute Queuing may be assigned to a MINT trunk. (Reroute Queuing is a new type of queuing and can only be assigned to MINT trunks.)

NOTE: If an announcement is provisioned at the end of a route chain as error treatment, Reroute Queueing will never be performed for that route. When the last Route Index in the route chain points to an announcement trunk group, the call is considered successfully terminated when connected to the announcement after all other Route Indexes/Trunk Groups in the route chain have been hunted and busy conditions detected. Therefore, the call would never enter a Reroute Queue even if it was provisioned on a Trunk Group in the route chain. So, when Reroute Queueing is provisioned on a trunk group in the route chain, the last route in that particular route chain should not point to an announcement trunk group.

4. The Reroute On Release feature is secured with a separate feature lock (ROR SFID 249). This feature must be unlocked before Reroute on Release processing may take place at an LDP switch.
5. For each Trunk Group (TKGRP form, View 5.1) to be used for MINT signaling, the type of MINT signaling must be specified. The choices are Alpha, Beta or Gamma. For MF signaling in this first release of the MINT Capability, the three signaling types are all the same. For SS7, Alpha signaling sends an Alpha-specific NSI parameter, Beta signaling sends a Beta-specific NSI parameter and Gamma signaling uses the same format as MF.

If Beta MINT Signaling is selected, only T-NSC values from 0-15 may be accepted. Care must be taken when provisioning the office and the dialing plans to prevent a T-NSC value that is too large from being signaled, which could cause signaling errors.

WARNING: If trunk groups are set up as MINT's and then if the MINT Secured Feature is turned off, those trunks may still be selected via routing, but the call will fail since the signaling is incorrect. If the MINT SFID is turned off, it is recommended that the service provider remove all MINT-related trunk data from the office.

1. If the Reroute-on-Release feature is active on the switch, and the Reroute-on-Release functionality is desired on this trunk, then the QUEUE INHIBIT field must be set to "Y". This will inhibit queuing and cause a Release message to be sent immediately to the upstream switch.

If the Reroute Queuing feature is activated, MINT trunks may now be assigned queuing.

2. When a route is specified on a switch, either using the RTIDX form, View 10.2 or the MCRTIDX form, View 10.4, the Service Provider has the option of assigning a Default T-NSC value to that route. This default value would be used if the call is about to be routed over a MINT trunk and does not already have a T-NSC of Record assigned to it. Rather than fail the call signaling, the default value is used.
3. If TDR is assigned to a route index, it will always be processed to see if there is a new route index

to use. This could affect a route index returned by LDP Fixed Carrier Routing, or a route returned from the SCP, so the service provider must be aware of which routes have TDR assigned to them. Also, if the TDR Secured Feature is active, ARS processing cannot take place on the call.

4. Assign a Route Search Limit to the route. This limit is sent along in SS7 Alpha or Beta MINT signaling only, and tells the downstream switch how far down its route list it can search for an outgoing route. For the 5E12 Software Release, the 5ESS LDP can support up to 6 routes in a route list, but it is possible to define an RSL up to 15. The switch will search up to the RSL, or up to the end of the route list, whichever comes first.

NOTE: The Route Search Limit does not peg a count when the end of list is reached, and the RSL is overflowed. The LDP switch continues to peg a count when it gets to the end of the route chain, but the RSL, since it is more of an arbitrary value, does not peg a specific count.

1. When an upstream switch receives a Release message from a downstream switch on an SS7 MINT or STINT, rather than tear down the call, it may try to find an alternate route through the network, if the ROR SFID is activated.

This feature only tries to Reroute for certain Cause values and those values are specified on the RORLST form, View 8.55. For the 16 possible Cause values that allow a reroute, the Service Provider has the option of turning each Cause value off or on.

2. For each trunk used in routing a MINT call, the option to queue the call is provided. When a Route Index chain is searched and all routes are currently busy, or out of service, the call may be queued if the Queuing Secured Feature is active for that trunk. The only queuing that is allowed on a MINT trunk is Reroute Queuing.

Another field assigned to the trunk is the QUEUE INHIBIT field. If the QUEUE INHIBIT field is set to "N" on the incoming trunk, then Reroute Queuing is allowed. When it is set to "Y", Reroute Queuing is inhibited. This field should be set to "Y" when the upstream switch can support Reroute-on-Release processing. This field may also be set to "Y", if the Service Provider just wants to prevent a call from queuing - regardless of whether Reroute-on-Release is present at the upstream switch.

NOTE: For incoming MINT's, if a Carrier is included in the incoming signaling, it is not used to route the call. The T-NSC determines the dialing plan to use to route the call. If the Carrier was included in the incoming signaling, it would also be included in the outgoing signaling (as long as the outgoing signaling protocol supported it). If service providers really want the Carrier to be used in routing the call, then routing should be over STINT's and not MINT's.

There are no specific requirements with this feature to prevent a route from looping back around to an earlier switch. This must all be prevented by the correct network engineering of the switch routing algorithms.

It should be noted that when Reroute-on-Release processing is used, or if Queuing is applied, there may be additional call completion delays. This is due to extended setup times for multiple reroute attempts. Also, there are call setup timers that could expire before the call is completed. The amount of Reroute-on-Release usage must be carefully managed as part of network engineering.

2.3 Configuration of Echo Canceller for MINT Trunks

If the Echo Canceller is physically connected to MINT trunks, it would be activated for the outgoing calls on

those trunks.

- **NOTE:** Remember, for MINT trunks the LDP has to be set to "N" on the TKGRP form (RC/V 5.1). Generally, for non-MINT trunks to activate the echo canceller, the LDP has to be set to "Y" on the TKGRP form (RC/V 5.1).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ANITBL	5561	3	5BE	8.51
LDPCTBL	5562	3	5BF	8.52
LDPTNSC	5568	3	5BI	8.53
MCRTIDX	5304	3	3Q	10.4
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1
				8.15
QUFD	5617	4	18A	12.40
RORLST	5570	3	5BK	8.55
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22
TDR	5571	3	5BL	10.39
TGNTNSC	5569	3	5BJ	8.54
TKGRP	5202	3	2A	5.1

ANITBL form (5561 Record) - The 5561 Record contains the switch based ANI table. For 5E12 and later, added the TERM NSC field.

LDPCTBL form (5562 Record) - The 5562 Record provides an LDP Carrier Table and Default Carrier Table. For 5E12 and later, added the TERM NSC field.

LDPTNSC form (5568 Record) - The 5568 Record provides the capability for specifying or verifying a TNSC (Terminating Network Selection Code), and its associated DAS (Digit Analysis Selector) and screening index information. For 5E12 and later, this form was added to support the LDP MINT feature.

MCRTIDX form (5304 Record) - The 5304 Record contains options for MC Route Index Expansion. For 5E12 and later, the RTE SEARCH LMT and TERM NSC fields were added.

NSTRIG form (5324 Record) - The 5324 Record is used to define a network service application. For 5E12 and later, the USE CURR DAS field was added.

OFCOPT (5509 Record) - The 5509 Record provides the office option global parameters residing in the Central Processor. For 5E12 and later, the NSC WC ID, ORIG NSC, TERM NSC and TEST CALL TNSC fields were added.

QUFD (5617 Record) - The 5617 Record is used to define Modular Queuing features. For 5E12 and later, the QUEUE TYPE field has been modified to allow the additional value of "REROUTE" to support the Long Distance Platform MINT (Multi-Vendor Intra-Network Trunk) feature. Also, a new preconstructed feature "/QRETE" for queuing coupled with reroute has been added.

RORLST (5570 Record) - The 5570 Record is used to arm various cause values associated with a resource unavailable event. For 5E12 and later, this view was added to support the MINT (Multi-Vendor Intra-Network Trunk) feature.

RTIDX (5303 Record) - The 5303 Record defines characteristics of the Route Index. for 5E12 and later, the RTE SEARCH LMT, TERM NSC, and TDR fields were added.

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. For 5E12 and later, added SFID 217, 247, 248, 249, 250, and 251.

TDR (5571 Record) - The 5571 Record is used to specify and verify time intervals and their associated substitute route indices. For 5E12 and later, this view was added to support the LDP MINT feature.

TGNTNSC (5569 Record) - The 5569 Record provides the capability for specifying or verifying a TNSC (Terminating Network Selection Code) based on an incoming TNSC over a trunk group. For 5E12 and later, this form was added to support the LDP MINT feature.

TKGRP (5202 Record) - The 5202 Record used to define each Trunk Group in a 5ESS-2000 Switch. For 5E12 and later, the MINT SIG TYPE and RERTE Q INH fields were added.

3.1 GLOSSARY

ARS - Automatic Route Selection

BRCS - Business/Residential Customer Services

IAM - Initial Address Message

LDP - Long Distance Platform

MF - Multi-Frequency (Signaling)

MINT - Multi-vendor Intra-Network Trunk

NAT - Network Access Trunk

NSC - Network Selection Code

NSI - Network Specific IAM

RCV - Recent Change and Verify

RSL - Route Search Limit

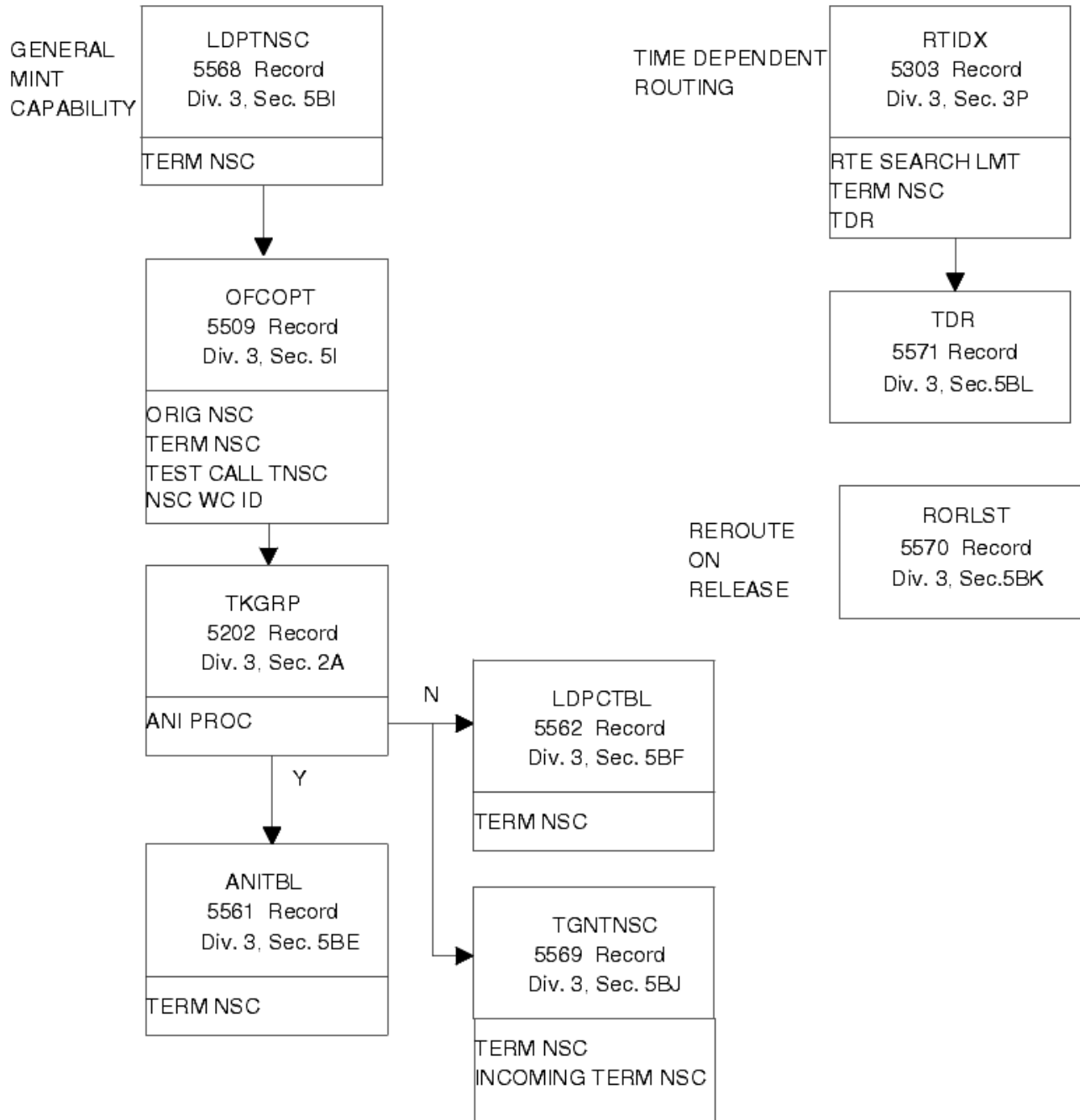
SCP - Service Control Point

SFID - Secured Feature ID

SS7 - Signaling System Number 7

Supported Vendor-Compatible Formats			
	Alpha	Beta	Gamma
MF MINT	Queuing Satellite T-NSC Called Party Number	Queuing Satellite T-NSC Called Party Number	Queuing Satellite T-NSC Called Party Number
SS7 MINT	Alpha Network-Specific IAM (Initial Address Message) Parameter includes Queuing, T-NSC, O-NSC, Route Search Limit.		Queuing Satellite T-NSC Called Party Number

	Called Party Number Other SS7 Parameters		Other SS7 Parameters

Figure 1 VENDOR-COMPATIBLE FORMATS OF MINT SIGNALING**Figure 2 FORM FLOW FOR MINT DATA PROVISIONING BEFORE ACTIVATION**

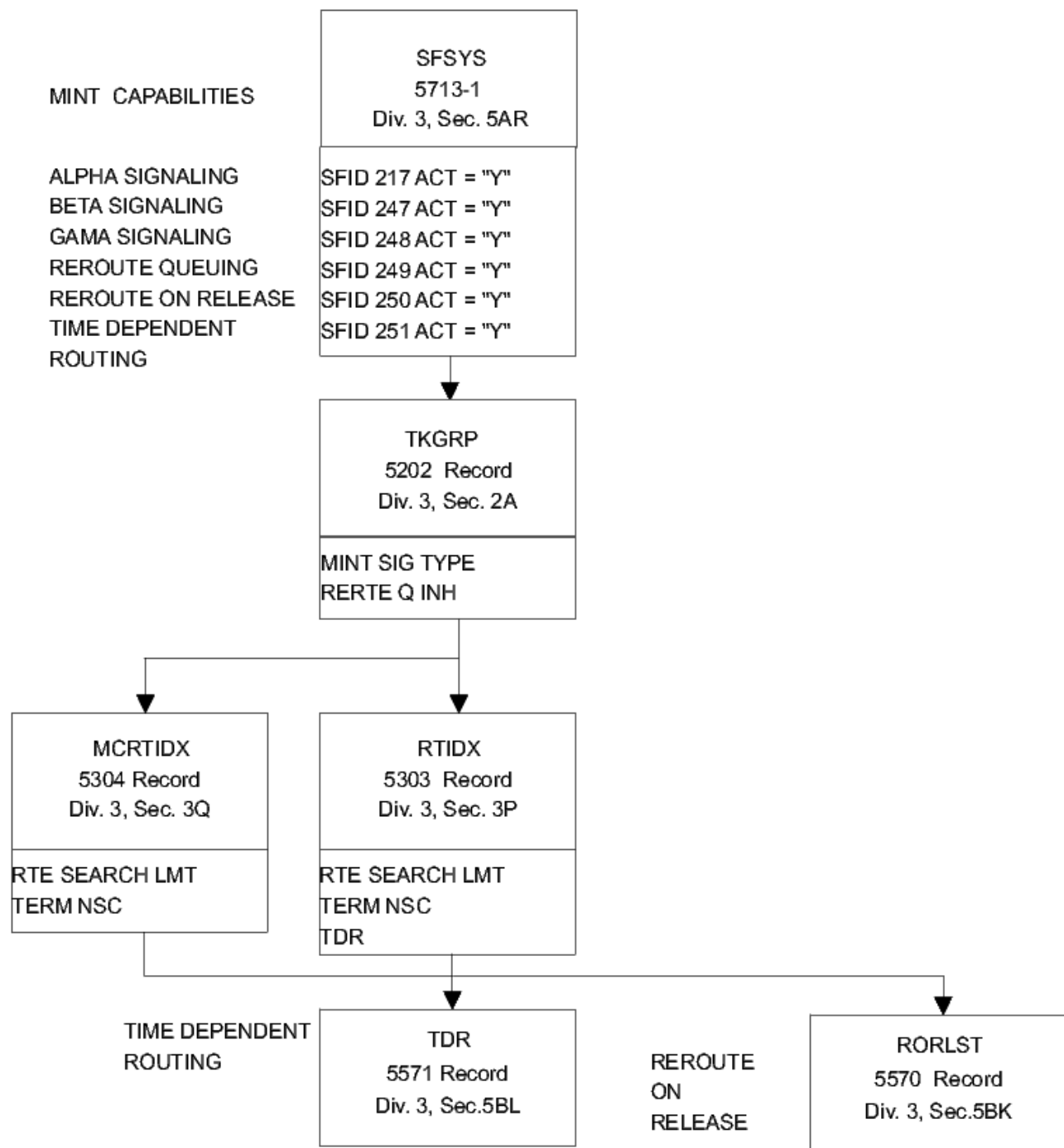


Figure 3 FORM FLOW FOR MINT DATA PROVISIONING AFTER ACTIVATION

SEC. 4A219: PRI HOTEL/MOTEL AND SELECTED CLASS OF CALL SCREENING

1. FEATURE DESCRIPTION

The PRI (ISDN (Integrated Services Digital Network) Primary Rate Interface) Hotel/Motel Selected Class of Call Screening feature is a secured feature (SFID 219) and must be purchased before being activated. The

feature number for this feature is 99-5E-2488.

The feature adds two new call-by-call services to those available on the 5ESS-2000 Switch PRI.

1. Hotel/Motel service relates to calls originated from rooms at hotels and motels, which require special billing treatment.
2. SCOCS (Selected Class of Call Screening) service, refers to a service that is used by institutions such as hospitals, dormitories, and prisons. These calls usually require special screening and operator service treatment.

2. FEATURE ASSIGNMENT

To provision features on the switch (See Figure 1):

- On the SFSYS form (5713-1 Record), SFID 219 must have the ACT field set to "Y".
- On the TKGRP form (5202 Record), establish tax or no tax status for the Hotel/Motel service using the new field HM TAX.
- On the PFASFG form (5609 Record), create an SFG using one of the two new types "HM" or "SCOCS". A billing number (SFG BILL NUM) can be associated with the SFG.
- On the MCRTIDX form (5304 Record), establish a route index which points to the SFG created above.
- On the TKEDSLD form (5209 Record), establish a BEARER CAPABILITY for the call-by-call service selected (Hotel/Motel or SCOCS).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MCRTIDX	5304	3	3Q	10.4
PFASFG	5609	4	10C	7.3
TKGRP	5202	3	2A	5.1
TKEDSLD	5209	3	2K	5.34

MCRTIDX form (5304) - The 5304 Record contains options for MC (Modular Customization) route index expansion. For 5E11 and later, added data rules to the SFG NUMBER, ANI6, and ANI7 fields.

PFASFG form (5609-3A/B) - The 5609-3A/B Record defines PFA (Private Facilities Access) SFG (Simulated Facility Group). For 5E11 and later, added two new enumerations, "HM" and "SCOCS" for the SFG TYPE field.

TKGRP form (5202-1) - The 5202-1 Record provides general trunk group information for all trunk members in a group. For 5E11 and later, added the HM TAX field.

TKEDSLD form (5902) - The 5902 Record defines data for the EDSL (Extended Digital Subscriber Line) call by Call Service Selection feature. For 5E11 and later, For 5E11 and later, added two new enumerations, "HM" and "SCOCS" for the SFG TYPE field. Added BEARER CAP and SCOCS SERVICE fields.

4. GLOSSARY

HM	Hotel Motel
ISDN	Integrated Services Digital Network
PRI	Primary Rate Interface
SCOCS	Selected Class of Call Screening

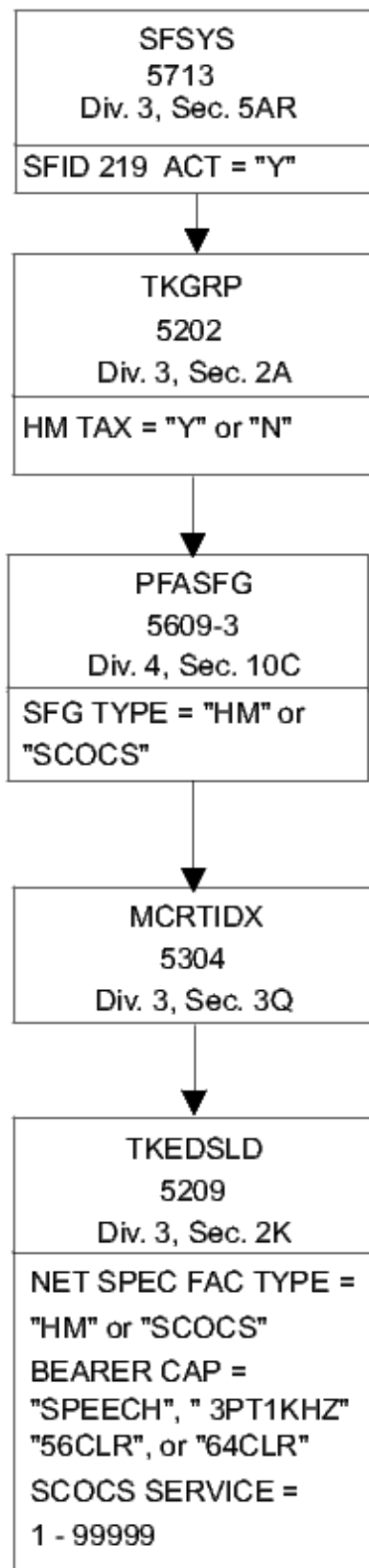


Figure 1 FORM FLOW PRI HOTEL/MOTEL AND SELECTED CLASS OF CALL SCREENING**SEC. 4A220: CALLING NAME FOR ISDN PRI****1. FEATURE DESCRIPTION**

The Calling Name for ISDN PRI (Primary Rate Interface) feature is a secured feature (SFID 220) and must be purchased before being activated. The feature number for this feature is 99-5E-2295.

The feature consists of three components as follows:

- PCN (Privacy of Calling Name) allows an originating CPE (Customer Premises Equipment) to signal on a per-call basis the presentation status (e.g. public or private) for their calling name.

Both flat rate and usage sensitive billing options are provided for PCN.

- CNAM (Calling Name Information Delivery) provides name information (either name characters, a private indication, or an unavailable indication) to a subscribed terminating PRI interface at the time of call setup.

Both flat rate and usage sensitive billing options are provided for CNAM delivery.

- EDS CND (Electronic Directory Service Calling Name Display) allows an Electronic Directory Service Group Number to be associated with an ISDN PRI to allow calls originating from Class II equipment connected to the PRI to be identified with an EDS group. This allows calls terminating to ISDN BRIs (Basic Rate Interface) that are members of the same EDS group to receive calling name information via the ISDN BRI EDS feature for intra-business group PRI originated calls.

Only flat rate billing is provided for EDS CND.

2. FEATURE ASSIGNMENT

On the SFSYS form (5713-1 Record), SFID 220 must have the ACT field set to "Y".

On the TKGRP form (5202 Record), set the CNAM ALW, CNAM AMA, PCN ALW, PCN AMA, EDS CND, and EDS GRP fields as required.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP form (5202-1) - The 5202-1 Record provides general trunk group information for all trunk members in a group. For 5E11 and later, added the CNAM ALW, CNAM AMA, PCN ALW, PCN AMA, EDS CND, and EDS GRP fields to support this feature.

4. GLOSSARY

BRI - Basic Rate Interface

CPE	Customer Premises Equipment
ISDN	Integrated Services Digital Network
PRI	Primary Rate Interface
CNAM	Calling Name Information Delivery
CND	Calling Name Display
EDS	Electronic Delivery Service
PCN	Privacy of Calling Name

SEC. 4A221: CODE DIVISION MULTIPLE ACCESS

1. FEATURE DESCRIPTION

For information on the CDMA (Code Division Multiple Access) feature see, Division 2, Section 8B.

SEC. 4A222: THIRD PARTY CALL CONTROL

1. FEATURE DESCRIPTION

Effective with the 5E10 Software Release, the Third Party Call Control feature is available and has feature number 99-5E-2457. This is a secured feature, which is dependent upon SFIDs (Secured Features IDs 121 and 122 and associated with SFIDs 231, 232, and 233. This feature is available with the 5E10 Software Release as a software update and in the 5E11 Software Release.

The Third Party Call Control feature allows the 5ESS Switch to receive call control information from an external host computer via the AIU (Application Interface Unit) and perform call-processing functions such as host-requested call routing, host-requested call redirection while alerting, host-requested call transfer, host-requested conference, and host-requested outbound dial. This is particularly useful to facilitate Computer-Integrated Telephony applications which involve simultaneous voice and data applications, such as order entry and customer information retrieval, or to allow for a customer's MIS (Management Information System) call center manager to redirect calls that are initially routed to the call center's pilot DN (Directory Number). The switch is required to provide the calling party's number, if available, and any other caller input (touch tone), to the customer's host computer system and in return, the switch receives routing information for the call.

Routing choices allow the system administrator to specify a 1 - 10 digit TN (Telephone Number), an ACD/BRCS (Automatic Call Distributor/Business and Residence Custom Services) call type queue ID, an ACD/BRCS vector ID, or an ACD/BRCS agent ID. Calls routed to queues, vectors or agents are considered internal ACD/BRCS transfers and are therefore not billed as separate calls. Calls routed to TNs are considered external transfers and are billed to the corresponding ACD/BRCS ACD DN as separate calls.)

This feature also allows a subscriber to interact with a host computer and use the host to establish conference calls or to perform transfers. The host can also provide call screening which makes use of call associated data (such as the Calling Party Number) and a host-resident database. The outbound dialing feature allows the host to send a command to initiate an outgoing call between an agent's telephone and an outside party. The agent would have the option to accept/reject the call origination before the call-leg to the outside party is created, insuring agent availability to handle the call.

The specific SFIDs supporting these functions include:

- Host-Requested Call Routing (SFID 222); dependent upon SFID 121,
- Host-Requested Call Redirection While Alerting (SFID 231); dependent upon SFID 122,
- Host-Requested Call Transfer/Conference (SFID 232); dependent upon SFID 122, and
- Host-Requested Call Origination (SFID 233); dependent upon SFID 122.

The DSL (Digital Subscriber Line) using this feature must be provisioned as a ACD/BRCS Position and the agent telephone equipment must be AT&T Custom ISDN Type "B", "D", or an equivalent terminal. In addition, Link III Interface software should be loaded on the AIU to send/receive Third Party Call Control event messages between the switch and the host computer.

1.1 Host-Requested Call Routing

The Host-Requested Call Routing feature allows the host to specify a destination for an ACD call that is receiving call vectoring treatment. The destinations are directory number, queue number, vector ID or an agent ID.

The new "REQRTE" vector command is provided by this feature to allow the customer's host computer the capability to redirect an ACD DN or DAA DN call that is receiving vector treatment. Upon execution of the REQRTE vector command, the switch sends a "Routing Request" event message to the host computer through the AIU. The switch waits until it receives the "Request Route Response" event message from the AIU before it processes the next vector step. If the response is not received within a switch determined time limit, the processing continues with the vector step specified (see the CTECT form (5460 Record) for more information on the vectoring steps).

The "Request Route Response" message should contain a valid route type (e.g., D - route to DN, Q - queue call, V - branch to vector, and A - route agent) and route destination (e.g., DN, queue number, vector and vector step number, or agent ID) for redirection of the incoming call.

If the route destination is a DN, the switch sets up a connection to the DN specified in the event message. If the route destination is a queue number, the switch puts the call in the specified queue. If the route destination is an agent ID, the switch routes the call to the specified agent's position. If the route destination is a vector number/vector step, the switch continues vector processing at the vector number and vector step number specified in the event message.

1.2 Host-Requested Call Redirection

The redirection of calls while alerting allows the customer's host computer to specify a new destination for a call that is alerting at an ACD/BRCS position.

A new event message, "Redirect Alerting Call", sent from the AIU to the switch, is used to request the switch to forward a call that is alerting at an ACD/BRCS position to either a DN, a queue or an agent ID.

The following types of alerting calls may be redirected by a host request: Position DN calls, ACD hunted calls, DAA calls, ACD Agent intercom calls, ACD Agent to queue calls, ACD Service Assistant calls, and ACD Emergency calls.

If the route destination is a DN, the switch routes the call to the specified DN. If a queue number is specified, the switch translates the queue number to its associated ACD DN, and routes the call to the ACD DN. If an

ACD/BRCS agent ID is specified, the switch identifies the position DN of the ACD/BRCS position that the agent is currently logged in at, and routes the call to the DN.

If the switch receives a "Redirect Alerting Call" event message for a position that has an alerting call and the position does not have a Call Forwarding Don't Answer feature assigned (other than the required /CFDARQ for ACD hunted calls), the event message is ignored. A craft assert is printed to indicate that the request was received for a position that did not have the CFDA feature assigned.

When the switch redirects the specified alerting call, it processes the call as if it were being redirected by the existing CFDA feature and uses all of the existing call forwarding no answer feature checks and restrictions.

1.3 Host-Requested Call Transfer/Conference

The host-requested call transfer/conference feature allows automatic transfer/conference of an active call and a held call at an ACD/BRCS position.

1.3.1 Host-Requested Call Transfer

The Host-Requested Call Transfer feature provides the interface for a host computer to request a forced transfer of a held call at an ACD/BRCS position to an active call at the same ACD/BRCS agent position. A new "Transfer/Conference Position Call" event message is used to request the call transfer. The transfer call flag is set in the message sent from the AIU to the switch.

The host computer specifies these calls at the agent's position by call IDs. To complete the transfer, the switch merges the active call with the held call and then releases the merged call from the position.

1.3.2 Host-Requested Conference Call

The Host-Requested Conference Call feature provides the interface for a host computer to request a forced conference of a held call at an ACD/BRCS position with an active call at the same ACD/BRCS agent position. A new "Transfer/Conference Position Call" event message is used to request the conference call. The conference call flag is set in the message sent from the AIU to the switch.

The host computer specifies these calls at the agent's position by call IDs. To complete the conference, the switch merges the active call with the held call and forms a three-way conference. The conference will be on the call appearance of the previous held call.

The switch provides a barge-in tone to the position that is controlling the conference. While the tone is being given, the voice path may be interrupted.

1.4 Host-Requested Call Origination

The Host-Requested Call Origination feature provides the interface for a host computer to request a call to be originated from an ACD/BRCS position to either a DN, an ACD/BRCS queue or an ACD/BRCS agent position.

A new "Originate Call" event message, sent from the AIU to the switch, is used to request the call origination.

The switch selects an idle-call appearance for the primary DN on the position and provides ring-back treatment. If there are no idle-call appearances, the event message is ignored.

The switch provides auto answer treatment if the following conditions are met:

- the selected call appearance is the ACD/BRCS hunted-call appearance,

- the Auto-Answer mode is enabled,
- the terminal is in the Off-Hook, listening to silence Auto-Answer mode.

When the agent answers the alerting call (this includes the Auto-Answer case), the switch routes the call to the destination specified in the "Originate Call" event.

If there is an active call at the position and the position is provisioned with the Auto-Hold feature, after the ring-back is answered, the switch puts the active call on Hard-Hold. The switch sends the "Call Hold" event to the AIU, with On-Hold specified and the reason set to Auto-Hold.

If the position does not have the Auto-Hold feature, the existing active call will be dropped when the ring-back is answered. The switch will send the "Call Disconnected" event to the AIU for the dropped call.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDTN	5631-1	4	32A	4.15
CVECT	5460	3	4BH	21.41
DSLUSR	5908	5	1I	23.2
SFSYS	5713-1	3	5AR	8.22

ACDTN form (5631-1 Record) - This form is used by the ACD/BRCS feature to define the ACD directory number or the DAA directory number for the ACD/BRCS position. A VECTOR ID number must be established for this feature for the TN and associated with the "REQRTE" vector command code on a DVECT form.

CVECT form (5460 Record) - This form is used to define Call Vectoring steps that determine how an incoming call is to be treated while waiting for a CACD (Commercial Automatic Call Distributor) agent. The VECTOR ID and associated "REQRTE" vector command code must be specified in the CMD CD field for this feature.

DSLUSR form (5908 Record) - This form is used to define DSL parameters. The ACD POS NUM field must be set to identify the ACD/BRCS position. Note that the "Transfer/Conference" feature requires that the ACD/BRCS Position be assigned an appropriate Multi-Way feature. (A Multi-Way feature is required for an ACD/BRCS position.) Also note that the "Redirect Alerting Call" feature requires that a Call Forwarding Don't Answer feature (in addition to the required /CFDARQ for ACD hunted calls) be assigned to the ACD/BRCS Position in order for the feature to work.

SFSYS form (5713-1 Record) - This form is used to enable secured features for an entire 5ESS Switch of selected Switching Modules. The ACT fields for SFIDs 121, 122, 222, 231, 232, and 233 must be set to "Y" to activate this feature.

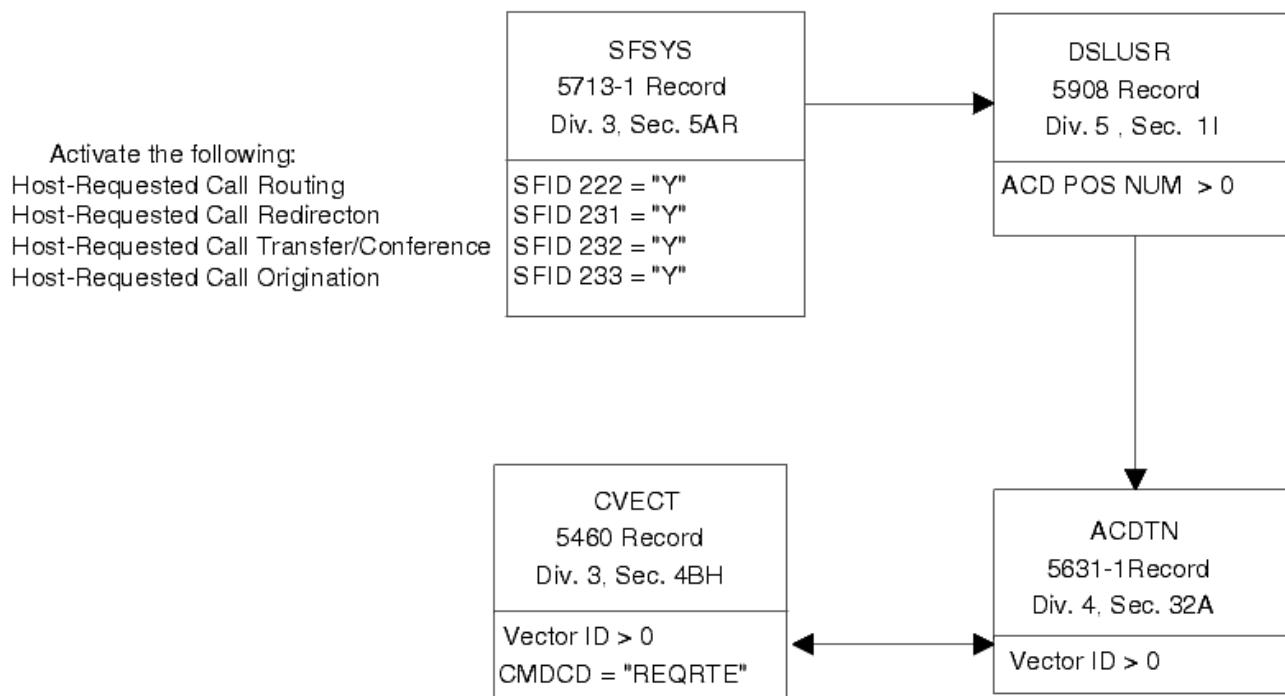


Figure 1 THIRD PARTY CALL CONTROL FORM FLOW

SEC. 4A223: 15 DIGIT INTERNATIONAL DIRECT DISTANCE DIALING

1. FEATURE DESCRIPTION

15 Digit IDDD (International Direct Distance Dialing) secured feature is available for 5E10 and later. The feature number for this capability is 99-5E-1262.

Due to an increased demand for telecommunications services, countries around the world are experiencing a shortage of telephone numbers. To address this problem, the international standards body ITTU-T (International Telecommunications Union - Telecommunication Standardization Sector) has recommended an expansion of the allowed maximum length of international numbers from 12 to 15 digits. This feature expands the allowed maximum length from 12 to 15 digits.

Prior to this feature, international numbers consisted of a CC (Country Code) of 1 - 3 digits, plus an NN (National Number) 9 - 11 digits. The CC plus NN combination was restricted to 12 digits. This feature allows the CC plus NN combination to be a maximum of 15 digits. The CC portion will remain 1 - 3 digits.

- NOTE:** International numbers do not include dialing prefixes such as 01 or 011. In addition, they do not include CACs (Carrier Access Codes) such as 10288 or 1010288. Therefore, this feature does not change the way prefixes are handled.

2. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for this feature.

This feature is a secured feature and must be purchased by the office. To activate this feature, the SFID 223 ACT field must be set to "Y" on the SFSYS form (5317-1 Record).

The following functional areas are impacted by this feature:

- Office Dialing Plan

The valid range of values for the maximum and minimum number of digits expected was expanded on the IDDD form (5307 Record).

- Private Dialing Plan

The allowed maximum number of incoming digits specified on the Private Network Dialing Plan on the PNDP form (5608-10/11 Record) was expanded.

- BRCS

The valid range of values for fields which could require international 15-digit numbers were expanded on the Private Facilities Group PFAGPA form (5609-5 Record). The range of values was expanded for the following:

- Number of digits to collect before starting Overlap Outpulsing
- Number of digits to collect
- Maximum number of digits to collect
- Minimum number of digits to collect
- X Digits
- Y Digits
- Nth position

- Application Processors

The IDDD15 ALW field on the DSL Application Processor Communication Data DSLAP form (5963 Record) indicates whether the switch generates the existing format or the extended format messages for MDR needed to accommodate the expanded range of CC plus NN digits.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLAP	5963	6	6A	24.7
IDDD	5307	3	3T	9.6
PFAGPA	5609-5	4	10E	7.1
PNDP	5608-10/11	4	9J	9.21
SFSYS	5713-1	3	5AR	8.22

DSLAP form (5963 Record) - This form is used to define the data links connecting an AP (Application Processor) with the 5ESS Switch. The IDDD15 ALW field was added to indicate if the expanded format or existing format for MDR is used.

IDDD form (5307 Record) - This form is used for IDDD (International Direct Distance Dialing) Country

Access Codes. The minimum and maximum number of expected digits were increased for the 15-digit international numbers.

PFAGPA form (5609-5 Record) - This form is used to define the group information for PFA (Private Facilities Access). The valid entries for the following fields were increased to handle 15-digit international numbers: OVLP DIGS, NUMB DIGS, MAX DIGS, MIN DIGS, X DIGS, Y DIGS, and NTH POS.

PNDP form (5608-10/11 Record) - This form is used to provide private digit analysis of both public and private numbers for PNDPs (Private Network Dialing Plans). The valid entries in the following fields were expanded to support 15-digit international numbers: INCOMING DIGITS, NBR DIGITS, and CONFLICT RESOLUTION TABLE NBR DIGITS.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 223 must be set to "Y" to activate this feature.

4. GLOSSARY

AP	Application Processor
CAC	Carrier Access Codes
CC	Country Code
CCITT	International Telephone and Telegraph Consultative Committee
IDDD	International Direct Distance Dialing
ITU-T	International Telecommunications Union - Telecommunication Standardization Sector
NN	National Number
PFA	Private Facilities Access
PNDP	Private Network Dialing Plans

Activate Secured Feature

SFSYS 5713-1 Record Div. 3, Sec. 5AR
SFID ACT 223 = "Y"

Office Dialing Plan

IDDD 5307 Record Div. 3, Sec. 3T
MIN. NBR. DIGITS EXPECTED MAX. NBR. DIGITS EXPECTED

Private Dialing Plan

PNDP 5608 10/11 Record Div. 4, Sec. 9J
INCOMING DIGITS NBR DIGITS CONFLICT RESOLUTION TABLE NBR DIGITS

BRCS

PFAGPA 5609-5 Record Div. 4, Sec. 10E
OVLP DIGS NUMB DIGS MAX DIGS MIN DIGS X DIGS Y DIGS NTH POS

Application Processors

DSLAP 5963 Record Div. 6, Sec. 6A
IDDDIS ALW = "Y"

Figure 1 E.164 COMPLIANCE FOR 15 DIGIT IDDD**SEC. 4A224: PROTOCOL HANDLER FOR ASYNCHRONOUS TRANSFER MODE (PHA)****1. FEATURE DESCRIPTION**

The PHA (Protocol Handler for Asynchronous Transfer Mode) feature provides an interconnect vehicle between multiple PSU (Packet Switching Unit) communities to effectively realize a single large PSU complex. It is used as a transport mechanism only. The PHA feature is available for 5E10 and later. The feature number for this capability is 99-5E-1600A.

PHA is a secured feature (SFID 224), which supports the CDMA (Code Division Multiple Access) feature, but it is not dependent on CDMA. For a CDMA Service Provider, this feature allows a Frame Relay PH (Protocol Handler) in one PSU to communicate with a PHV (Protocol Handler for Voice) in another PSU. The PSUs used for CDMA are treated as a network, and a unique PSU CA (Community Address) is defined for a PSU in this PSU network.

PHAs are equipped in pairs with each PHA controlling a channel. Each channel is a separate physical path. Each pair of channels, an active channel and a standby channel, are considered a PSU Link. Both the active and standby channel transport data, however, only the active channel communicates with the Packet Bus. Figure 1 shows the concepts of the channel and link architecture for the PHA.

2. FEATURE ASSIGNMENT

To provision PHA, the data needs to define the PSU community address for the PSU, the physical PHA Protocol Handlers, PSU links, and PHA channels. The capability to define PSU community address to a PSU is extended to any PSU (not just for a PSU equipped with a PHA) within a 5ESS-2000 Switch.

The PHA is a transport device only. CDMA uses the PHA to transfer packets from a FRPH (Frame Relay Protocol Handler) in one PSU to a PHV (Protocol Handler for Voice) in another PSU. (For more information on the CDMA feature for 5E10 and later, see Division 2, Section 8B.)

The PHA board is assigned a position within a PSU shelf. Since a PHA resides in a PSU, it is identified as another PH type through a new CLI value. No new circuit type and definitions are needed. A new hardware type SMPHA1 defines the PHA board.

2.1 PSU Link

The PHA is composed of two channels, an active channel and a standby channel. A channel group is associated with each channel on each PSU. The PSU Link is defined on the PSU Link Assignment form, PSULNK (5057 Record).

2.2 PSU Community

The PHA transfers the packets using the PSU network. PSUs using PHAs are connected by a Point-to-point PSU connection.

For point-to-point configurations, the network must be completely connected via PSU links. As the number of PSUs to be interconnected rises, the central ATM (Asynchronous Transfer Mode) fabric architecture becomes more attractive.

A unique number (1-255) is assigned to each PSU in a PSU network and is called a PSU CA (Community Address). The CAs are specified on the EQPSU form. See Figure 2 for a sample PHA network.

2.3 Provisioning PHA

See Figure 3 for feature assignment form flow for PHA feature.

PHA is a secured feature and must be purchased before provisioning can take place. Once the feature is purchased, the ACT field for SFID 224 is set to "Y" on the SFSYS form (5713-1 Record).

The office parameters for congestion level thresholds and the type of ATM layer are specified on the OFCOPT form (5509 Record).

A PSU and SHELF 0 on SM "X" and SM "Y" are provisioned on the EQPSU form (5741 Record). The PSU and SHELF must be made operational. The COM ADDR field specifies the CA assigned to this PSU. The CON TYPE field specifies if the PSU is a point-to-point. The PSU TYPE must be "PSU2".

New PHAs are provisioned on the EQPSUPH form (5742 Record). The CLI value for the PHA is assigned on this form.

The PSU link is assigned to the "near" and "far" SMs on the PSULNK form (5057 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741	8	22	22.2
EQPSUPH	5742	8	23	22.4
OFCOPT	5509	3	5I	8.1
PSUGP	5949	5	3J	22.16
PSULNK	5057	7	2A	22.22
SFSYS	5713-1	3	5AR	8.22

EQPSU form (5741 Record) - This form is used to define the PSUs equipped on a 5ESS-2000 Switch. The PSU with PHAs is provisioned on this form. The fields COM ADDR and CON TYPE were added to support the PHA feature. Note that the CON TYPE field was moved to the PSULNK field for 5E11 and later.

EQPSUPH form, (5742 Record) - This form defines the Packet Switching Unit Protocol Handlers equipped on the 5ESS-2000 Switch. The PHA CLI value was added to the PH CLI field to support the PHA feature.

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The CONG1 QCAP, CONG2 QCAP, and ATM LAYER office parameters were added to support the PHA feature.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit). The AVAILABLE PHA1 field indicates a Recent Change Verify field. It is a display only field for ODA. A new PH TYPE, "PHA1" was added to support the PHA feature.

PSULNK form (5057 Record) - This form is used to define links between packet switching units using protocol handlers for the Asynchronous Transfer Mode. This new form for 5E10 and later supports the PHA feature.

4. GLOSSARY

ATM Asynchronous Transfer Mode

CA Community Address

CDMA	Code Division Multiple Access
FRPH	Frame Relay Protocol Handler
PH	Protocol Handler
PHA	Protocol Handler for Asynchronous Transfer Mode
PHV	Protocol Handler for Voice
PSU	Packet Switching Unit

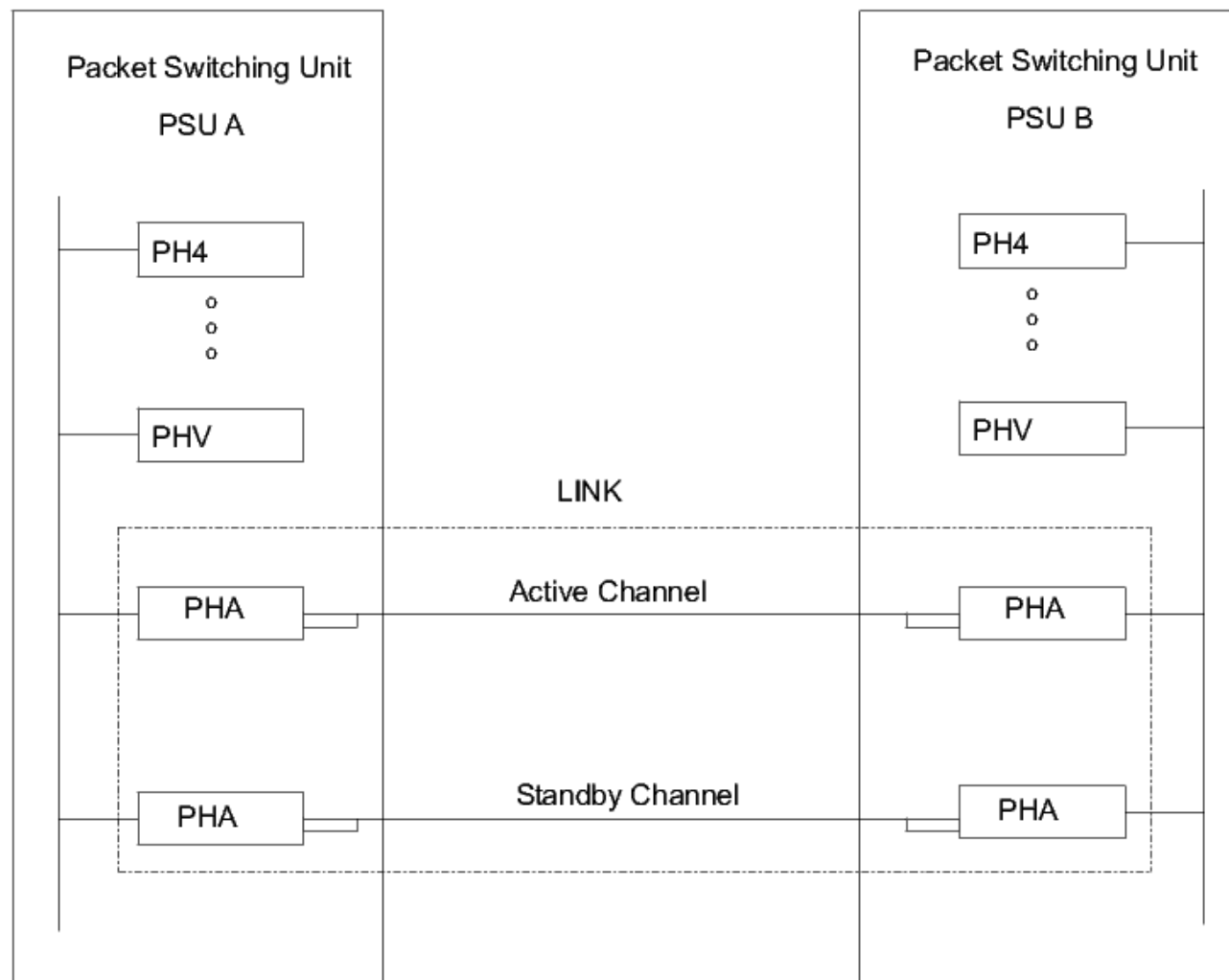


Figure 1 PHA ARCHITECTURE

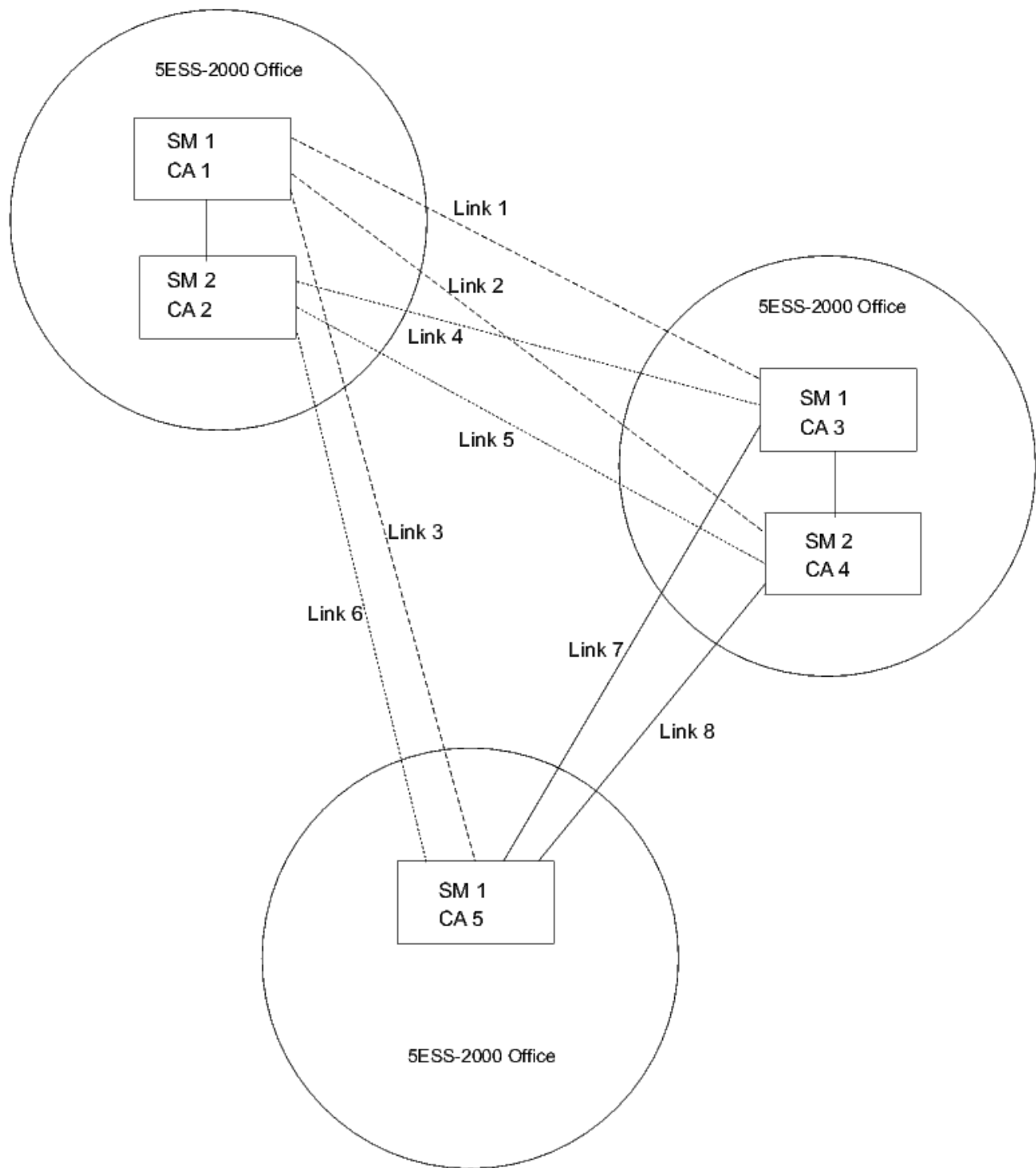


Figure 2 SAMPLE PHA NETWORK

Activate Secured Feature

SFSYS 5713-1 Record Div. 3, Sec. 5AR
SFID ACT 224 = "Y"

Office parameters

OFCOPT 5509 Record Div. 3, Sec. 5I
CONG1 QCAP CONG2 QCAP ATM LAYER

Define PSU with a PHA

EQPSU 5741 Record Div. 8, Sec. 22
COM ADDR CON TYPE**

Define PHA for the PSU

EQPSUPH 5742 Record Div. 8, Sec. 23
PH CLI = PHA CLI value

Specify protocol handler type

PSUGP 5949 Record Div. 5, Sec. 3J
PH TYPE = "PHA1"

Define the PSU Links between
protocol handlers for ATM.

PSULNK 5057 Record Div. 7, Sec. 2A

**Moved to the PSULNK form (5057 Record) with the 5E11 Software Release.

Figure 3 PHA FEATURE FORM FLOW**SEC. 4A225: NATIONAL ISDN BRI FEATURES FOR 5E10****1. NI-3 BRI FEATURES**

The National ISDN Release 3 BRI features are available for 5E10 and later. See Division 2, Section 1AM on National ISDN features for the provisioning information for these features. A brief description of the NI-3 BRI features follows.

2. NI-3 NON-INITIALIZING TERMINALS

The Non-Initializing Terminals feature is available for 5E10 and later. It adds to the current level of support for NIT (Non-Initializing Terminals) on a Standard ISDN interface. Before 5E10, NITs were only supported for Packet-mode calls. This feature adds support for Circuit-mode calls, and adds the capability of using a NIT with a Permanent Virtual Circuit. The feature number for this capability is 99-5E-2273. For information on how to provision this feature, see Division 2, Section 1AM on National ISDN Features.

3. NI-3 DEFAULT SERVICES USOP

The Default Service USOP (User Service Order Profile) feature provides a method of provisioning a minimum set of services on a National ISDN BRI interface to serve terminals which do not associate themselves with any other USOP on the interface. The feature number for this capability is 99-5E-2273. For information on how to provision this feature, see Division 2, Section 1AM on National ISDN Features.

4. NI-3 BRI VERIFICATION

The NI-3 BRIV (National ISDN Basic Rate Interface Verification) feature provides the capability to identify the Office Equipment connected to a Standard ISDN BRI access line. The NI-3 BRIV feature can be accessed by dialing an access code from an ISDN terminal connected to a Standard ISDN BRI access line provisioned for Circuit-Switched access (voice or data). NI-3 BRIV provides the installation and maintenance personnel of a Telephone Company the ability to retrieve the OE (Office Equipment) identification value, which identifies the termination of the ISDN interface in use, right from the customer premises. When a test call is placed to NI-3 BRIV, the OE identification value is displayed which identifies the termination of the ISDN interface from where the test call originated. The feature number for this feature is 99-5E-1221. For information on how to provision this feature, see Division 2, Section 1AM on National ISDN Features.

5. NI-3 ISDN CALLING NAME FOR BRI

I-CNAM (ISDN Calling Name for BRI) Feature provides for Calling Name Delivery and Calling Name Identification Services (Name/Number Privacy features) as part of the National ISDN-3 feature set. I-CNAM has a feature number of 99-5E-2264. For information on how to provision this feature, see Division 2, Section 1AM on National ISDN Features.

6. NI-3 CFPF CALL FORWARDING OVER PRIVATE FACILITIES

The NI-3 CFPF (National ISDN-3 Call Forwarding over Private Facilities) feature, (with feature number 99-5E-2269) is available with the 5E10 and later Software Releases.

CFPF allows a call with the CSV (Circuit Switched Voice) CT (Call Type) to be forwarded to an on- or off-network remote DN over the private/public facilities indicated during the activation request in a National ISDN-3 environment from NI-3 compatible CPE (Customer Premises Equipment). For information on how to

provision this feature, see Division 2, Section 1AM on National ISDN Features.

SEC. 4A226: ADVANCED SERVICES PLATFORM BRCS/OHD INTERWORKING EXTENSIONS

1. BACKGROUND

ASP (Advanced Services Platform) Release 0.1B as implemented for 5E9(1) and later software releases prohibited assignment of BRCS (Business and Residential Customer Services) features and an OHD (Off-Hook Delay) trigger to the same line. The release of the following secured features allowed the interaction of the ASP OHD trigger with certain BRCS and line features that are critical to residential service offerings:

- ASP BRCS/OHD Interworking (for more information on this feature, see Division 2, Section 4A137).
- ASP LASS/OHD Interworking (for more information on this feature, see Division 2, Section 4A137).
- ASP Interactions with Accounts and CPN/BN (for more information on this feature, see Division 2, Section 4A150).

2. FEATURE DESCRIPTION

The ASP BRCS/OHD Interworking Extensions is a secured feature using SFID (Secured Feature ID) 226 and must be purchased before being activated. The AT&T feature number for this feature is 99-5E-2343.

Available with 5E10 and later, this feature extends the interaction of the ASP OHD trigger to an additional set of BRCS and line features, building on the existing set of secured features listed above.

This feature allows the interactions of ASP OHD triggers and the following switch based features:

- BRCS Features
 - Call Pickup - Basic
 - Home Intercom and Single Line Variety Package
 - Message Service System
 - Speed Calling
- Line Features
 - Denied Origination and Termination
 - Direct Connect
 - MDNL (Multiple DNs per Line with Distinctive Ringing)
 - Series Completion Hunting

These additional interactions are available to analog subscribers for R0 and R0.1 protocol, National ISDN subscribers for R0.1 protocol only and are not extended to any other type of originator that may have an OHD trigger provisioned.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

For this secured feature to be activated the following fields on the SFSYS form (5713-1 Record) must be set:

- The base 5E9.1 ASP Rel 0.1B feature must be activated by setting the SFID 126 ACT field to "Y".
- The ASP BRCS/OHD Interworking and ASP LASS/OHD Interworking secured features must be activated by setting the SFID 137 ACT field to "Y".
- The ASP BRCS/OHD Interworking Extensions secured feature must be activated by setting the SFID 226 ACT field to "Y"
- If this feature is to operate on NISDN originations, the ASP Interworking with NISDN and ISAT secured must be activated by setting the SFID 139 ACT field to "Y".

SEC. 4A227: ASP CALL ROUTING PARAMETERS

1. FEATURE DESCRIPTION

This feature provides additional information for Advanced Services Platform Response messages. Specifically, 2 response messages, Analyze_Route and Forward_Call have additional parameters added. These parameters are:

- Redirecting Party ID parameter added to the Forward Call Message.
- Redirection information parameter added to the Analyze, Route, and Forward Call messages.
- Carrier Usage parameter added to the Analyze, Route, and Forward Call messages.

The AT&T Feature Number for this secured feature is 99-5E-2651. This feature is available for 5E10 and later.

The redirecting parameters are being added to provide additional call history information. The carrier usage parameter provides greater flexibility in routing Inter-Lata calls. These parameters may be used for any ASP based service. In addition, these parameters can be used for Personal Communications Services.

2. TRANSLATION ASSIGNMENT

To activate this secured feature, the ACT field for SFID 227 on the SFSYS form (5713-1 Record) must be set to "Y". Activating this feature allows the carrier usage parameter to be processed. SFID 227 activates the carrier usage part of this feature only, it does not effect the redirection information or the redirecting party ID parameters. If SFID 227 is not activated and the carrier usage parameter is received, it will be ignored.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 227 must be set to "Y" to activate this feature.

SEC. 4A229: AIN SSP SEND TO OUTSIDE RESOURCE (LOCAL)

1. BACKGROUND

On the 5ESS Switch, announcements played using the existing Send To Resource capability are stored in the DSU2-RAF (Digital Service Unit Model 2 - Recorded Announcement Facility) on customized announcement boards as phrases. Phrases stored on the boards can be combined into announcements using Recent Change. Announcements can be created or modified only if they can be constructed of phrases already stored on the boards. New phrases can be stored by ordering new boards with the existing and new phrases burned into their EEPROMs.

2. FEATURE DESCRIPTION

Available with 5E10 and later, AIN (Advanced Intelligent Network) SSP (Service Switching Point) STOR (Send To Outside Resource (Local)) has AT&T feature number 99-5E-2357. This feature is a secured feature with SFID (Secured Feature ID) 229 and must be purchased before being activated.

The AIN SSP STOR (Local) capability addresses the need for an increased number of AIN customized announcements and the need for a shorter and easier means of creating announcements. It provides the capability for the SSP (Service Switching Point) to perform the STOR operation when the IP (Intelligent Peripheral) is local to the SSP, that is, when it is directly connected via National/Custom ISDN PRI (Primary Rate Interface)

The SCP (Service Control Point) is allowed to instruct the switch to access an IP which can act as an announcement service, text-to-speech service and collection of digits, and FlexParameter platform. Such an IP would have an announcement capacity much greater than 512 announcements that the DSU-2 currently provides, and would also allow for very fast creation or modification of announcements.

In addition to providing voice announcements and digit collection, the IP can provide other services such as text to speech, voice recognition, etc., which the SCP can invoke using the new STOR operation.

When a Send To Resource message containing a Destination Address Parameter (referred to as an STR(E) (A Send To Resource message containing a DAP (Destination Address Parameter)) message), is received by the switch, the switch connects the user to the IP indicated by this parameter. Information in the STR Parameter Block is forwarded to the IP to convey the SCP's instructions. The IP plays the announcement as indicated by the SCP instructions. This information is included in a FACILITY message sent from the IP to the SSP, which is sent by the SSP in a Call_Info_From_Resource message to the SCP. SCP service logic uses the information collected to determine what operation to perform on the user's subscription data (i.e. Activate Call Routing Schedule 2), as well as whether further IP interaction is necessary. If more information is needed from the user, the SCP will send the SSP a Call_Info_To_Resource message, which the SSP sends to the IP as a FACILITY message containing further instructions. This sequence continues until the IP's involvement is no longer necessary. At that point the SCP sends a Cancel_Resource message to the SSP, which clears the STR-connection to the IP. The SCP then indicates the final disposition of the call.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
IMINFO	5510	3	5J	8.27, 10.2, 11.1,

				18.1
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

IMINFO form (5510 Record) - This form is used to gather and build miscellaneous customer data related to a given SM (Switching Module). The new field STOR UTD LIMIT was added to specify the maximum percentage of UTDs (Universal Tone Decoders) that may be used by this feature.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous options and parameters. The new fields TSTRC and TDISC were added to specify the maximum duration of an STR connection and to specify the maximum amount of time the switch will wait for the IP to send the disconnect message after a facility message with a Cancel IP was sent from the SSP to the IP, respectively.

SFSYS form (5713-1 Record) - This form is used to enable Secured Features. The SFID 229 ACT field on the SFSYS form must be set to "Y" to activate this feature for the office. The Advanced Services Platform secured feature must also be purchased and activated to implement this feature. The SFID 126 ACT field on the SFSYS form must be set to "Y" to activate the Advanced Services Platform feature. For more information on this feature, see Division 2, Section 4A126.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The new fields IP TRK and IP MEAS were added to indicate that the Trunk Group is an IP interface and is eligible to participate in the STR(E) operation and to indicate whether IP measurements will be taken for the Trunk Group, respectively.

4. GLOSSARY

AIN	Advanced Intelligent Network
DAP	Destination Address Parameter
DSU2	Digital Service Unit Model 2
IP	Intelligent Peripheral
ISDN	Integrated Services Digital Network
PRI	Primary Rate Interface
RAF	Recorded Announcement Facility
SCP	Service Control Point
SFID	Secured Feature ID
SM	Switching Module
SSP	Service Switching Point
STOR	Send To Outside Resource
STR	Existing Send To Resource
STR(E)	A Send To Resource message containing a DAP (Destination Address Parameter)
UTD	Universal Tone Decoders

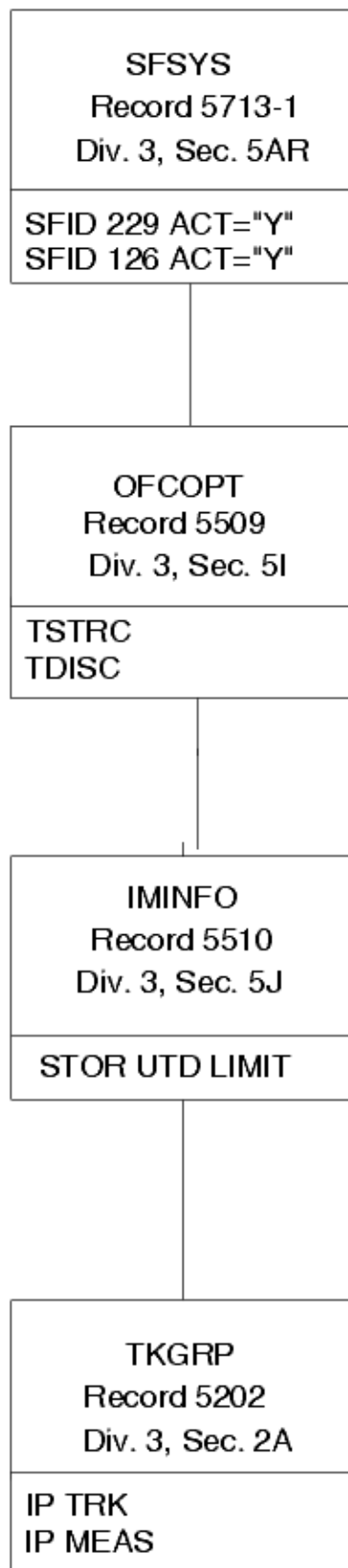


Figure 1 AIN SSP STOR FORM FLOW**SEC. 4A230: TRUNK LINE WORK STATION METALLIC TEST CAPABILITY USING SUBSCRIBER LINE AND INSTRUMENT MEASUREMENTS-2****1. FEATURE DESCRIPTION**

The feature number for the TLWS Test Capability is 99-5E-2444. This feature is available with 5E10 and later Software Releases. It implements SLIM2 (Subscriber Line and Instrument Measurements-2). SLIM2 provides electrical testing capabilities via the Trunk and Line Work Station for analog and digital subscriber lines. SLIM2 measurements include the following for both the SM and SM-2000:

- analog characteristics
- voltage
- insulation resistance
- capacitance
- off-hook tests (analog only)

SLIM2 is designed as an addition or an alternative to the ALIT (Automatic Line Insulation Testing) and DCTU (Directly Connected Test Unit).

Access to the metallic network is achieved via the MMSU (Modular Metallic Service Unit) or the 5E10 CSU (Combined Services Unit)—equipped with the TN1422 circuit pack. Note that the MLT (Mechanized Loop Test) cannot access the SLIM2 to use it in an integrated MLT configuration. MLT functions can be performed via the non-integrated LTS (Loop Test System) by way of an SN107 "no test" trunk interface.

1.1 Operator and Routine Modes

The SLIM2 feature can be executed in either of two modes types: "Operator" or "Routine". In the Operator Mode, test execution is directly controlled from a TLWS terminal and requires subscriber participation. The tests can be split into a group that requires subscriber participation and a group that can be executed without the subscriber's knowledge. Test results will always be returned as numerical values to the initiating terminal. In this mode, the operator may make an audio connection (talk and monitor) to a craft/subscriber if the subscriber has to participate in the test.

The SLIM2 Routine Mode is a secured feature (SFID 230) and allows a variety of options and schedules for test execution. Execution of test sessions are scheduled from a controlling terminal via Recent Change. On the scheduled date and time, testing will be initiated and supervised by the central control. The test sessions may be scheduled for execution once or on a periodic basis.

To operate the SLIM2 feature in the Operator mode, the SLTHRS (SLIM Threshold List) form (5554-1/2 Record) must be entered and SLIM2 testing is limited to the DEFAULT values defined on the SLTHRS form. To operate the SLIM feature in the Routine mode, SFID 230 must be activated which allows the threshold values to be modified. Figure 1 illustrates the provisioning sequence for the Routine Mode of operation. Figure 2 illustrates the LTP provisioning sequence

1.2 Logical Test Ports

For the Operator Mode, two LTPs (i.e., trunk members) are required for a trunk group which routes to a SLIM2 unit—one for communication to the SLIM2 and one for the LUT (Line Under Test). For the Routine Mode, three LTPs are required—one for communication to the SLIM2, a second one for the LUT, and a third one to setup another metallic path for the next LUT on the list.

1.3 Route Indexes

All SM types (local, host, remote) which have one or two MMSUs with at least one SLIM2 circuit assigned requires a unique SLIM ROUTE INDEX. Each of these indices are associated with a unique Port Group (valid range from 0 - 3617). Three LTPs must exist for every SLIM2 circuit marked equipped and operational. If the SLIM ROUTE INDEX is 0, there is no SLIM equipped for this SM; however, there can be metallic access if the SM has metallic access via the MTIB to another SM that is equipped with SLIM2.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
Equipment Assignment	N/A	8	1	N/A
EQMMSP	5750	8	25	20.7
IMINFO	5510	3	5J	8.27
LINE	5109	3	1I	1.5
MLHLN	5111	3	1K	1.6
MTBCOMP	5556	3	5BB	14.17
SFSYS	5713-1	3	5AR	8.22
SLJOB	5555	3	5BA	14.16
SLEN	5548	3	5AX	14.13
SLSESS	5556	3	5BB	14.17
SLTHRS	5554-1/2	3	5AZ	14.15
SLTSET	5549	3	5AY	14.14
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

Equipment Assignment - This section of the documentation provides CLI values for all affected forms. The TN1422 circuit pack is used to provide SLIM2 functionality.

EQMMSP form (5750 Record) - This form is used to define equipped packs on a Modular Metallic Service Unit. A pack type was added for the SLIM2 feature.

IMINFO form (5510 Record) - This form is used to define miscellaneous data related to a given SM. The SLIM ROUTE INDEX field and data rules were added.

LINE form (5109 Record) - This form is used to define line parameter information. The PSLIM (Prohibit SLIM) field was added to define whether the SLIM2 feature is allowed. Added data rules to identify the allowed CLASS OF SERVICE for the PSLIM feature ("INDIV", "TWOPTY", "2PTY", "4PSS", "5PTY", "10PTY", "COIN", "CHGO", "PBX", "HOTMOTL", "HOTPBX" and "ATND").

MLHLN form (5111 Record) - This form is used to define multi-line hunt members. The PSLIM field and data rules were added.

MTBCOMP form (5557 Record) - This new form is used to hold the metallic test compensation values for lines. These values are used during SLIM2 testing to remove (compensate) resistance and capacitance resulting from the metallic connections and line unit in order to achieve a true measurement of the subscriber's line and instrument. There is no corresponding Recent Change view for this form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. An SFSYS form must exist with SFID ACT 230 set to "Y" to activate the SLIM2 Routine Mode test routine.

SLJOB form (5555 Record) - This new form is used to define test jobs for scheduled SLIM2 Routine Mode test sessions.

SLLEN form (5548 Record) - This new form is used to define the range of subscriber office equipment numbers that are to be tested in the SLIM2 Routine Mode test session.

SLSESS form (5556 Record) - This new form is used to define the schedule for test jobs that will be executed in the SLIM2 Routine Mode test session.

SLTHRS form (5554-1/2 Record) - This new form is used to define the threshold values for the various tests performed during SLIM2 Routine Mode and Operator Mode test sessions. The SLIM2 feature in Operator Mode always requires a THRESHOLD LIST ID of 0, as only the default values are executed for Operator Mode.

SLTSET form (5549 Record) - This new form is used to define the types of tests that are to be performed during a SLIM2 Routine Mode test session.

TKGRP form (5202 Record) - This form is used to define trunk group parameters for all trunk types. The "LTPSLIM" trunk class was added to the TRKCLS field for LTPs.

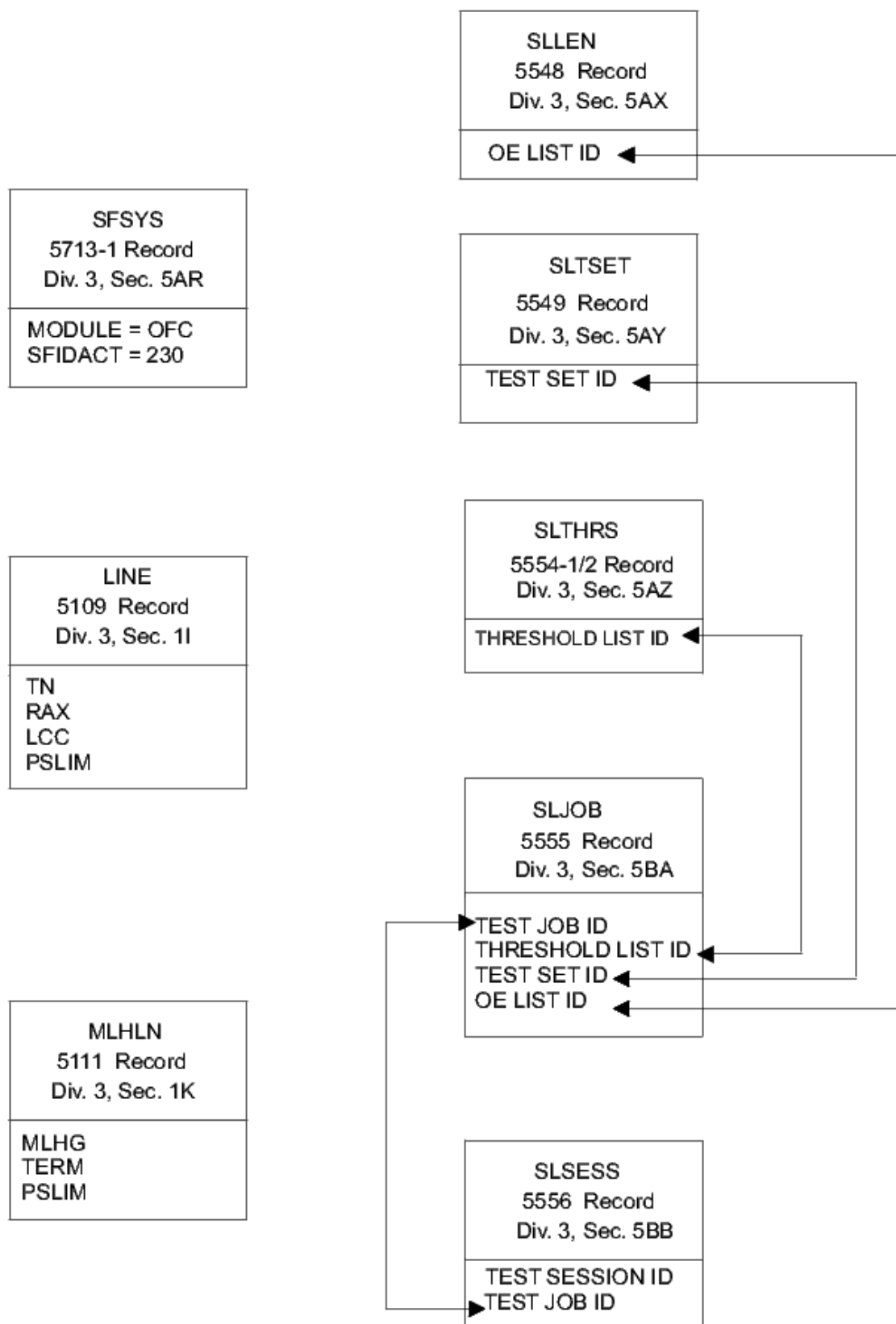


Figure 1 SLIM ROUTINE MODE PROVISIONING SEQUENCE

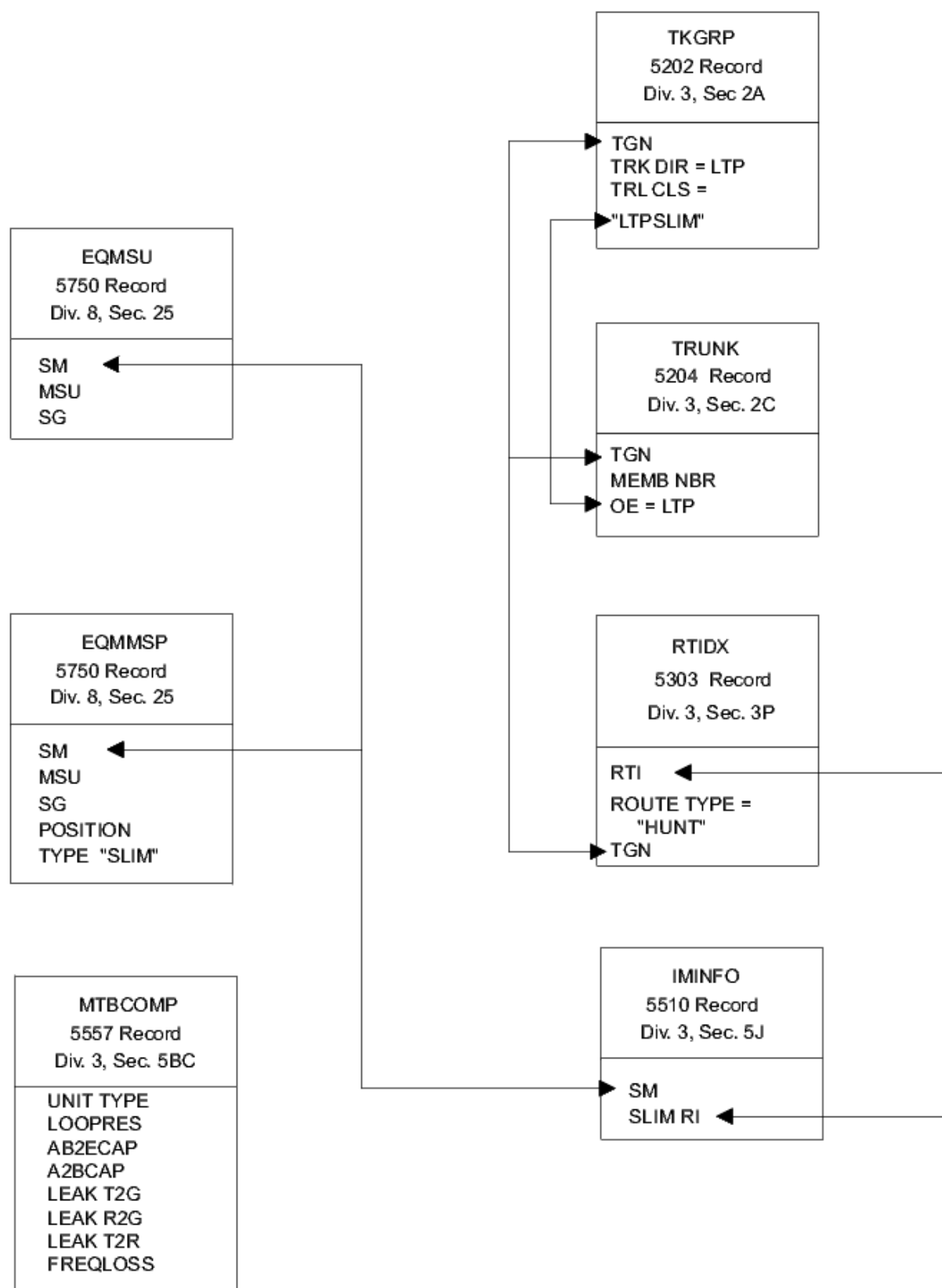


Figure 2 SLIM EQUIPMENT AND LTP PROVISIONING SEQUENCE**SEC. 4A234: SWITCH VERIFICATION FOR MULTIPLE DIRECTORY NUMBER****1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-118-100 Recent Change Procedures and References - Verify Multiple Directory Numbers Feature Document*.

SEC. 4A235: TOLL DIGITAL EXCHANGE ANI TABLE PROCESSING**1. FEATURE DESCRIPTION**

The TDX (Toll Digital Exchange) ANI (Automatic Number Identification) Table Processing feature is part of the Toll Digital Platform Feature set. See Div. 2 Sec 4A165 (Toll Digital Exchange Basic Call Processing For Toll 5ESS Switch) for details.

SEC. 4A236: AIN TOLL FREE PHASE 1**1. FEATURE DESCRIPTION**

The AIN (Advanced Intelligent Network) Toll Free feature is a secured feature SFID 236 and must be purchased before being activated. The feature number for this feature is 99-5E-3151.

Available with 5E10 and later, the AIN Toll Free feature provides an AIN based Toll Free Service utilizing the ASP (Advanced Services Platform) Toll Free capability. The AIN Toll Free feature allows any number to be marked as a Toll Free number, thereby eliminating the restriction of using numbers such as, 800, 888, or 877. The capabilities of the AIN Toll Free feature are intended to provide Toll Free Services under AIN that are as transparent as possible to those currently provided today through the Intelligent Network SSP800 feature.

Consult Section 3.8.13, AIN Toll Free Phase 1, of the 235-190-126 ASP Feature Document for further information.

2. FEATURE ASSIGNMENT

See Figure 1 for the form flow for the AIN Toll Free Phase 1 feature.

On the SFSYS form (5713-1 Record RC/V 8.22), SFID 236 must have the ACT field set to "Y".

On the NSTRIG form (5324 Record RC/V 9.35), set the ASP TOLLFREE field as required.

On the ICF form (5305 -1/2 Record RC/V 10.3), set ASP TF CDI and ASP TF RTI as required.

The existing SSPANN form (5535 Record RC/V 10.17), is used to provision the data to route to the 13A announcement.

The FIXRT form (5301-1 Record RC/V 10.1) no longer requires an entry with FIXED ROUTE TYPE equal to "NSANNC" for an SSP office. However it must be provisioned if routing to a RAF/SAS is desired.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
FIXRT	5301-1	3	3G	10.1
ICF	5305-1/2	3	3R	10.3
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1, 8.15
SSPANN	5535	3	5AI	10.17

FIXRT form (5301-1 Record) - The 5301-1 Record is used to define Routing and Charging treatment of Fixed Route Types.

The data rule for FIXRT ROUTE TYPE of "NSANNC" was changed.

ICF form (5305 Record) - The 5305 Record is used to allow the craft to assign elements for interLata carriers.

The ASP TF CDI and ASP TF RTI fields were added to support this feature.

NSTRIG form (5324 Record) - The 5324 Record identifies a network service application.

The ASP TOLL FREE field was added to support this feature.

OFCOPT form (5509 Record) - **OFCOPT form (5509)** - The 5509 Record provides the office option global parameters residing in the CP (Central Processor).

The data rule to ASP OFC to support this feature was added.

SSPANN form (5535 Record) - The 5535 Record defines SSP (Service Switching Point) announcement codes. These codes are used by call processing to determine the announcement route.

Although there are no modifications to the form, ASP will utilize the ANNC RTI to route to a 13A (or equivalent) announcement.

4. GLOSSARY

A/N - Advanced Intelligent Network

ASP - Advanced Services Platform

CP Central Processor

DN Directory Number

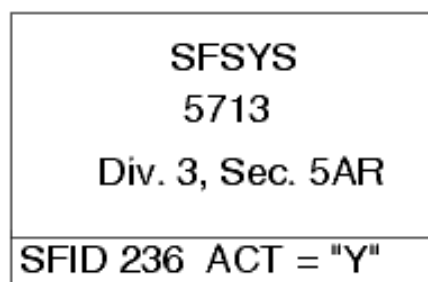
IEC Interexchange Carrier

LEC Local Exchange Carrier

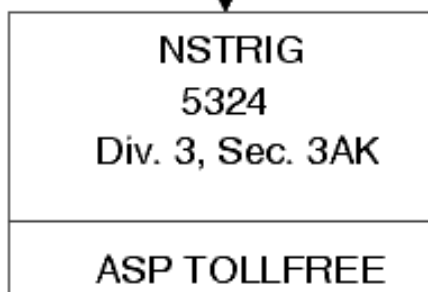
ODA Office Data Administration

SSP Service Switching Point

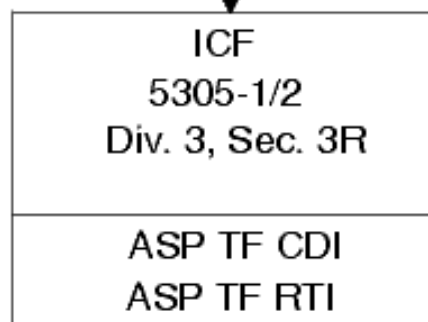
Activate feature



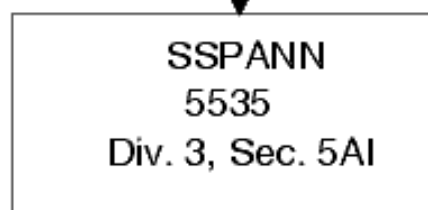
Enable AIN Tollfree



Identify ASP
Tollfree-specific
RTI and CDI values



Route to 13A
announcement



Route to RAF/SAS

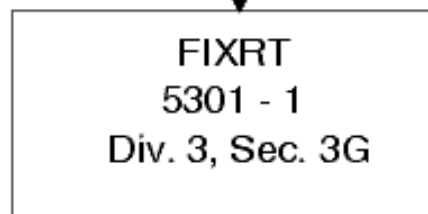


Figure 1 FORM FLOW FOR AIN TOLL FREE PHASE 1**SEC. 4A237: ASP INTERWORKING WITH CIRCUIT SWITCHED DATA****1. FEATURE DESCRIPTION**

The ASP (Advanced Services Platform) Interworking with CSD (Circuit Switched Data) feature is a secured feature SFID 237 for 5E10 and later, and must be purchased before being activated. The feature number for this feature is 99-5E-2949.

The ASP Interworking with CSD feature provides the ability for a CSD call placed by an originator to encounter an ASP trigger. When an ASP trigger, with a SERVICE ALWD of "CSD" or "BOTH", is encountered, either through a CSD called place from an ASP subscribed originating trigger (except OHI (Off Hook Immediate)) to a 3/6/10- digit trigger or TAT (Terminating Attempt Trigger), an R0.1 Query is launched. For a TAT to be encountered for CSD, the TAT DN itself must support the bearer capability of the call.

1.1 Processing of a CSD Call, Incoming Treatment (User Perspective)

Without this feature, CSD calls can not successfully encounter ASP triggers. When the ASP Interworking with CSD feature is activated, Circuit Switched Data access to all types of ASP triggers is allowed. If a call with a bearer capability of either 56kbps or 64kbps (indicating a circuit-switched data call) that arrives at the switch over a line or trunk facility whose class of service is allowed to encounter a particular type of ASP trigger and

- the trigger is detected
- the trigger indicates AIN Rel 0.1
- the SERVICE ALWD field on the NSTRIG form (5324 Record, RC/V View 9.35) indicates either "CSD" or "BOTH"

then the appropriate Query is sent following existing query rules with the inclusion of the new appropriate Bearer Capability value.

For data calls encountering CDP (Customized Dialing Plan Trigger) and FCD (Feature Code Dialing Trigger) triggers which are configured to collect digits from the caller, redirect procedures are invoked for Custom ISDN line, and information request procedures are invoked for a national ISDN line.

For a custom ISDN CSD call origination where the user dials an FCD (Feature Code Dialing Trigger) or CDP (Customized Dialing Plan Trigger) access code (ACTION is "ASPNORM" or "ASPVAR"), the 5ESS-2000 Switch invokes custom ISDN supplementary signaling services by sending the CPE (Customer Premises Equipment) a REDIRECT message followed by an INFO message with a Signal IE of "Dial Tone On". The CPE provides a display to let the user know he/she may continue dialing the digits to follow the access code. For further information, consult the Custom BRI (Basic Rate Interface) Specification Manual (235-900-343) Network Layer Supplementary Data Services.

For a national ISDN CSD call origination where the user dials an FCD or CDP access code (ACTION is "ASPNORM" or "ASPVAR"), the 5ESS-2000 Switch invokes information request procedures by including an information request IE to request an additional address "ASPNORM" or undefined "ASPVAR" digits, in addition to a Signal IE of "Recall Dial Tone On" in an INFO or SETUP_ACK message, depending on whether call is using enbloc or overlap signaling. The CPE provides a display to let the user know he/she may continue dialing the digits to follow the access code. For further information, consult the NISDN BRI Specification (235-900-341) Network Layer — Supplementary Services Manual.

For additional information, consult the Advanced Services Platform Release 0.1B 235-190-126 document

1.2 Processing of a CSD Call, Terminating Treatment (User Perspective)

For calls with a data bearer capability, all ASP responses are processed under existing requirements except for STR (Send To Resource) for switch-based announcements.

The routing number contained in the Called Party ID parameter received from the SCP (Service Control Point) for an ASP data call is translated in the post-query DAS (Digit Analysis Selector). The post-query DAS can be the value in the OFCOPT form (5509 Record, RC/V View 8.1) SCP DAS field, the originator's DAS, or the DAS defined in the POST QUERY DAS on the NSTRIG form (5324 Record, RC/V View 9.35). See the Lucent 235-190-126 document for further information on the hierarchy associated with post-query DAS selection.

The RTI (Route Index) appropriate for the call's bearer capability (that is, the DATA RI) is used rather than the normal RI used for voice calls for hunt type routing. Standard error treatment is provided if the Data RTI is not populated.

2. FEATURE ASSIGNMENT

2.1 SFSYS

On the SFSYS form (5713-1 Record), SFID 237 must have the ACT field set to "Y".

2.2 NSTRIG

A new field (SERVICE ALWD) is defined on the NSTRIG form (5324 Record, RC/V View 9.35). When the ASP Interworking with CSD feature is activated, a value for the SERVICE ALWD field can be entered for any R0.1 ASP trigger. The SERVICE ALWD field can have a value of "VOICE", "CSD", or "BOTH". When an ASP trigger, with a SERVICE ALWD of "CSD" or "BOTH", is encountered, either through a CSD call placed from an ASP subscribed originating trigger (except OHI) to a 3/6/10-digit or TAT, an R0.1 Query is launched. For a TAT to be encountered for CSD, the TAT DN itself must support the bearer capability of the call.

The SERVICE ALWD entry determines whether the trigger is allowed for voice calls, data calls, or both.

This field defaults to "VOICE" if the APPLICATION is "ASP". The field defaults to blank if the APPLICATION is not "ASP".

For Trigger Numbers indicating the ASP R0 protocol, the SERVICE ALWD field can not be changed and always indicates "VOICE". For applications other than "ASP", the SERVICE ALWD field must be blank.

If the ASP Interworking with CSD feature is locked, then the SERVICE ALWD field can not be changed from "VOICE".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPF	5632-1	4	31A	12.64
ASPLPA	5632-2	4	31B	1.64
ASPMPPA	5632-3	4	31C	1.64
IDDD	5307	3	3T	9.6
LDIT	5300-3/5	3	3C	9.3

MLDIT	5300-3A/B	3	3C	9.15
NSTRIG	5324	3	3AK	9.35
PDIT	5300-2	3	3B	9.2
RDIT	5300-7/8	3	3H	9.9

NSTRIG form (5324 Record) - The 5324 Record identifies a network service application.

The SERVICE ALWD field was added to support the ASP Interworking with CSD feature.

Data rules to support this feature were added to the following forms and fields

FORM	RECORD	FIELD
ASPF	5632-1	OHI TRIG NBR
ASPLPA	5632-2	OHI TRIG NBR
ASPMPA	5632-3	OHI TRIG NBR
IDDD	5307	DFLT RT
LDIT	5300-3/5	DFLT RT
MLDIT	5300-3A/B	DFLT RT
PDIT	5300-2	DFLT RT
RDIT	5300-7/8	DFLT RT

4. GLOSSARY

AIN	Advanced Intelligent Network
ASP	Advanced Services Platform
BRI	Basic Rate Interface
CDP	Customized dialing Plan Trigger
CPE	Customer Premises Equipment
CSD	Circuit Switched Data
DAS	Digit Analysis Selector
FCD	Feature Code Dialing Trigger
ISDN	Integrated Services Digital Network
OHI	Off Hook Immediate
RTI	Route Index
SCP	Service Control Point
SFID	Secured Feature ID
STR	Send To Resource
TAT	Termination Attempt Trigger

SEC. 4A238: AUTOMATIC ASSOCIATION OF DEFAULT SERVICE

1. FEATURE DESCRIPTION

The Automatic Association of Default Service feature provides for automatically assigning a default service profile to newly created National and custom ISDN DSL (Digital Subscriber Lines) at the time the OE (Originating Equipment Number) and other necessary per-line parameters are entered to create the DSL. This feature is an ISDN Basic Rate Interface feature available on both the SM and SM-2000 processors. This secured feature is available for 5E10 and later. The feature number for Automatic Association of Default Service is 99-5E-2271.A.

This automatic assignment of a default service profile can be overridden on a per-line basis by specifying a default service group, or by specifying "NONE", when the DSL is provisioned.

Default service enables the DSL to provide dial tone and a minimum set of services to terminals on that DSL which could not normally access other services on that DSL. Service provider personnel must provision a common default service profile in the switch and must designate it as the one to be automatically associated with newly created DSLs (See Feature Assignment below).

This feature is built upon the "default service" capability on ISDN lines. ISDN service must be implemented on the switch. For National ISDN DSLs, the 5E10 features, "Non-initializing Terminals" (99-5E-2273) and "Default Service Profile" (99-5E-2271), must also be installed. For more information on these two features, see Division 2, Section 1AM.

2. FEATURE ASSIGNMENT

2.1 Feature Activation/Deactivation

To activate this feature, the ACT field for SFID 238 must be "Y" on the SFSYS form (5713-1 Record). In addition, a default service group must be assigned in the DFLT SRV field on the ISDNOPT form (5941 Record). The default service group must be defined on the DFLTSRV form (5974 Record).

DFLTSRV form: This form allows the user to assign a default service group name. For 5E10 and later, the value "NONE" cannot be entered as a group name. With this feature, "NONE" becomes a reserved keyword. It is used for default service provisioning on the DSL form.

ISDNOPT form: The DFLT SRV field assigns the name of the default service group that will be assigned to a custom or standard DSL if the DFLT SRV field on the DSL form (5907 Record) is not entered.

DSL form: The DFLT SRV field is used to specify the default service group to be used by terminals on the DSL. The value of "NONE" for the DFLT SRV field indicates no default service.

2.2 New Starts and Large Terminal Growth

For New Start offices or Large Terminal Growth, if SFID 238 is "Y" on SFSYS, and a default service group is assigned in the DFLT SRV field on the ISDNOPT form, then every valid DSL which does not have the DFLT SRV field entered on the DSL form will be assigned the default service group from the ISDNOPT form. Either "NONE" or a valid value must be entered for a valid DSL that should not have default service group.

2.3 Interactions

With the addition of the Automatic Association of Default Service feature, it is possible to assign both a circuit default TN user service and default service to a DSL. However, even though both are assigned, only the circuit default TN service can be used by the end-user. Previously, provisioning blocked the simultaneous assignment of the two services.

2.4 Recent Change Provisioning

The following is the Recent Change provisioning sequence for the Automatic Association of Default Service feature.

1. Activate Feature ID 238 on 8.22.
2. Build 23.15 for default service to be assigned to new DSLs when the DFLT SRV field is "blank" on 23.2 or 23.8. The word "NONE" cannot be part of the name.
3. Enter the default service name in the DFLT SRV field on 8.1.
4. On 23.2 and 23.8 - for inserts only - enter one of the following:

1 - 7 alphanumeric characters

"NONE" indicating no default service

"blank" allows Automatic Association of Default Service Defined on 8.1.

The following summarize the action that is taken when DFLT SRV field is "blank":

- When this automatic association feature is not active or active but not assigned 8.1, "blank" indicates no default service, i.e., "NONE".
- When this automatic association feature is active and assigned on 8.1 and DSL is an invalid DSL, "blank" indicates no default service, i.e. "NONE".
- When this automatic association feature is active and assigned on 8.1 and DSL is a valid DSL, "blank" automatically assigns the default service group to the DSL.

3. TRANSLATION REQUIREMENTS

No new or modified forms for this feature. See Division 2, Section 1AM for translation requirements for Non-initializing Terminals and Default Service Profile.

SEC. 4A239: ASP SELECTIVE NPA DELETION

1. BACKGROUND

Prior to this feature, when the SCP (Service Control Point) returns a ten-digit CalledPartyID, a global office field (INH SCP NPA DEL on the EQIM form) is used to determine if ten or seven digits should be presented to digit analysis. The "Y" or "N" setting of the INH SCP NPA DEL field indicates whether or not an attempt to delete the NPA (Numbering Plan Area) should occur. Use "N" if the attempt should occur, or "Y" if the attempt should not occur. When the INH SCP NPA DEL field is displayed with a value of "N", an attempt to delete the NPA is performed using the NPA Deletion Algorithm. For a ten-digit number, the NPA Deletion Algorithm deletes the NPA and seven digits are the result, if one of the following conditions are true:

1. The NPA of the ten-digit number matches the NPA specified in the IMPLD NPA field of the OFCOPT form.

2. The NPA of the ten-digit number matches the NPA specified on either the NONE or 1+ IMPLIED NPAS entry on the LDIT form for the NXX. For example, the CalledPartyID field contains "7089715767". If the NPA was not deleted by step 1 of this list, then LDIT "971" entry is read and if the NONE or 1+ IMPLIED NPAS field entry is "708", then "708" is stripped from the ten-digit number and seven digits are presented to digit analysis.
3. The NONE or 1+ IMPLIED NPAS entry on the LDIT form for the NXX digits of the ten-digit number specify AMB (Ambiguity) and the NPA of the ten-digit number matches the NPA of the originator. For example, the CalledPartyID Digits field contains "7089715767". If the NPA was not deleted by step 1 or 2 of this list, and if either the NONE or 1+ IMPLIED NPAS field entry for the LDIT "971" digits is defined as "AMB", then "708" is compared to the NPA digits of the ASP trigger originator, and if a match is detected, "708" is stripped from the ten-digit number.

2. FEATURE DESCRIPTION

The feature number for the ASP (Advanced Service Platform) Selective NPA (Numbering Plan Area) Deletion feature is 99-5E-3886. This secured feature (SFID 239) is being deployed as a software update for the 5E11 Software Release and for the Beginning Managed Introduction of the 5E12 Software Release.

The intent of the ASP Selective NPA deletion feature is to enhance the current post query digit analysis and screening processing of a ten-digit National or Subscriber CalledPartyID. The following enhancements provides:

- A new option field that allows the SSP (Service Switching Point) to select whether or not the ten-digit CalledPartyID should be initially tried in digit analysis as a ten-digit number or if an attempt to delete the NPA should be made, provide digit analysis with a seven-digit number.
- Perform digit analysis again on the digits to determine if the initial pass through digit analysis fails. When a digit analysis failure occurs on a ten-digit number, attempt to delete the NPA digits, as appropriate, and try seven digits. For an initial digit analysis failure on a seven-digit number, the original ten-digit number is used for the second attempt through digit analysis.
- Perform digit analysis and screening again on the digits, if the initial pass through screening fails. When a screening failure occurs and ten-digits are associated with the call, attempt to delete the NPA digits, as appropriate, and send seven digits back to digit analysis. For an initial screening failure with an associated seven-digit number, the original ten-digit number is used for the second attempt through digit analysis and screening.

The functionality provided by the ASP Selective NPA Deletion feature supersedes the current treatment of ten-digit CalledPartyIDs with a NoN of National or Subscriber.

3. FEATURE ASSIGNMENT

To enable this feature, first, the ASP R0.1A SFID (Secured Feature ID) 51 must be unlocked by setting the ACT fields for SFID 51 to "Y", and then the SFID 239 can be unlocked by also setting the ACT field for the SFID 239 to "Y". Both fields can be set on the SFSYS form (5713-1 Record).

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

SFSYS

5713-1

3

5AR

8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. The SFID 51 and SFID 239 should be set to "Y" to activate this secured feature.

No new fields nor data rules are being added for this feature.

SEC. 4A240: LINE BLOCKING ENHANCEMENT FOR ISVM (INTERSWITCH VOICE MESSAGING)

1. BACKGROUND

Currently for a direct call to an ISVM (Interswitch Voice Messaging) VMS (Voice Messaging System), if CPN (Calling Party Number) Privacy is activated, the subscriber is routed to a default message with a prompt to enter the 10-digit number associated with the mailbox. One of the intents of this feature is to enable residential, small business, and work-at-home customers to retrieve their voice messages more efficiently by not having to re-enter their DNs (Directory Numbers) upon direct dialing the VMS from a Private DN associated with the mailbox.

Phase 1 of this feature (99-5E-3270-A) provides a per switch basis of activation of this feature as described above with the OFID (Option Feature System ID) in 5E10.

2. FEATURE DESCRIPTION

The feature number for the Line Blocking Enhancement for ISVM feature is 99-5E-3270. This secured feature uses SFID (Secured Feature ID) 240 and is deployed on the 5ESS switch in a software update for the 5E11 Software Release and later.

The Line Blocking Enhancement for ISVM delivery feature is an enhancement to the MSS (Message Service System) feature that will allow the CPN of any call either direct or forwarded to be presented to the VMS across the API (Applications Processor Interface) Link even when privacy is activated for the CPN. This feature will override privacy for CPN for calls originating on the same switch as well as for calls arriving via CCS7 (Common Channel Signaling, CCITT Version 7) from different switches. This applies only to VMSs and MSCs (Message Service Centers) setup for ISVM.

3. FEATURE ASSIGNMENT

For 5E10 (phase 1), to enable this feature, the ACT field for SFID 240 on the SFSYS form and the optioning number 669 on the FOSYS form is set to "Y".

For 5E11 and later, to enable this feature, the ACT field for SFID 240 and the ACT field for the optioning number 669 on the FOSYS form is set "Y" or use the MLHG form (5110-1 Record) for MSC provisioning.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MLHG	5110-1	3	1J	3.5

MLHG form (5110-1 Record) - This form is used to create Multiline Hunt Group information. Added the new field CPN OVERRIDE PRVCY to support the Line Blocking Enhancement for Interswitch Voice Messaging feature.

5. GLOSSARY

API	Application Processor
CCS7	Common Channel Signaling, CCITT Ver.7
CPN	Calling Party Number
DN	Directory Number
ISVM	Interswitch Voice Messaging
MLHG	Multiline Hunt Group
MSC	Message Service Center
OFID	Option Feature System ID
VMS	Voice Messaging System

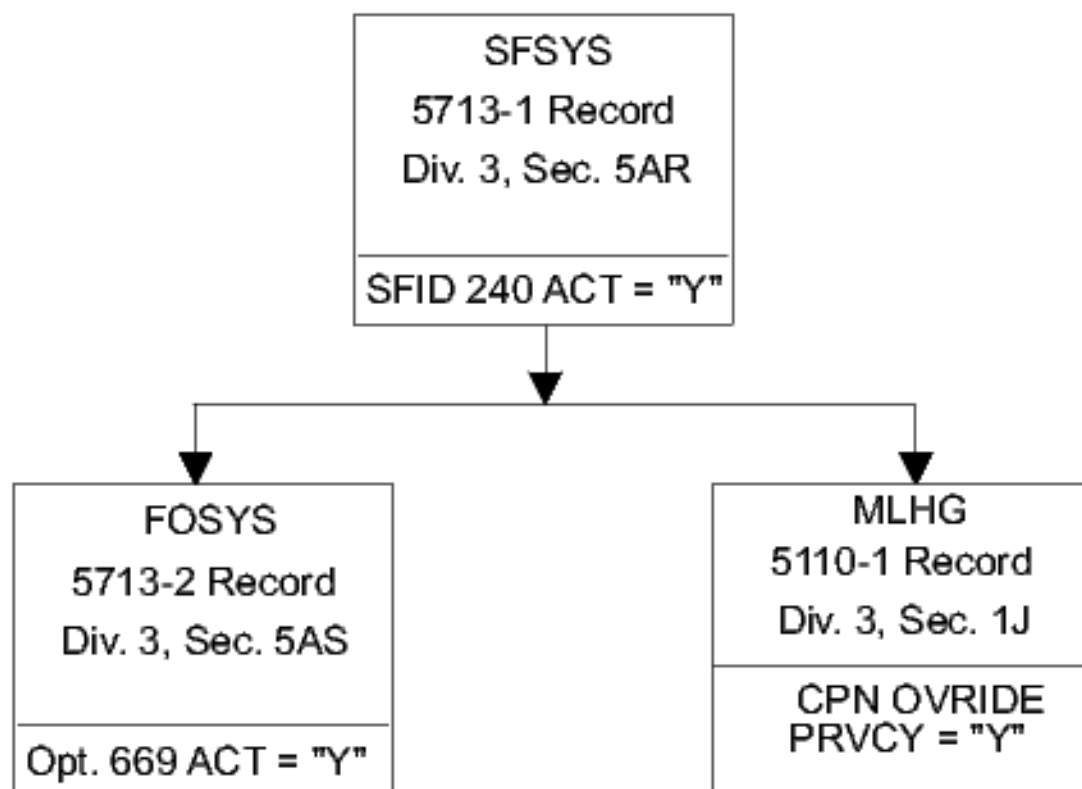


Figure 1 FORM FLOW FOR LINE BLOCKING ENHANCEMENT FOR ISVM

SEC. 4A241: AIN SEND TO OUTSIDE RESOURCE REMOTE

1. BACKGROUND

On the 5ESS Switch, announcements played using the existing Send To Resource capability are stored in the

DSU2-RAF (Digital Service Unit Model 2 - Recorded Announcement Facility) on customized announcement boards as phrases. Phrases stored on the boards can be combined into announcements using Recent Change. Announcements can be created or modified only if they can be constructed of phrases already stored on the boards. New phrases can be stored by ordering new boards with the existing and new phrases burned into their EEPROMs.

The AIN SSP STOR (Send to Outside Resource) (Local) (for more information on this feature, see Division 2, Section 4A229) capability addresses the need for an increased number of AIN customized announcements and the need for a shorter and easier means of creating announcements. It provides the capability for the SSP (Service Switching Point) to perform the STOR operation when the IP (Intelligent Peripheral) is local to the SSP, that is, when it is directly connected via National/Custom ISDN PRI (Primary Rate Interface)

The SCP (Service Control Point) is allowed to instruct the switch to access an IP which can act as an announcement service, text-to-speech service and collection of digits, and FlexParameter platform. Such an IP would have an announcement capacity much greater than 512 announcements that the DSU-2 currently provides, and would also allow for very fast creation or modification of announcements.

In addition to providing voice announcements and digit collection, the IP can provide other services such as text to speech, voice recognition, etc., which the SCP can invoke using the new STOR operation.

When a Send To Resource message containing a Destination Address Parameter (referred to as an STR(E) (A Send To Resource message containing a DAP (Destination Address Parameter)) message), is received by the switch, the switch connects the user to the IP indicated by this parameter. Information in the STR Parameter Block is forwarded to the IP to convey the SCP's instructions. The IP plays the announcement as indicated by the SCP instructions.

2. FEATURE DESCRIPTION

Available with the 5E11 Software Update and later Software Releases, the AIN Send To Outside Resource Remote feature is a secured feature using SFID (Secured Feature ID) 241 and must be purchased before being activated. The feature number for this feature is 99-5E-3620.

This feature provides the capability for SSPs that are not directly connected to the IP the ability to access the IP using ISUP (ISDN User Part) signaling over trunks connected to the SPP where the IP is located.

Therefore, this feature allows the customer who does not have an IP connected to the SSP to use the Send to Outside Resource Remote capabilities. That is, customers who plan to use the Send to Outside Resource capabilities do not need to have an IP attached to every SSP. This feature eliminates the need for multiple IP's since the other SSPs can access the IP remotely.

This feature will also address the need for an increased number of AIN customizable announcements and the need for a shorter and easier means of creating announcements by allowing the SCP to instruct the switch to access a remote IP which can act as an announcement platform.

This feature provides:

- service providers the ability to develop applications using capabilities such as announcements, text-to-speech, and voice recognition through service circuits accessible on the IP.

- an increased number of AIN customizable announcements.

- a means of creating announcements by allowing the SCP to instruct the switch to access a remote IP which can act as an announcement platform.

elimination of a need for each SSP in the users network to have their dedicated IP.

access by multiple switches to external IP announcements.

for a greater expanded announcement set (via IP), with facility for creation/change.

use of ISUP signaling (via existing trunks) to reach remote switch where IP is directly connected.

3. FEATURE ASSIGNMENT

This is a secured feature, therefore, before it can be activated the ACT field for SFID 241 on the SFSYS form (5713-1 Record) must be set to "Y". In addition, the AIN SSP Send To Outside Resource (Local), feature must be activated by setting the ACT field for SFID 229 on the SFSYS form to "Y". (For more information on this feature, see Division 2, Section 4A229).

The STR(E) capabilities specified in this feature are not provisioned against any particular line or trunk. The STR(E) capability is available on an office-wide basis when the feature is activated. When the feature is activated, STR(E) capabilities may be invoked for any call once it has encountered an ASP (Advanced Services Platform) trigger and Queries an SCP. The STR(E) capabilities are invoked on a call-by-call basis by the service logic resident at the Service Control Point.

ISUP connections from the local SSP to the remote SSP are provisionable and manageable through existing capabilities. PRIs which are to be used to connect to IPs will be provisioned as IP Interfaces.

An end-to-end ISUP connection is required between the Local and Remote SSPs.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable Secured Features. This feature is activated by setting the ACT field for SFID 241 on the SFSYS form (5713-1 Record) to "Y". In addition, the AIN SSP Send To Outside Resource (Local) feature must be activated by setting the ACT field for SFID 229 on the SFSYS form to "Y". (For more information on this feature, see Division 2, Section 4A229).

5. GLOSSARY

AIN	Advanced Intelligent Network
ASP	Advanced Services Platform
DAP	Destination Address Parameter
DSU2-RAF	Digital Service Unit Model 2-Recorded Announcement Facility
IP	Intelligent Peripheral
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part

PRI	Primary Rate Interface
SCP	Service Control Point
SSP	Service Switching Point
STOR	Send To Outside Resource
STR(E)	A Send To Resource message containing a DAP

SEC. 4A242: VIRTUAL PRIVATE NETWORK - LDP

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-110 Long Distance Platform*.

SEC. 4A243: CARRIER ROUTING / CALL PROCESSING BY FACILITY PRESENCE

1. FEATURE DESCRIPTION

Carrier Routing / Call Processing by Facility Presence is a secured feature using SFID (Secured Feature ID) 243 and must be purchased before being activated. The feature number for this feature is 99-5E-3970.

This feature is being deployed on the 5ESS-2000 Switch in a software update for the 5E11 Software Release and for the Beginning Managed Introduction of the 5E12 Software Release.

The Carrier Routing/Call Processing by Facility Presence feature provides a new trigger on a 5ESS-2000 Switch that is configured as a toll switch. The term "Toll Switch" is used to define a 5ESS-2000 Switch that is configured as an Access Tandem or Interexchange Carrier switch. The functionality provided by the new "Carrier Routing" Trigger provides the ability to launch an ASP R0.1 Info_Collected Query at the Toll Switch for designated carriers. Incoming traffic to the Toll Switch can detect this Carrier Routing Trigger when the following conditions are met:

- The incoming trunk group is provisioned to allow Carrier Triggers
- A Carrier ID is received in the trunk signaling or is provisioned on the trunk group
- The signaled or derived Carrier ID is provisioned with an ASP R0.1 Trigger number.

When these conditions are satisfied, an ASP R0.1 Info Collected Query is launched.

The Carrier Routing Feature provides an ASP trigger in the Toll Switch which allows a toll provider to query the SCP database and provide a variety of services, such as:

- Route selected calls for the carrier
- Screen calls for the carrier based on ANI.

This feature is supported on the 5ESS-2000 Switch, the CDX and VCDX platforms for both the SM and SM-2000.

2. FEATURE ASSIGNMENT

For form flow see Figure 1. The activation of this feature is dependent on SFID 126 being active.

To enable this feature, the ACT field for SFID 243 is set to "Y" on the SFSYS form.

Define the Trigger Number on the Carrier. The ICF form is used to provision the carrier on the trigger. For the Feature Group D Carrier, set the ASP TRG NBR field to a valid R0.1 trigger that has been defined on the NSTRIG form.

Allow the Trunk to Access the Carrier Trigger. In order for the carrier trigger to be detected, the incoming two-way trunk group must have the permission set to use the trigger. On the TKGRP form, for the "LATA" or "TTOLLCON" trunk group, set the CARRIER TRIG field to "Y".

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ICF	5305-1/2	3	3R	10.3
TKGRP	5202	3	2A	5.1
SFSYS	5713-1	3	5AR	8.22

ICF form (5305 -1/2 Record) - This form is used to define the characteristics of Inter-LATA (Local Access Transport Area) carriers. For 5E11 and later, added the ASP TRIG NBR field.

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. This feature is a secured feature and is activated by setting the ACT field for SFID 243 to "Y" on the SFSYS form (5713-1 Record).

TKGRP form (5202 Record) - The 5202 Record is used to define each Trunk Group in a 5ESS-2000 Switch. For 5E11 and later, added the CARRIER TRIG field.

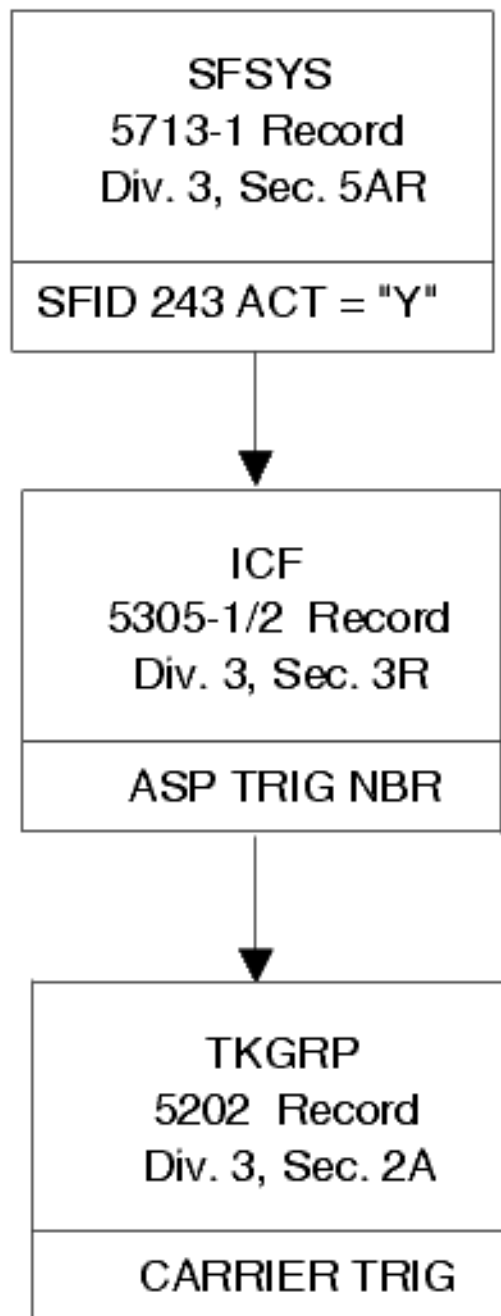


Figure 1 FORM FLOW FOR CARRIER ROUTING / CALL PROCESSING BY FACILITY PRESENCE

SEC. 4A244: MODIFIED REDIRECTING NUMBER ORIGINATION ON PRI

1. FEATURE DESCRIPTION

The Modified RN (Redirecting Number) Origination on PRI (Primary Rate Interface) is a secured feature (SFID 244) that is being deployed as a 5E11 Software Release and for the BMI (Beginning Managed Introduction) of the 5E12 Software Release. The feature number for this feature is 99-5E-4046.

This feature maps the originating PRI RN IE(s) (Interexchange) into:

SS7 OCN (Signaling System 7 Original Called Number), RN, and RI (Route Index) parameters of the SS7 IAM (Initial Address Message) for SS7 calls

ATP (Access Transport Parameter) in the IAM

RN IE(s) of the BRI (Basic Rate Interface) SETUP for BRI calls on the same switch

With this feature, it is possible to discard and screen the numbers in the RN IE(s), and also bill the originating PRI call to the number in the RN IE (if there are two PRI RN IEs, the number in the second RN IE will be used).

This feature also applies to all PRI B-channel trunk groups in the office for custom and national ISDN (Integrated Services Digital Network) PRIs.

The functionality of this feature is operational on both classic SMs (Switching Modules) and SM2000 switches.

2. FEATURE ASSIGNMENT

For 5E11 and later, to provision this feature:

Set the ACT field for SFID 244 on the SFSYS form (5713-1 Record) to "Y".

For PRI originations the following fields must be set on the TKGRP form (5202 Record) accordingly:

- In order to bill the call to the number in the PRI RN IE, the RN BILLING field must be set to "Y".
- In order to screen the number in the PRI RN IE, the RN SCRIN field must be set to "Y".
- In order to discard the number in the PRI RN IE, the RN DISC field must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the Modified RN Originator on PRI feature, the ACT field for SFID 244 must be set to "Y".

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form. Added the RN SCRIN, RN DISC, and the RN BILLING fields.

SEC. 4A245: RTCD (REAL TIME CALL DETAIL) PLATFORM/APPLICATION

1. FEATURE DESCRIPTION

Available as a Software Update to 5E13, the RTCD (Real Time Call Detail) feature has feature numbers

99-5E-3784, 99-5E-3784.B, and 99-5E-4387 and uses SFID (Secured Feature ID) 245.

There are 3 parts of the RTCD (Real Time Call Detail) feature.

The RTCD Application feature (99-5E-3784) provides the capability for each 5ESS-2000 Long Distance Platform switch in the path of a call to generate a RTCD record containing information collected during the life of the call. Changes to support this part of the feature were made in 5E12.

The RTCD Platform feature (99-5E-3784.B) allows the RTCD records the ability to be transmitted off the switch in near real time (within 10 seconds of call disconnect) via an Ethernet interface to a collector system. Changes to support this part of the feature were made in 5E12.

The 5ESS Long Distance Platform RTCD Enhancement Package-A (99-5E-4387), extends the capabilities provided by feature number 99-5E-3784 (RTCD Application for the 5ESS-2000 Switch LDP). The enhancements are available as a Software Update to 5E13 and build upon the RTCD Application and Platform feature capabilities developed in 5E12.

NOTE: The RTCD feature can only be turned on after the 5E13 Software Update is installed.

1.1 RTCD Application and Platform feature

The RTCD feature adds the capability to the LDP (Long Distance Platform) 5ESS-2000 Switch to generate per call information in the form of RTCD records. The RTCD feature also adds the capability to the LDP to transmit these records from the switch in near real time via a standard data interface.

Service providers using the RTCD feature may use the records for subscriber billing, network planning and maintenance, and rapid fraud detection.

Service providers will recognize much of the initial content of the RTCD records as being similar to that delivered in AMA (Automatic Message Accounting) records, such as calling number, called number, answer time, and carrier connect time.

While AMA records are usually only generated at the first switch in a provider's network, sufficient for subscriber billing, RTCD records may be generated on a per trunk group basis anywhere in a service provider's network. A service provider may decide to activate the RTCD feature nominally on all NATs (Network Access Trunks) for those calls entering their network, but will occasionally activate the RTCD feature on their INTs (Intra Network Trunks) to pinpoint network problems. Other network providers may elect to have the RTCD feature active all the time on all of their toll trunk groups.

For those service providers currently using AMA, the RTCD feature does not affect the ability of the LDP 5ESS-2000 Switch to format and generate AMA records. Both AMA and RTCD could be active for the same calls.

Figure 1 shows the RTCD delivery architecture at a high level.

The RTCD records generated by the 5ESS-2000 Switch are transmitted from the switch via an Ethernet interface to a local Data Server where they are stored on disk and transmitted to a downstream Data Manager. The office will have its local Data Server in a "duplex" configuration (two Hubs and two Data Servers as shown in Figure 1).

The lines with arrows are trunk groups which could carry a mixture of voice and circuit switched data calls. The service provider can activate the RTCD feature on any toll trunk group. When a call enters the LDP 5ESS-2000 Switch via a trunk group with the RTCD feature active, the switch generates a RTCD record when the call disconnects, and transmits the record out of the switch via an Ethernet link. Barring unusual

conditions (SM in stand-alone, Ethernet link unavailable, etc.), the switch transmits the RTCD record within ten seconds after the call disconnects, even during the busy hour. The switch does not retain a copy of the RTCD record once the record is transmitted to the Data Server.

Each LDP 5ESS-2000 Switch using the RTCD feature will equip one SM-2000 with a MHEIB (Message Handler Ethernet Interface Board). This SM-2000 is referred to in this document as the GBSM (Global Billing SM). The GBSM provides the termination of the Ethernet link at the switch side. The GBSM receives RTCD records generated by the various SMs in the office, including itself, and transmits the records to the outside world via the Ethernet link and TCP/IP protocol. RTCD messages transmitted via this interface will be sent utilizing the GDI (Generating System to Data Server Interface) protocol. Due to the volume of messages produced by this feature, the QLPS (Quad-Link Packet Switch) is required. Switches with more than one SM-2000 will already have need of the QLPS, regardless of the RTCD feature. The Ethernet links from the Data Server to the Data Manager will use Data Server to DDI (Data Processing Management System Interface) protocol utilizing FTP (File Transfer Part).

1.2 RTCD Enhancement Package

The enhancements are outlined below:

- Support for RTCD recording on calls originating on EDSLHM (Extended Digital Subscriber Loop Hotel/Motel) trunks. EDSLHM is the name given to a trunk that enters the 5ESS Switch from a hotel or motel, and which uses the PRI (Primary Rate Interface) version of ISDN signaling.
- Recording of network information (Terminating Switch, etc.) not otherwise available at the recording office.
- Permitting the service provider the option of generating additional records to capture information from the SCP (Service Control Point) transaction(s), especially when more than one SCP transaction is triggered for the call.

The option is exercised through the use of a new office parameter (which determines how a SCP-generated AMAsIpID is to be interpreted), and on a per-transaction basis by having the SCP return an AMAsIpID parameter in a response message.

A maximum of six RTCD records can be generated per call at a given office, if this option is exercised on all six SCP transactions in addition to the RT_05 record.

- Simplifying the task of correlating all RTCD records generated for any given call, regardless of what office produced each record and regardless of how many records per call are generated at a specific office.
- Expanding the set of measurements and I/O messages provided, thereby enhancing the operations component of the feature.

Other than these enhancements, the RTCD feature will operate as currently provided in the 99-5E-3784 version of the feature.

2. FEATURE ASSIGNMENT

Activation of this feature requires that growth procedures for adding the ethernet link must be executed. In addition, RTBM (Real Time Billing Memory) must be properly configured. Once this has been done, the feature can be activated by the following sequence below and in Figure 2.

- On the SFSYS form (RC/V view 8.22) activate SFID 245.
- On the OFCOPT form (RC/V view 8.1) enter the desired value in the RTCD ALM, SCP TREC and RTCD OFC fields.
- On the TKGRP form (RC/V view 5.1) enter "Y" in the RTCD REQ field for all trunk groups that need RTCD.

3. TRANSLATIONREQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ENETLINK	5827	8	67	19.21
ENETPIPE	5826	8	66	19.20
EQMH	5856	8	58	19.13
EQIM	5700-1	8	2	18.1
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-5	3	2A	5.1

ENETLINK form (5827 Record) - This form defines the ethernet links connected to a MH (Message Handler). This view was added to support the RTCD feature.

ENETPIPE form (5826 Record) - This form defines the ethernet pipes connected to a MH (Message Handler). This view was added to support the RTCD feature.

EQMH form (5856 Record) - This form defines the equipage information for the message handler in an SM-2000 processor. The MH field display type has been modified from a verify only field to a key field to support the RTCD feature.

EQIM form (5700-1 Record) - The form defines Switching Module Equipage Assignments. The BILL SM field was added to support the RTCD feature.

OFCOPT form (5509 Record) - This form supplies various miscellaneous office options and parameters. The BILL SM, RTCD OFC, and RTCD ALM fields are added to support the RTCD feature. The SCP TREC field was added to support the RTCD Enhancement Package-A feature.

SFSYS form (5713-1 Record) - This form is used to activate Secured Features. The SFID 245 option should be set to "Y" to activate this feature.

TKGRP form (5202-5 Record) - This form defines parameters for each Trunk Group in a 5ESS Switch. The RTCD REQ field was added to support the RTCD feature.

4. GLOSSARY

DDI	Data Server to DPMS Interface
EDSLHM	Extended Digital Subscriber Loop (a trunk class for
FTP	File Transfer Part
GBSM	Global Billing Switching Module

GDI	Generating System to Data Server Interface
INTs	Intra-Network Trunks
IP	Intelligent Peripheral or Internet Protocol
ISDN	Integrated Digital Services Network
LDP	Long Distance Platform
MHEIB	Message Handler Ethernet Interface Board
NATs	Network Access Trunks
ODA	Office Data Assembler
PRI	Primary Rate Interface
QLPS	QLPS QGP Link
RC	Recent Change 5ESS-2000 Switch Software Subsystem
RTBM	Real Time Billing Memory
RTCD	Real Time Call Detail
SCP	Service Control Point
SFID	Secured Feature Identification ("245" for RTCD)
SM	Switching Module
TCP	Transmission Control Protocol/Internet Protocol

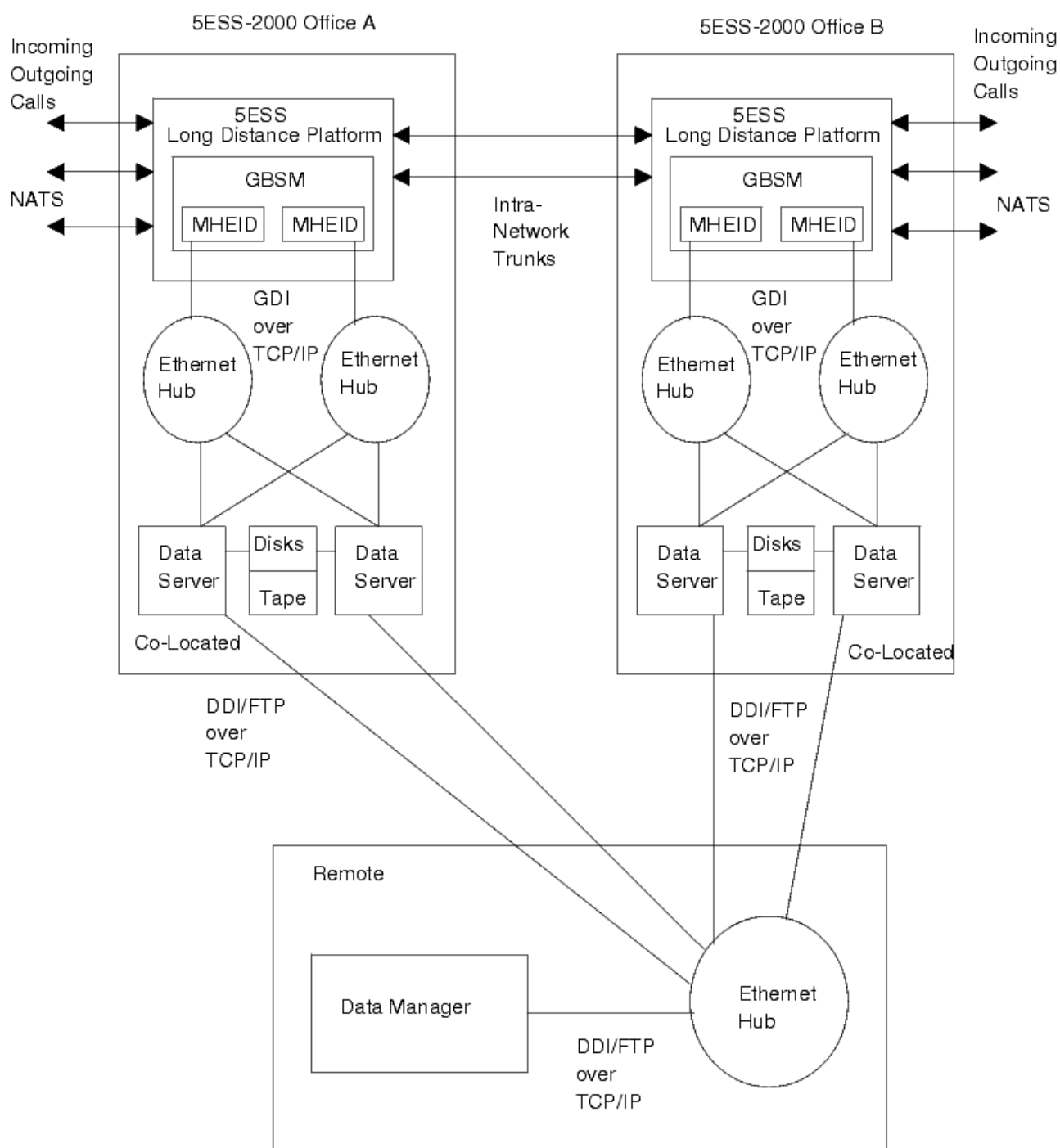


Figure 1 RTCD RECORD DELIVERY ARCHITECTURE

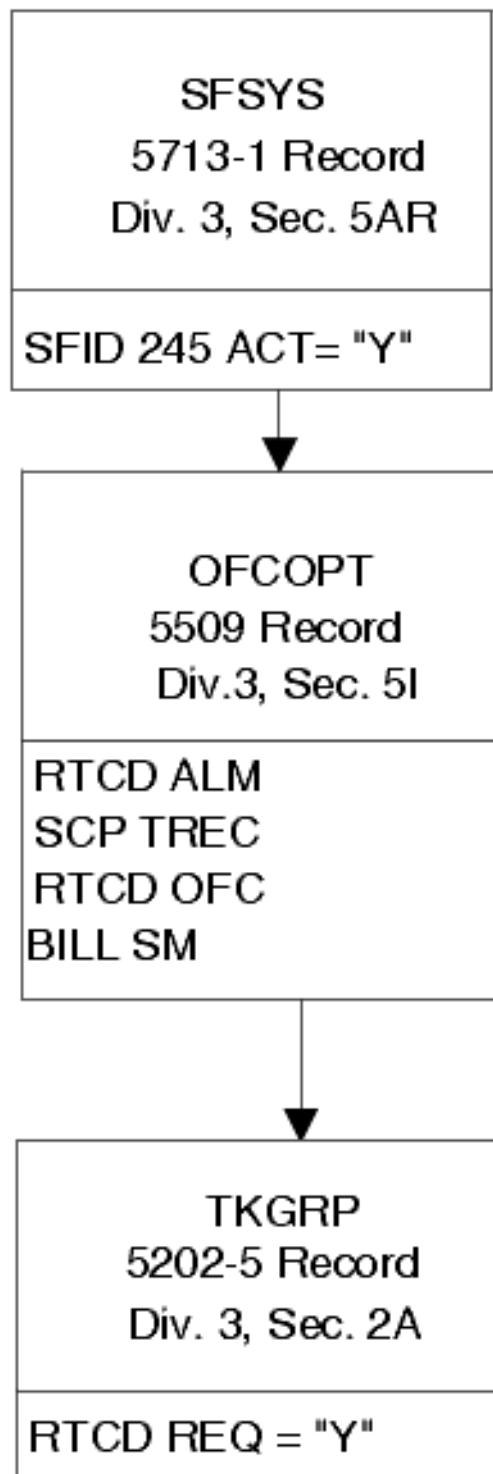


Figure 2 FORM FLOW FOR RTCD (REAL TIME DETAIL) PLATFORM
SEC. 4A246: TELEPHONE STATUS MONITORING AND SELECT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-104 ISDN Feature Descriptions*.

SEC. 4A247: MINT BETA SIGNALING

1. FEATURE DESCRIPTION

This feature is documented as part of the base MINT (Multi-Vendor Intra-Network Trunk) feature. Please see Division 2, Section 4A217 for more information on the base MINT feature (TOLL 5ESS Switch Platform for MINT Processing).

SEC. 4A248: MINT GAMMA SIGNALING

1. FEATURE DESCRIPTION

This feature is documented as part of the base MINT (Multi-Vendor Intra-Network Trunk) feature. Please see Division 2, Section 4A217 for more information on the base MINT feature (TOLL 5ESS Switch Platform for MINT Processing).

SEC. 4A249: MINT REROUTE QUEUEING

1. FEATURE DESCRIPTION

This feature is documented as part of the base MINT (Multi-Vendor Intra-Network Trunk) feature. Please see Division 2, Section 4A217 for more information on the base MINT feature (TOLL 5ESS Switch Platform for MINT Processing).

SEC. 4A250: MINT REROUTE ON RELEASE

1. FEATURE DESCRIPTION

This feature is documented as part of the base MINT (Multi-Vendor Intra-Network Trunk) feature. Please see Division 2, Section 4A217 for more information on the base MINT feature (TOLL 5ESS Switch Platform for MINT Processing).

SEC. 4A251: MINT TIME DEPENDENT ROUTING

1. FEATURE DESCRIPTION

This feature is documented as part of the base MINT (Multi-Vendor Intra-Network Trunk) feature. Please see Division 2, Section 4A217 for more information on the base MINT feature (TOLL 5ESS Switch Platform for MINT Processing).

SEC. 4A252: AIN ANNOUNCEMENT ID EXPANSION

1. FEATURE DESCRIPTION

The feature number for AIN (Advanced Intelligent Network) Announcement ID Expansion Feature is 99-5E-3569. This secured feature is available for 5E12 and later Software Releases.

This feature increases the number of announcement IDs from 255 to 65535. This increase in announcement IDs allows service providers to offer more customized announcement sets to their end-customers.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 252 is set to "Y" on the SFSYS form.

When the feature has been enabled, AIN Announcement ID Expansion can be provisioned on the ANNTR form (5533 Record) or SSPANN form (5535 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNTR	5533	3	5AG	8.62
SSPANN	5535	3	5AI	10.17

ANNTR form (5533 Record) - This form lists phrases that identify announcement trailer. Changed TRAILER ID valid values from 1 - 255 to 1 - 65535 for 5E12 and later Software Releases to support this feature.

SSPANN form (5535 Record) - This form is used to specify a failure announcement code and either the route index to an announcement trunk group to be used to supply the appropriate message or pointers to customized header and trailer announcements. Changed CUST TRLID valid values from 1 - 255 to 1 - 65535 for 5E12 and later Software Releases to support this feature.

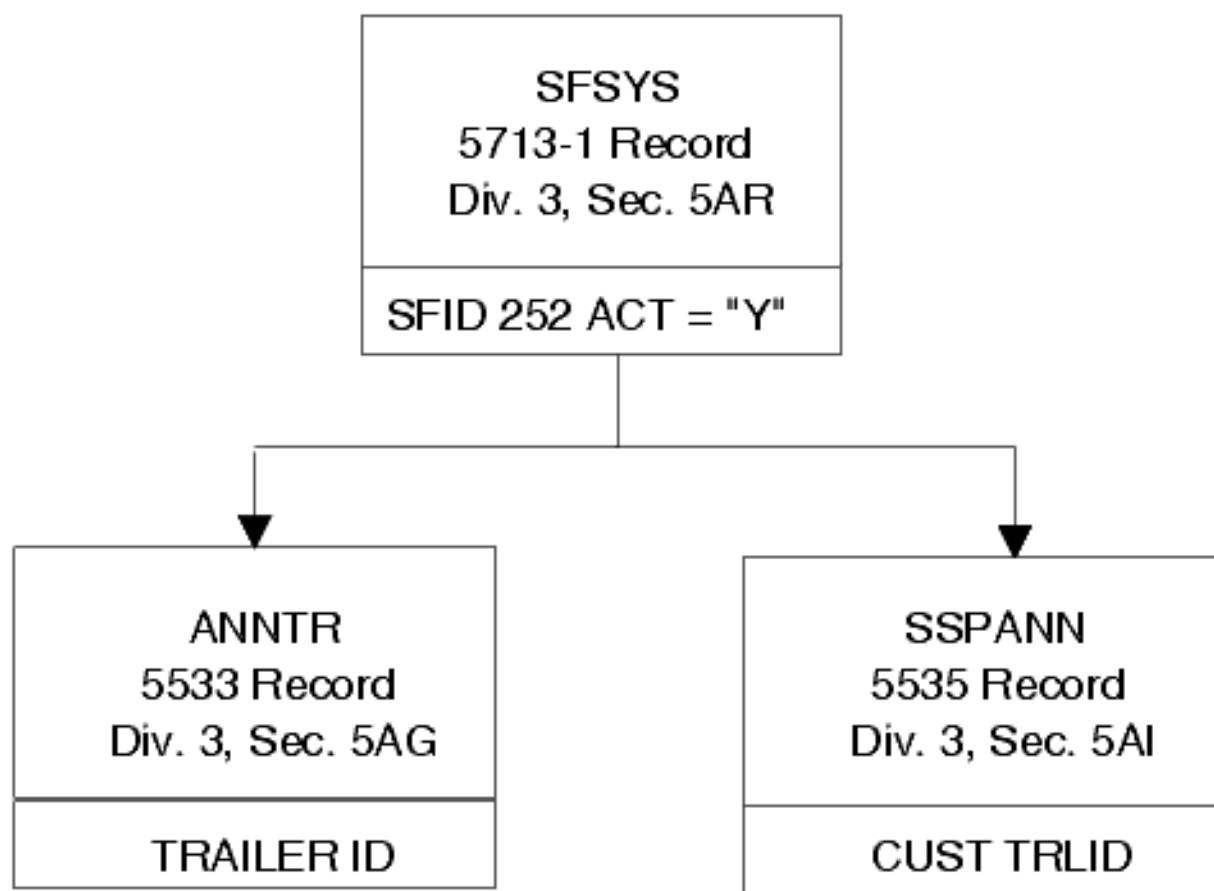


Figure 1 FORM FLOW FOR AIN ANNOUNCEMENT ID EXPANSION

SEC. 4A254: RESTRICT USAGE OF ASP TRIGGERS

1. FEATURE DESCRIPTION

The feature number for the Restrict Usage of ASP (Advanced Service Platform) Triggers feature is 97-5E-3846. This feature is being controlled by the secured feature ID 254 and is being deployed as a software update for the 5E11 Software Release and for the Beginning Managed Introduction of the 5E12 Software Release.

- **NOTE:** This feature depends on SFID 126 which must be purchased to achieve the base ASP feature.

This feature allows a new ASP customer to purchase all of the ASP 0.1B triggers (Unrestricted ASP - Feature ID 254), or to separately purchase the following groups of ASP triggers (controlled by SFIDs 255, 256, and 257) without being required to purchase all other ASP triggers:

- ASP Subscribed Originating Line Triggers (Feature ID 255):
 - Off Hook Delay
 - Off Hook Immediate

- Feature Code Dialing
- Custom Dialing Plan
- Trunk Seizure Trigger (Private EAMF (Equal Access Multifrequency))
- SIT (Shared Inter-Office Triggers) - options 1, 3, 4
- PRI (Primary Rate Interface) Triggers (B-Channel Seizure)
- ASP Dialing Plan Triggers (Feature ID 256):
 - 3/6/10-Digit Triggers
 - N11
 - SIT (Shared Inter-Office Trigger) - option 2
- ASP Termination Attempt Triggers (Feature ID 257):

Other ASP triggers not noted in the above groups are secured under existing secured feature locks and are not altered by this feature nor secured by this feature. These ASP triggers continue to be secured under their individual secured locks and are not affected by the presence and state of the new feature locks introduced by this feature. These other ASP triggers are shown here for reference:

- ASP Originating Busy/No Answer Office Triggers
- Local Number Portability Triggers
- AIN (Advanced Intelligent Network) Toll Free Triggers
- IDP (Individual Dialing Plan) ANI (Automatic Number Identification) Table Triggers
- Network Element Signaling Services
- Trunk Triggers for Toll
- Carrier Triggers (Carrier Routing Call Processing by Facility)
- VPN (Virtual Private Network) Triggers (VPN Phase 1)

2. FEATURE ASSIGNMENT

If a customer has purchased ASP R0.1B (SFID 126 unlocked, the purchase of SFID 254 will provide all features offered by SFIDs 255, 256, and 257. However, if the customer prefers to purchase the triggers separately, SFID 126 must be purchased first before purchasing SFIDs 255, 256, and/or 257. SFIDs are activated by setting the ACT field to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate SFID 254, SFID 126 and 254 must be set to "Y".

4. GLOSSARY

A/N - Advanced Intelligent Network
ANI - Automatic Number Identification
ASP - Advanced Services Platform
EAMF - Equal Access Multifrequency
IDP - Individual Dialing Plan
PRI - Primary Rate Interface
RBOC - Regional Bell Operating Company
SIT - Shared Inter-Office Triggers
VPN - Virtual Private Network

SEC. 4A255: ASP ORIGINATING TRIGGERS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4A256: ASP DIAL PLAN TRIGGERS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4A257: ASP TERMINATING TRIGGERS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4A258: NATIONAL ISDN CALL PARK

1. FEATURE DESCRIPTION

Available with 5E12 and later, National ISDN Call Park (99-5E-3796) is a secured feature which uses Secured Feature ID 258. This feature allows the subscriber to interrupt voice on an active call without the call being cleared. The call gets parked against the subscriber's DN (Directory Number) or another DN in the subscriber's terminal group. The subscriber who parked the call (or another party) can then retrieve the call from the same terminal or from a different terminal in the same terminal group.

National ISDN Call Park consists of the following capabilities:

- Directed Call Park - parks calls against any DN in a subscriber group, including their own.

- Answer Back - reestablishes communications with calls parked against any DN in a subscriber group, including their own.
- Ring-back - alerts the parking party and reestablishes the call between the parking party and the parked party if the parked call is not established within a specified time interval.
- Call Park Reroute - reroutes parked party to an attendant defined for a terminal group if a ring-back call does not get answered after 30 seconds, or if ring-back does not occur after 3 attempts.

This feature is only available on the National ISDN Basic Rate, but the feature interfaces with analog users and custom BRI (Basic Rate Interface) users. Secured Feature ID 124 (99-5E-1140) provides Analog and Custom ISDN Call Park operation. The platforms are compatible. Non-National ISDN users may retrieve calls parked by National ISDN users and National ISDN users may retrieve calls parked by non-National ISDN users provided they are in the same terminal group and have the Call Park feature assigned.

National ISDN Call Park applies only to circuit-switched voice calls (for example, speech or 3.1 -kHz audio) on a BRI.

2. FEATURE ASSIGNMENT

To enable this feature, SFID 258 on the SFSYS form (5713-1 Record) must have ACT set to "Y". In addition, National ISDN Call Park features will have to be assigned to the line before use.

See Figure 1 for National ISDN Call Park form flow.

- **NOTE:** In order to both park and retrieve calls, two National ISDN Call Park features need to be assigned to a line: one feature DPARK (Directed Park) to park calls and one feature ANSBACK (Answer Back) to retrieve calls.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFGGRP	5964	6	7A	12.5
PDIT	5300-2	3	3B	9.2
PUOFD	5605-1a/b	4	6A	12.13
SFSYS	5713-1	3	5AR	8.22
SRVDESC	5985	6	27A	8.32

CFGGRP form (5964 Record) - This form is used to assign BRCS (Business and Residence Customer Service) feature actions to CPE (Customer Premises Equipment) user terminal buttons. An ACTION field form check was modified to allow ANSBACK and DPARK for STD (Standard) digital subscriber lines.

PDIT form (5300-2 Record) - The purpose of PDIT is to provide information defining feature and operator access and to provide prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). The "ANSBACK" enumeration was added to the ACTION field.

PUOFD form (5605-1a/b Record) - This form is used to define a number of separate but related features by selecting various feature options for CPUO (Call Pickup Originating). Reference to Division 2, Section 4A258 was added to INITIATE enumerations "ANSBACK" and "DPARK". Data rules were added for INITIATE enumerations "BPARK" and "RTRV".

SFSYS form (5713-1 Record) - This form is used by the System Equipment Engineer to enable the feature

for the operating company. SFID 258 must have the field ACT set to "Y" to enable the feature.

SRVCDESC form (5985 Record) — This form is used to override the default service descriptions. Enumerations "ANSBACK" and "DPARK" were added to the ACTION field.

4. GLOSSARY

BRI	Basic Rate Interface
ISDN	Integrated Services Digital Network

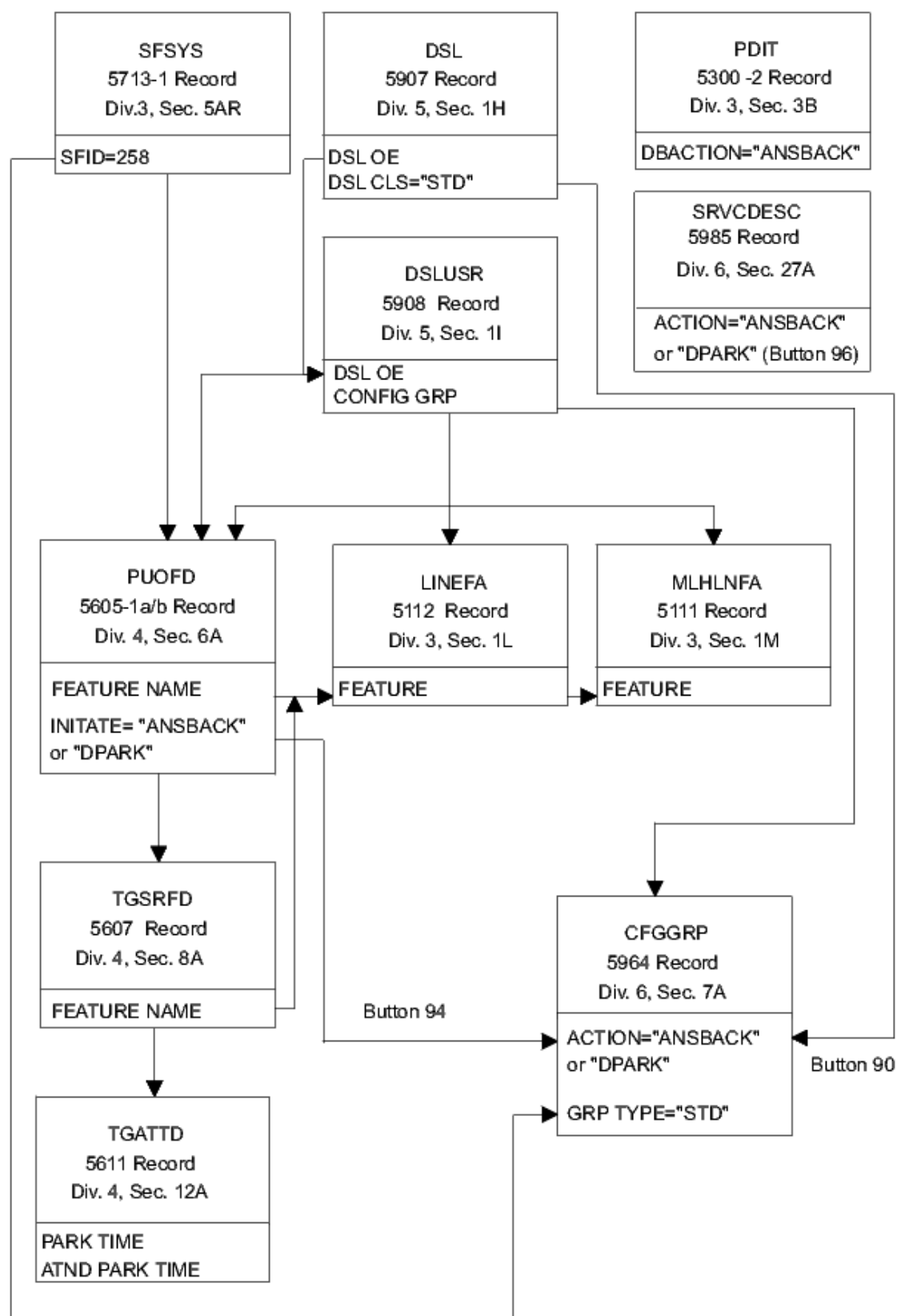


Figure 1 FORM FLOW FOR NATIONAL ISDN CALL PARK**SEC. 4A259: SWITCHED BASED TDMA VOCODERS****1. FEATURE DESCRIPTION**

The feature number for the Switched Based TDMA (Time Division Multiple Access) Vocoders feature is 99-5E-3395. This is a Secured Feature (SFID 259) that is being deployed as a 5E12 Software Update and for the BMI (Beginning Managed Introduction) of the 5E13 Software Release.

This feature supports the TDMA Vocoder Relocation capability being added to the AUTOPLEX system. Switched Based TDMA Vocoders provides the TDMA vocoders from the switch instead of the cell site. TDMA Vocoder Relocation is available to TDMA wireless service providers using Series II cell sites equipped with EDRU (Enhanced Digital Radio Units).

The TDMA VIS (Vocoder in the Switch) Feature uses mostly the same 5ESS-2000 Switch's resources as CDMA (Code Division Multiple Access) does, including the PSU2 (Packet Switch Unit 2), FRPH (Frame Relay Protocol) PH4 (Protocol Handler), DFMP (Data Fanout Multiple PIDB (Peripheral Interface Data Bus)) or DF2 (Data Fanout 2), PHV4 (Protocol Handler for Voice 4), and PHA (Protocol Handler for Asynchronous). Note that the ECU (Echo Cancellation Unit) is not required for TDMA VIS. Feature assignment information for these are provided under CDMA. See Division 2, Section 8b. The TDMA VIS call flow is the same as CDMA's call flow (see section 4.8.2.13) in the 5ESS-2000 Switch, except that only PHV4s can be used and handoffs are semisoft or hard, and never soft.

This feature is a software feature which makes use of the packet switching capabilities of the 5ESS-2000 Switch. Switch Based TDMA Vocoders creates "packet pipes" of 1 DS0 in size which connect the PSU (Packet Switching Unit) of the 5ESS-2000 Switch to the EDRU of the cell site. Each packet pipe carries 3 voice channels. The TDMA voice packets are delivered to vocoders located within the PSU. The vocoders will support either the ACELP (Algebraic Code Excited Linear Predictive) or VSELP (Vector Sum Excited Linear Predictive) vocoding algorithms used for TDMA service.

2. FEATURE ASSIGNMENT

The DCS (Digital Cellular Switch) feature is required for TDMA VIS. It is a secured feature, therefore the ACT field for SFID 130 must be set to "Y" on the SFSYS form (5713-1 Record) before the TDMA VIS feature can be activated. The SFID 259 on the SFSYS form (5713-1 Record) must be set to "Y".

To further provision this feature:

- Define a Speech Handler trunk group with SERV TYPE of ACELP or VSELP on the TKGRP form.
- Insert a PHV4 on a PSU on the EQPSUPH form.
- Insert Speech Handler trunk members with OE referencing the PHV4 on the TRUNK form.
- Update any global parameters associated with this feature (if needed). This is done on the TDMAOPT form.

See provisioning form flow on Figure 1.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TDMAOPT	5572	3	5BM	8.56
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for both SFID 130 and SFID 259 to "Y", respectively.

TDMAOPT form (5572 Record) - The TDMAOPT form provides the capability for specifying or verifying the global parameters for TDMA. This form is newly added to support this feature.

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS-2000 Switch. Data rules updated to include ACELP and the VSELP for SERV TYPE field on Speech Handler (SPCHNDLR) trunks.

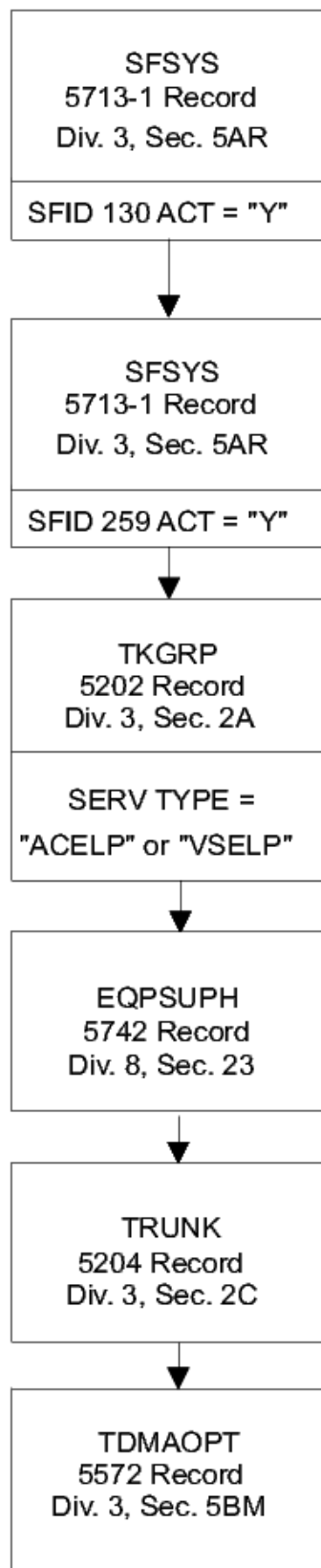


Figure 1 FORM FLOW FOR SWITCHED BASED TDMA VOCODERS**SEC. 4A260: COMMON CHANNEL SIGNALING PROTOCOL MONITORING****1. FEATURE DESCRIPTION**

Available for the 5E12 Software Release and 5E13 BMI (Beginning Managed Introduction), the CCS (Common Channel Signaling) Protocol Monitoring feature is Secured Feature (SFID 260). The feature number for this feature is 99-5E-3114.B.

CCS Protocol Monitoring provides an on-demand request to monitor Common Channel Signaling System 7 protocol messages for both the CNI (Common Network Interface) and PSU (Packet Switch Unit) platforms. The protocols supported are ISUP (Integrated Services - User Part) and TCAP (Transaction Capabilities Application Protocol). The raw hexadecimal output is provided as well as an English translation of the messages captured.

1.1 ISUP Monitoring

CCS Protocol Monitoring provides the capability to monitor inbound and outbound ISUP messages. A CCS Protocol Monitoring command is issued for a particular called or calling number. Once an IAM (Initial Address Message) with a specific called/calling number (inbound or outbound) is detected Protocol Monitoring starts recording messages. Subsequent messages for the call are matched based on the OPC (Origination Point Code)-DPC (Destination Point Code)-CIC (Carrier Identification Code) values from the IAM. The session ends when one of the ISUP termination messages for CCS Protocol Monitoring is encountered. The termination messages are: RLC (Release Complete), GRA (Group Reset Acknowledgement), UCIC (Unequipped Circuit Identification Code).

CCS Protocol Monitoring also detects a Glare situation for an ISUP call. If two IAMs with matching OPC-DPC-CIC values but in opposite directions are recorded, Glare has occurred at the SM.

A limitation for ISUP is that CCS Protocol Monitoring captures and records ISUP messages in the SMs before they are sent to the CNI/PSU platform. In case of CNI outbound messages the SLS value is changed in the CNI before the message is sent out to the network. CCS Protocol Monitoring does not have access to this changed value. Hence the SLS (Signalling Link Selection) is marked as "Unavailable" for CNI outbound ISUP messages in the translated output.

Examples of CCS Protocol Monitoring commands specific to ISUP:

1. Monitor on Called number, direction=transmitted

```
exc:pmccs,isup,called=a,dir=xmt
```

Monitoring starts when an outbound IAM with Called number, "a" is detected.

2. Calling number, direction=received

```
exc:pmccs,isup,calling=b,dir=rcv
```

Monitoring starts when an inbound IAM with Calling number, "b" is detected.

3. exc:pmccs,isup,calling=b,dir=rcv,dur=30

Same as example 2. except that the session will timeout if not completed within 30 seconds.

4. `exc:pmccs,isup,called=a,dir=xmt,repeat=1`

Same as example 1. except that a second session will start after the first one completes. This is due to the "repeat" option.

1.2 TCAP Monitoring

For TCAP, CCS Protocol Monitoring provides a capability that records all messages related to a TCAP query transaction or global title routed unidirectional TCAP message for the following applications: NS800, CNAM, ASP, AINR0D1, ISVM, and LASS.

TCAP monitoring is performed on a transaction basis (i.e, a monitor session starts with the first message of a TCAP transaction and continues until the transaction has ended). In general, a TCAP transaction begins with a Query message, is continued with any number of Conversation messages, and ends with a Response message. The exception to this is the Unidirectional message which is the first and only message of the transaction.

For transactions which are initiated by the switch (transmit direction), messages can be monitored by matching on information in either the SCCP (Signaling Channel Connection Part) layer of the message or a combination of the SCCP and TCAP layers of the message. For transactions which are received by the switch (receive direction), messages can only be monitored by matching on information in the SCCP layer of the message. Note that matching is performed on the first message of the transaction, and if it is successful, all messages associated with the transaction are monitored.

Matching criteria and message layer are specified as command line options on the EXC:PMCCS,TCAP input message

The input command requires that either Called or Calling digits are specified along with a choice of Called Party Translation Type, Called Party Subsystem Number, or Calling Party Subsystem Number. The direction of the message can also be specified (transmit, receive, or both - defaults to both) along with the layer of the message that is being used to match the digit information (SCCP or TCAP - defaults to SCCP). All of the criteria specified in the input command must match the message content in order to monitor the transaction.

For the following input message example:

```
exc:pmccs,tcap,called=630713,cgsn=250,layer=sccp;
```

Query or Unidirectional messages which contain both a Called Party Number (as Global Title Translation digits in the Called Party Address) of 630713XXXX and a Calling Party Subsystem Number of 250 will be matched and begin a monitoring session. Messages which contain a point code in the Called Party Address (rather than global title digits) and a Calling Party Subsystem Number of 250 will not match.

In general, transactions which are initiated by craft test query functionality are not monitored. The exception to this is the AIN0.1 test query functionality (TST:ASPTQ) which is supported by the protocol monitoring functionality.

A monitored TCAP message which is received on a PSU platform may differ in content at the MTP (Message Transport Part) and SCCP layers than the actual message that was received on the SS7 link, though they will be identical from a functional perspective. Because the PSU processes the MTP and SCCP layers of the message and passes a summary of this information to the SM along with the actual TCAP message content, the SM must then reconstruct the MTP and SCCP layers for messages that are being monitored. The specific scenario is related to a Called Party Address or a Calling Party Address which contains a point code format. Point codes can be encoded in two different formats.

1. The Address contains

Address Length

Address Indicator

— subsystem number present

— point code present

— no global title

— route on point code/subsystem number

— national standard

Subsystem Number

Point Code

2. The Address contains

Address Length

Address Indicator

— subsystem number present

— point code not present

— no global title

— route on point code/subsystem number

— national standard

Subsystem Number

no Point Code

For format 2, because there is no point code present (though the address indicator states to route on point code), the Destination Point Code (for Called Party Address) or the Originating Point Code (for Calling Party Address) is to be used. Though formats 1 and 2 are encoded differently, they are identical functionally, as they will be routed in identical fashion by the network.

Because the PSU to SM interface does not distinguish between these two formats, messages are always reconstructed using format 1.

2. FEATURE ASSIGNMENT

2.1 Secured Feature

The CCS Protocol Monitoring feature is a secured feature. The ACT field for SFID 260 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 260 must be set to "Y" to enable the CCS Protocol Monitoring feature.

SEC. 4A262: INTERNALLY BRIDGED DUAL SERVICES, PACKAGE 1

1. FEATURE DESCRIPTION

Available for the 5E11 Software Release and later, the IBDS (Internally Bridged Dual Services) Package 1 feature is Secured Feature (SFID 262). The feature number for this feature is 99-5E-3338.

The 1-TN LTSB (Line Time Slot Bridging) feature (99-5E-0531) for lines was available in the 5E5 Software Release. (For more information on the LTSB feature, see Division 2, Section 1AC). For 5E11 and later Software Releases, 1-TN LTSB for lines was enhanced to include more BRCS and Series Completion features. In addition, 1-TN LTSB functionality along with the added BRCS features was added for Multi-line Hunt lines. (These features are not allowed for 2-TN LTSB service.)

1.1 BRCS Features

The following features were added for 1-TN LTSB for lines:

- Call Forwarding: Busy Line and Don't Answer
- Display Feature Per-Call Privacy
- Incoming Line Identification
- Message Service System

1.2 Line Features

The following features were added for 1-TN LTSB for lines:

- Series Completion

NOTE: Series Completion for lines is allowed by removing a restriction.

1.3 Multi-line Hunt Lines

The following features were added for 1-TN LTSB for Multi-line Hunt lines:

NOTE: Series Completion is also available with 1-TN LTSB for Multi-line Hunt line, but no

restrictions were removed to support it.

- Call Forwarding
- Display Feature -Per Call Privacy
- Incoming Line Identification
- LASS Selective Call Acceptance
- LASS Selective Call Forwarding
- LASS Selective Call Rejection
- LASS Selective Call Distinctive Alert
- LASS Automatic Callback
- LASS Automatic Recall
- Message Service System
- Multiway Calling
- One-Two-Digit Speed Calling

2. FEATURE ASSIGNMENT

2.1 Secured Feature

The IBDS Package 1 feature is a secured feature. The ACT field for SFID 262 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

2.2 Line

The BRCS features that were added for IBDS Package 1 should be assigned on the LINEFA form (5112 Record), the CLUSTR form (5600 Record) or the BFG form (5625 Record). Series Completion is also allowed for lines and is assigned on the LINE form. To assign 1-TN LTSB to a line, see Division 2, Section 1AC.

2.3 Multi-line Hunt Line

To assign 1-TN LTSB to a multi-line hunt line, the ASSOC OE TYPE and NUMBER field must be entered on the MLHLN form (5111 Record). The BRCS features that were added for IBDS Package 1 should be assigned on the MLHLNFA form (5113 Record), the CLUSTR form, or the BFG form. Series Completion for 1-TN LTSB is also available for Multi-line Hunt lines and is assigned on the MLHLN form.

See Figure 1 and Figure 2 form flows for assigning IBDS Package 1 features to a line or multi-hunt group with LTSB features assigned.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109-1/2/3/4	3	11	1.5, 1.6

MLHLN	5111-1/2/3/4	3	1K	1.6
SFSYS	5713-1	3	5AR	8.22

LINE form (5109-1/2/3/4 Record) - This form is used to assign the office EN (Equipment Number) and features for each TN (Telephone Number). Data rules were added to support the enhancement of BRCS features to be assigned to 1-TN LTSB. A form check was removed to allow Series Completion for lines.

MLHLN form (5111-1/2/3/4 Record) - This form is used to assign the individual Terminal Numbers assigned to a particular MLHG. The ASSOC OE TYPE, NUMBER, and IALT fields were added for the IBDS Package 1 feature for 5E11 and later.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 262 must be set to "Y" to enable the Internally Bridged Dual Services Package 1 feature.

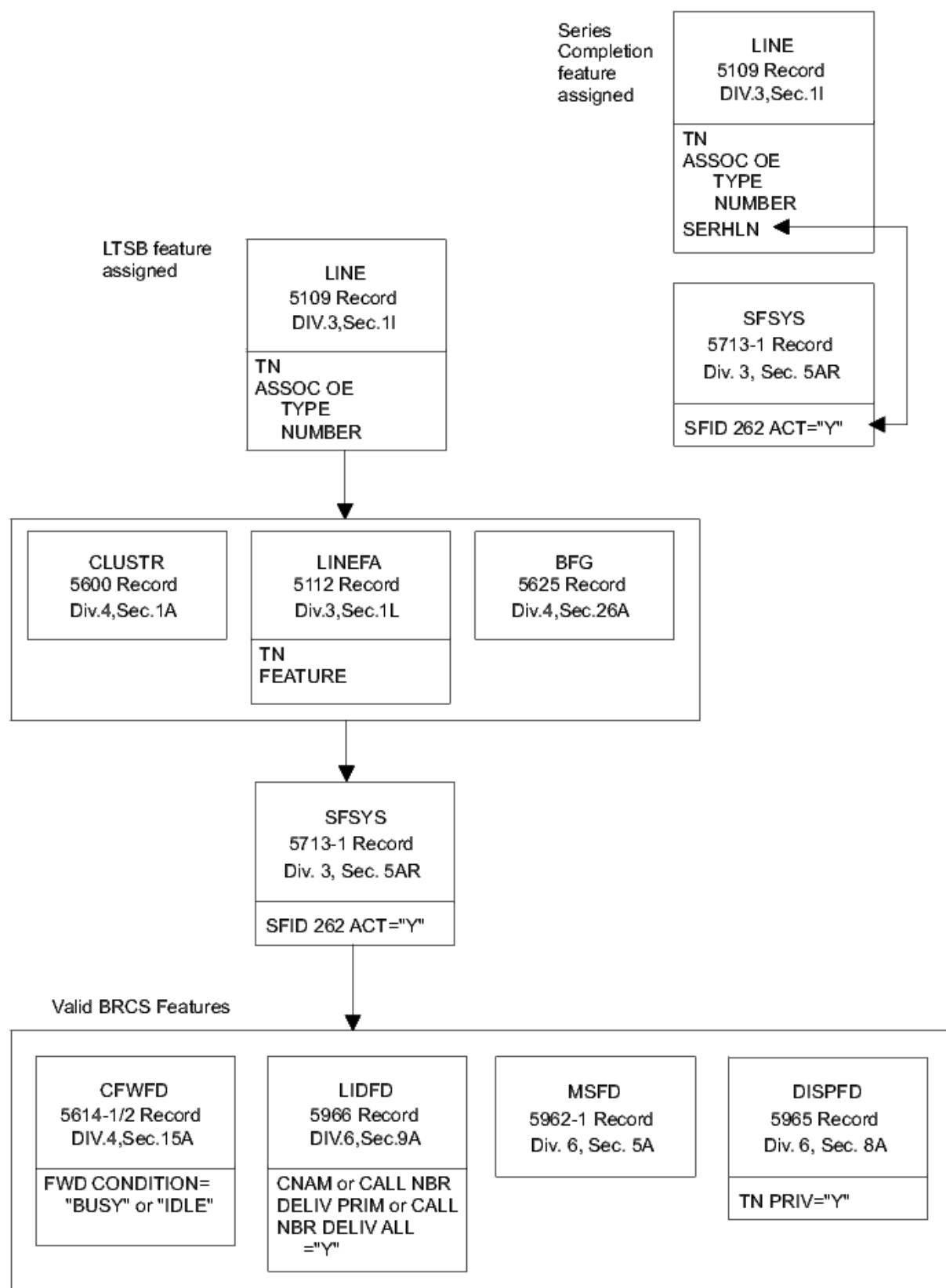


Figure 1 FORM FLOW FOR IBDS PACKAGE 1 FEATURES ASSIGNED TO A LINE

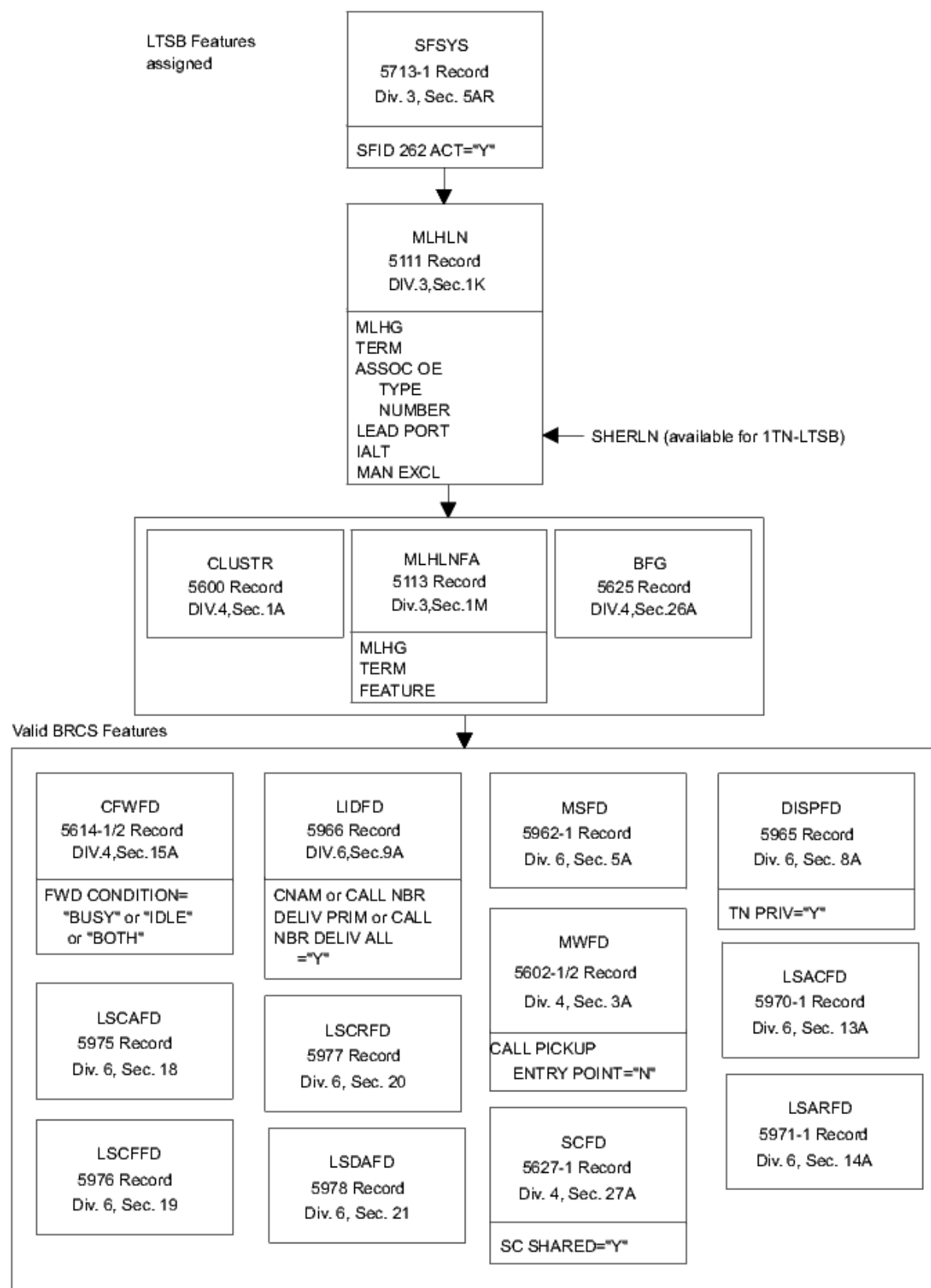


Figure 2 FORM FLOW FOR IBDS PACKAGE 1 FEATURES ASSIGNED TO MULTI-LINE HUNT GROUP**SEC. 4A263: INTERNALLY BRIDGED DUAL SERVICES, PACKAGE 2****1. FEATURE DESCRIPTION**

Available for the 5E12 and later Software Releases, the IBDS (Internally Bridged Dual Services) Package 2 feature is a secured feature (SFID 263). The feature number for this feature is 99-5E-3739.

The 1-TN LTSB (Line Time Slot Bridging) feature (99-5E-0531) for lines was available in the 5E5 Software Release. (For more information on the LTSB feature, see Division 2, Section 1AC.) The IBDS Package 2 feature enhances the IBDS Package 1 feature with additional BRCS features. (See also Division 2, Section 4A262 on the IBDS Package 1 feature.) (These features are not available for 2-TN LTSB service.)

With the IBDS Package 2 feature, the following features are available for 1-TN LTSB:

- Call Waiting features
 - Dial Call Waiting
 - Call Waiting Originating
- LASS COT (Customer Originated Trace)
- DR (Distinctive Ringing)
- IDP (Individualized Dialing Plan)
- MDR (Message Detail Recording)
- PFA (Private Facilities Access) without queueing
- TGSR (Terminal Group Station Restriction)

In addition, the Calling Identity Delivery feature is available, but only for the LINE form.

2. FEATURE ASSIGNMENT

The IBDS Package 2 is a secured feature. Therefore, the ACT field for SFID 263 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature. In addition, the IBDS Package 2 feature depends on the IBDS Package 1 feature, therefore, the ACT field for SFID 262 must also be set to "Y" on the SFSYS form.

Queueing is not allowed for PFA for IBDS Package 2. If parameters QUEUE ALLOWED or PRIORITY QUEUE are set to "Y" on the PFAFD form, then they must be overridden by the parameters QUEUE ALLOWED or PRIORITY QUEUE on the BFG (5625 Record) or PFALPA (5609-6 Record) or PFAMPA (5609-7 Record) forms, which must be "N" for the IBDS Package 2 feature.

See Figure 1 and 2 form flows for assigning IBDS Package 2 features to a line or multi-line hunt group with LTSB features assigned.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
LINE	5109-1/2/3/4	3	1I	1.5, 1.6
MLHLN	5111-1/2/3	3	1K	1.6
SFSYS	5713-1	3	5AR	8.22

LINE form (5109-1/2/3/4 Record) - This form is used to define the office EN (Equipment Number) and features for each TN (Telephone Number) in the switch. Data rules were added to allow the new BRCS features for IBDS Package 2 features.

MLHLN form (5111-1/2/3 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG. Data rules were added for the IBDS Package 2 feature for 5E12 and later.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 263 must be set to "Y" to enable the Internally Bridged Dual Services Package 2 feature. Since this feature depends on the IBDS Package 1 secured feature, the ACT field for SFID 262 must also be set to "Y".

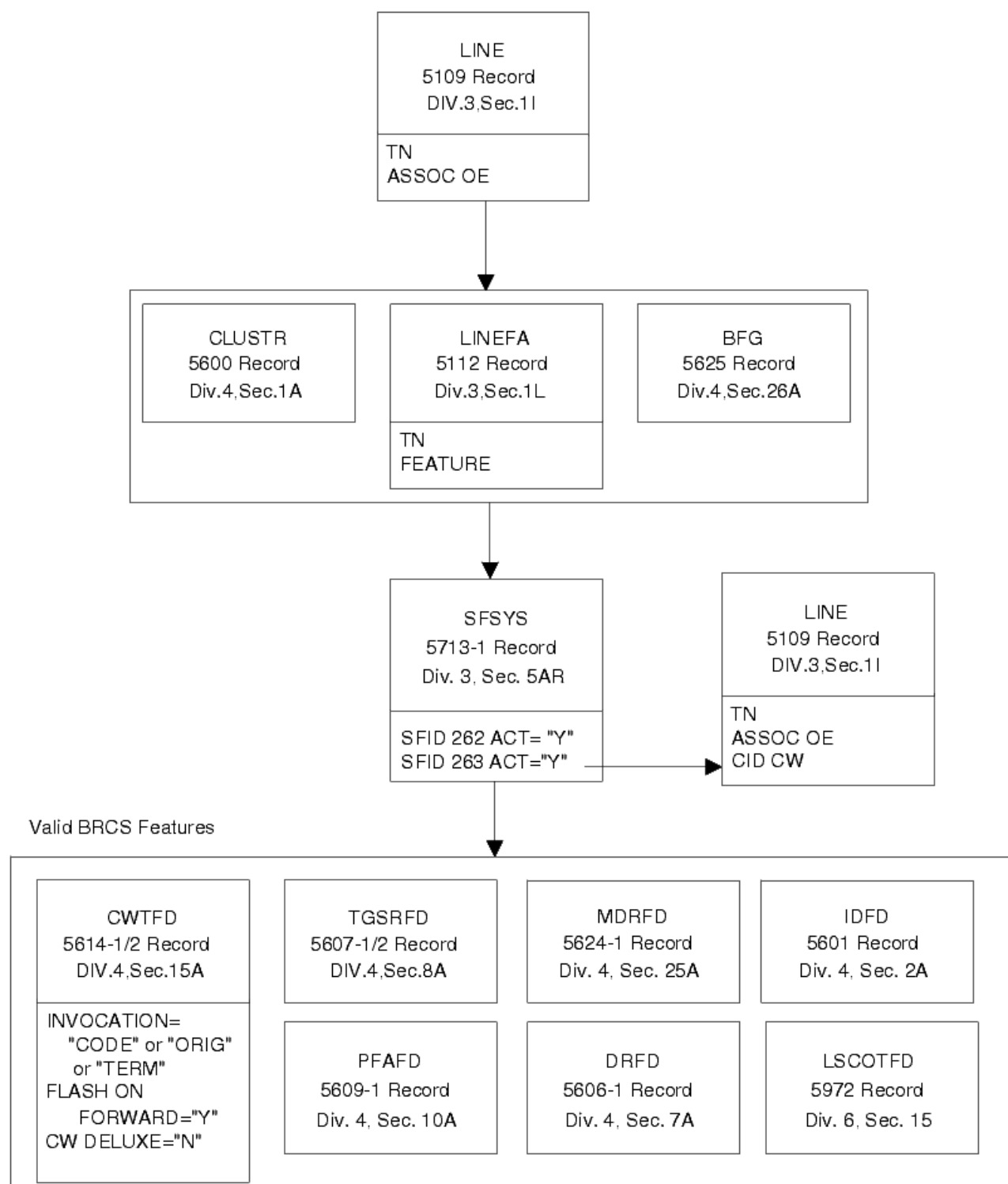


Figure 1 FORM FLOW FOR IBDs PACKAGE 2 FEATURES ASSIGNED TO A LINE

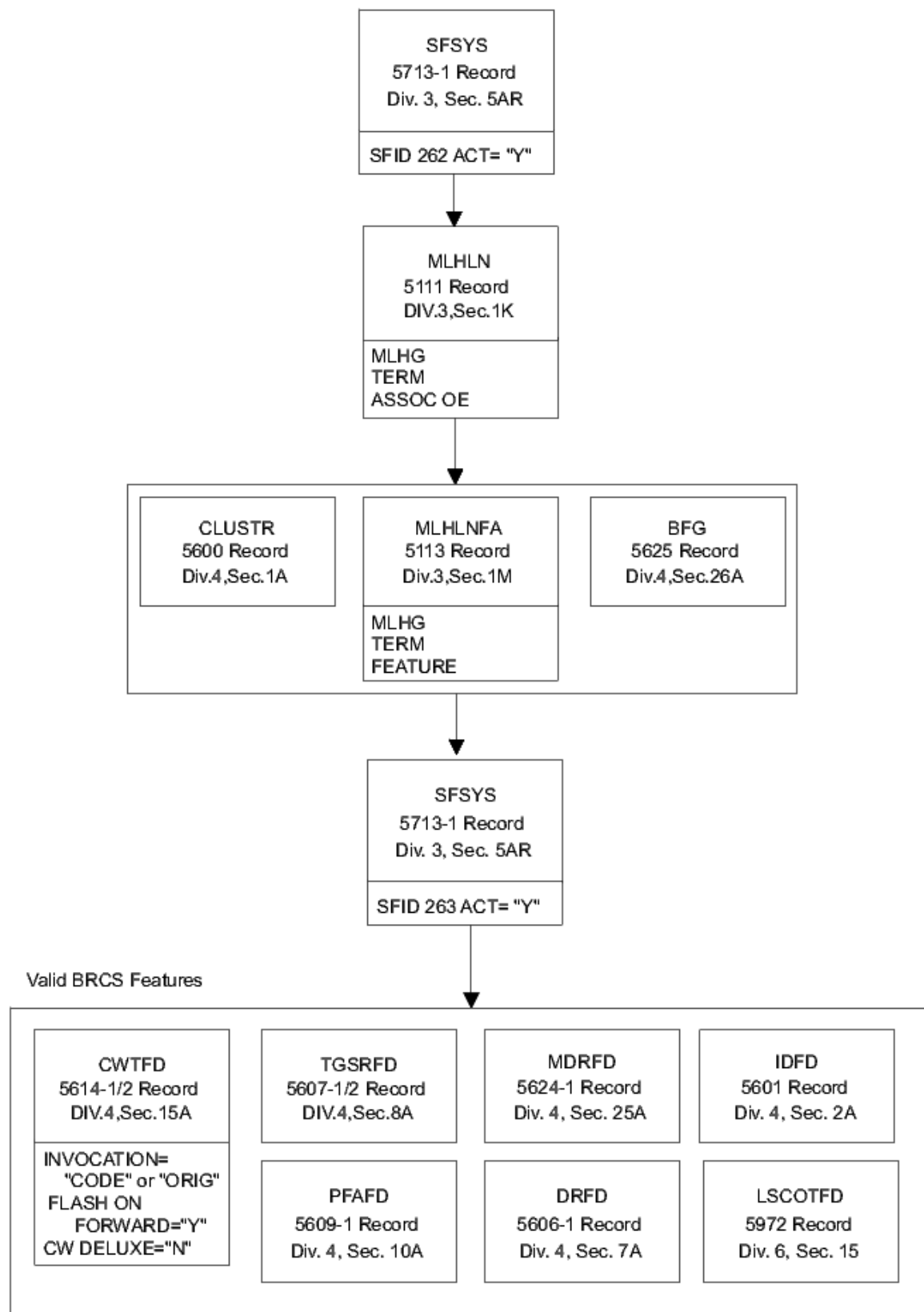


Figure 2 FORM FLOW FOR IBDS PACKAGE 2 FEATURES ASSIGNED TO A MULTI-LINE HUNT GROUP**SEC. 4A264: TELEPHONE STATUS MONITOR AND SELECT****1. FEATURE DESCRIPTION**

Telephone Status Monitor and Select is a secured feature using SFID (Secured Feature ID) 264 and must be purchased before being activated. The feature number for this feature is 99-5E-4001.

This feature is being deployed on the 5ESS-2000 Switch in a software update for the 5E12 Software Release and for the Beginning Managed Introduction of the 5E13 Software Release.

TSMS (Telephone Status Monitor and Select) allows a user with an ISDN telephone (secretary) to monitor the status of other ISDN and analog telephones (managers) using a SINGLE feature button for each telephone being monitored. Multiple telephones may be monitored by a single telephone but each requires a separate TSMS indicator on the monitoring telephone. The focus of this feature is to monitor the telephone status as opposed to individual call appearances. Regardless of the number of ISDN call appearances or directory numbers assigned to a monitored telephone, the single TSMS indicator on the monitoring telephone responds to the status indications from any call appearance on the monitored telephone.

This feature allows a secretary or a backup secretary to know the status of the monitored party and to "promptly" answer any ringing incoming calls regardless of the status of the monitored telephone. An alert ring may optionally be provisioned to audibly alert the secretary of an incoming call. Using the transfer feature in conjunction with the "built-in" speed dial "select" capability of the TSMS feature button, the monitoring party may easily transfer calls, pick up calls, or dial to the monitored party.

2. FEATURE ASSIGNMENT

For form flow see Figure 1. The activation of this feature is dependent on SFID 264 being active.

To enable this feature, the ACT field for SFID 264 is set to "Y" on the SFSYS form.

Provision the monitoring terminal as follows:

- On the CFGGRP form, designate a TSM feature button, enter a new feature name or the wild card feature in the FEATURE field, and enter TSM in the ACTION field.
- On the TELMON form, enter the TN of the monitoring terminal in the MONITORING TN field and the monitored terminals in the TN fields.

The DSS field indicates that the terminal is provisioned for the DSS capability via the TSM feature buttons.

The RING field indicates if the monitoring terminal gets audible alerted when an incoming call alerts at the monitored terminal on a per TSM/DSS feature button basis.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
CFGGRP	5964	6	7A	12.5
DSLUSR	5908	5	11	23.2, 23.8

LINE	5109-1	3	1I	1.6
MLHLN	5111	3	1K	1.6
SHTN	5902	5	1C	23.20
TELMON	5932	5	3M	23.24

CFGGRP form (5964 Record) - The 5964 Record is used to define configuration groups for terminal assignments. For 5E12 and later, added the TSM enumeration to the ACTION field valid entries.

DSLUSR form (5908 Record) - The 5908 Record is used to collect data for digital subscriber lines. For 5E12 and later, added Recent Change only fields MONITORED TN and MONITORING TN.

LINE form (5109-1 Record) - The 5109-1 Record is used to create all line records with Telephone Numbers. For 5E12 and later, added Recent Change only field MONITORED TN.

MLHLN form (5111 Record) - The 5111 Record is used to create MLH Line Members. For 5E12 and later, added Recent Change only field MONITORED TN.

SHTN form (5902-1 Record) - The 5902-1 Record is used to specify Primary or Secondary TN that is shared by several other TNs. For 5E12 and later, added Recent Change only field MONITORED TN.

TELMON (5932 Record) - The 5932 Record is used to specify the telephone numbers which are being monitored by this ISDN line. For 5E12 and later, added this form to support the Telephone Monitor and Select feature.

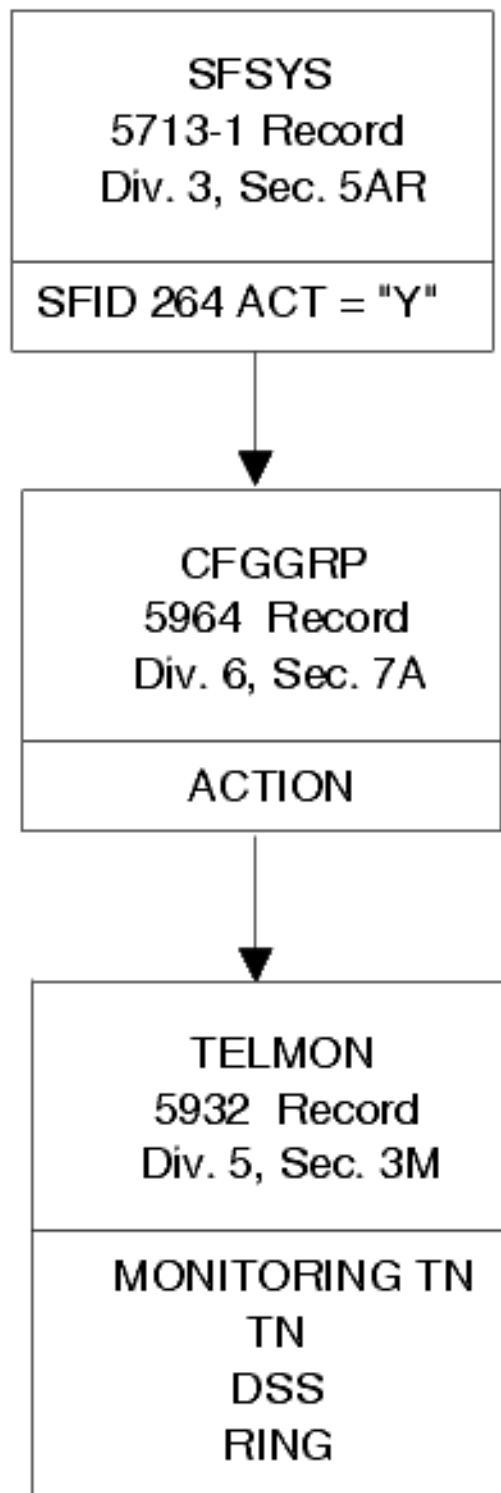


Figure 1 FORM FLOW FOR TELEPHONE STATUS MONITOR AND SELECT
SEC. 4A266: PROHIBIT REX ON BRI LINES PER OFFICE

1. FEATURE DESCRIPTION

The Prohibit REX on BRI Lines per Office feature is available as a 5E11 Software Update. It provides the capability to enable and disable REX (Routine Exercise) on a per office basis. The secured feature ID for this feature is 266.

Also available as a 5E11 Software Update is the capability to enable and disable REX per individual line. That feature has secured feature ID 267 (see Division 2, Section 4A267).

NOTE: If the PREX ON BRI is set to "Y" on the ISDNOPT form, REX is prohibited for all ISDN lines in the office, regardless of how PREX on the DSL form is set.

However, if PREX is set to "Y" on the DSL form for some ISDN lines and if PREX ON BRI on the ISDNOPT form is set to "N", the DSLs having PREX set to "Y" on the DSL form will have REX prohibited.

The feature number for both features is 99-5E-2864.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ISDNOPT	5941	5	5B	8.1
SFSYS	5713-1	3	5AR	8.22

ISDNOPT form (5941 Record) - This form is used to define parameters for ISDN lines. Added the PREX ON BRI (Prohibit REX on BRI) field to indicate whether (Yes/No) REX is prohibited in the office.

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features.

SEC. 4A267: PROHIBIT REX ON BRI LINES PER DSL LINE

1. FEATURE DESCRIPTION

The Prohibit REX (Routine Exercise) on BRI per DSL Line feature is available as a 5E11 Software Update. It provides the capability to enable and disable REX on an individual DSL (Digital Subscriber Line). The secured feature ID for this feature is 267.

Also available as a 5E11 Software Update is the capability to enable and disable REX per office. That feature has secured feature ID 266 (see Division 2, Section 4A266).

NOTE: If the PREX ON BRI is set to "Y" on the ISDNOPT form, REX is prohibited for all ISDN lines in the office, regardless of how PREX on the DSL form is set.

However, if PREX is set to "Y" on the DSL form for some ISDN lines and if PREX ON BRI on the ISDNOPT form is set to "N", the DSLs having PREX set to "Y" on the DSL form will have REX prohibited. The feature number for both features is 99-5E-2864.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5900	5	1H	23.2
SFSYS	5713-1	3	5AR	8.22

DSL form (5900 Record) - This form is used to define parameters for DSLs. Added the PREX field to indicate whether (Yes/No) REX is prohibited for the DSL.

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features.

SEC. 4A268: 2-SIMULTANEOUS VOICE CALLS ON BRI

1. FEATURE DESCRIPTION

The 2-Simultaneous Voice Calls on BRI (Basic Rate Interface) is a secured feature (SFID 268) that is being deployed as a 5E11 Software Release. The feature number for this feature is 99-5E-3974.

This feature adds the capability for two simultaneous voice call-type calls to be active from a single TEI (Terminal Endpoint Identifier) to the current capabilities specified for basic call control applied at the National (Standard) ISDN Basic Rate user-network interface. A voice call-type call is any call signaled with a bearer capability of either "speech" or "3.1 kHz audio". A basic assumption for this feature is that there is a single intelligence, either human or machine, that is controlling both B-channels.

Telcordia Technologies specifications allow this capability and other switch vendors to have the capability on the BRI, leading CPE (Customer Premises Equipment) vendors to build applications which support this functionality. However, the current implementation of the BRI on the 5ESS Switch does not allow this capability.

Examples of the applicability of this feature are:

A single user could have a voice call in progress and at the same time place a 3.1 kHz audio (e.g., modem or Group III fax) call.

A single terminal device could support two active voice calls, such as an ISDN phone and an analog phone attached to an ISDN terminal adapter.

NOTE: The Lucent Technologies ISDN 7500 and 8500 series CPEs are not compatible with this feature. If the feature is enabled and the CPE tries to utilize both B-channels simultaneously, only 1 path is actually cut through to the handset. The user must hit the HOLD button to alternate between calls so that only 1 B-channel is actually utilized.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 268 is set to "Y" on the SFSYS form.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	11	23.2
SFSYS	5713-1	3	5AR	8.22

DSLUSR form (5908 Record) - This form is used to define the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the 2-Simultaneous Voice Calls on BRI feature, the ACT field for SFID 268 must be set to "Y".

SEC. 4A269: ALTERNATE LOCAL SERVICE PROVIDER ROUTING

1. FEATURE DESCRIPTION

Available for the 5E12 Software Release and later, the ALSPR (Alternate Local Service Provider Routing) feature is Secured Feature ID 269. The feature number for this feature is 99-CP-4031.

This feature provides alternate local service providers with the following routing, signaling and billing capabilities for certain types of Intra-LATA local calls.

- Assignment of PLC (Presubscribed Local Carrier) to an Alt LSP (Alternate Local Service Provider) customer line, and allows the service provider to mark an Alt LSP customer line as an unbundled line.
- Routes 0- local calls originated from an Alt LSP customer line to a designated Alt LSP destination which is likely to be an operator platform.
- Routes 0+7/10 digit Intra-LATA local calls from an Alt LSP customer line to an Alt LSP operator platform.
- Routes 411 and [NPA]-555-1212 Intra-LATA local calls from an Alt LSP customer line to an Alt LSP switch for forwarding to a DA (Directory Assistance) platform.
- Routes 611 and 811 Intra-LATA local calls from an Alt LSP customer line to an Alt LSP switch for forwarding to an Alt LSP services platform.
- Routes (None+/1+) 7/10 digit Intra-LATA local non-operator assisted calls from an Alt LSP customer line to an Alt LSP destination either directly or through an Access Tandem as FGD (Feature Group D) or FGC (Feature Group C) calls.

2. FEATURE ASSIGNMENT

2.1 Secured Feature

The Alternate Local Service Provider Routing feature is a secured feature. The ACT field for SFID 269 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

See Figure 1 and Figure 2 form flow diagrams for assigning the Alternate Local Service Provider Routing feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ACDTN	5631-1	4	32A	6.10
DSLUSR	5908	5	1I	23.2, 23.8
ICF	5305-1/2	3	3R	10.3
IDPGP	5601-4	4	2D	9.10
LINE	5109-1/2/3/4	3	1I	1.5, 1.6
MLHLN	5111-1/2/3	3	1K	1.6
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-1	3	2A	5.1

ACDTN form (5631-1 Record) - This form is used by the ACD/BRCS (Automatic Call Distributor/Business and Residential Custom Services) feature to define the ACD directory number or the DAA (Direct Agent Access) directory number. The PLC and UNBUNDLED fields and their associated data rules were added to support the ALSPR feature for 5E12 and later.

DSLUSR form (5908 Record) - This form is used to collect data for digital subscriber lines. The PLC and the UNBUNDLED fields and their associated data rules were added to support the ALSPR feature for 5E12 and later.

ICF form (5305-1/2 Record) - This form is used to allow craft to assign elements for interLATA and intraLATA carriers. Various route index, signal type, code index, and conversion telephone number fields and their associated data rules have been added to support the ALSPR feature for 5E12 and later.

IDPGP form (5601-4 Record) - This form defines the options associated with IDPs (Individualized Dialing Plans). The GROUP PLC and the GROUP UNBUNDLED fields and their associated data rules were added to support the ALSPR feature for 5E12 and later.

LINE form (5109-1/2/3/4 Record) - This form is used to define the office EN (Equipment Number) and features for each TN (Telephone Number) in the switch. The PLC and the UNBUNDLED fields and their associated data rules were added to support the ALSPR feature for 5E12 and later.

MLHLN form (5111-1/2/3 Record) - This form is used to define the individual terminal numbers assigned to a particular MLHG. The PLC and the UNBUNDLED fields and their associated data rules were added to support the ALSPR feature for 5E12 and later.

OFCOPT form (5509 Record) - This form provides the office option global parameters residing in the central processor. Added a crosscheck to the ICLATA SCD IND field for 5E12 and later.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 269 must be set to "Y" to enable the ALSPR feature for 5E12 and later.

TKGRP form (5202-1 Record) - This form provides general trunk group information for all trunk members in a group. The PLC and the UNBUNDLED fields and associated data rules were added to support the ALSPR feature for 5E12 and later.

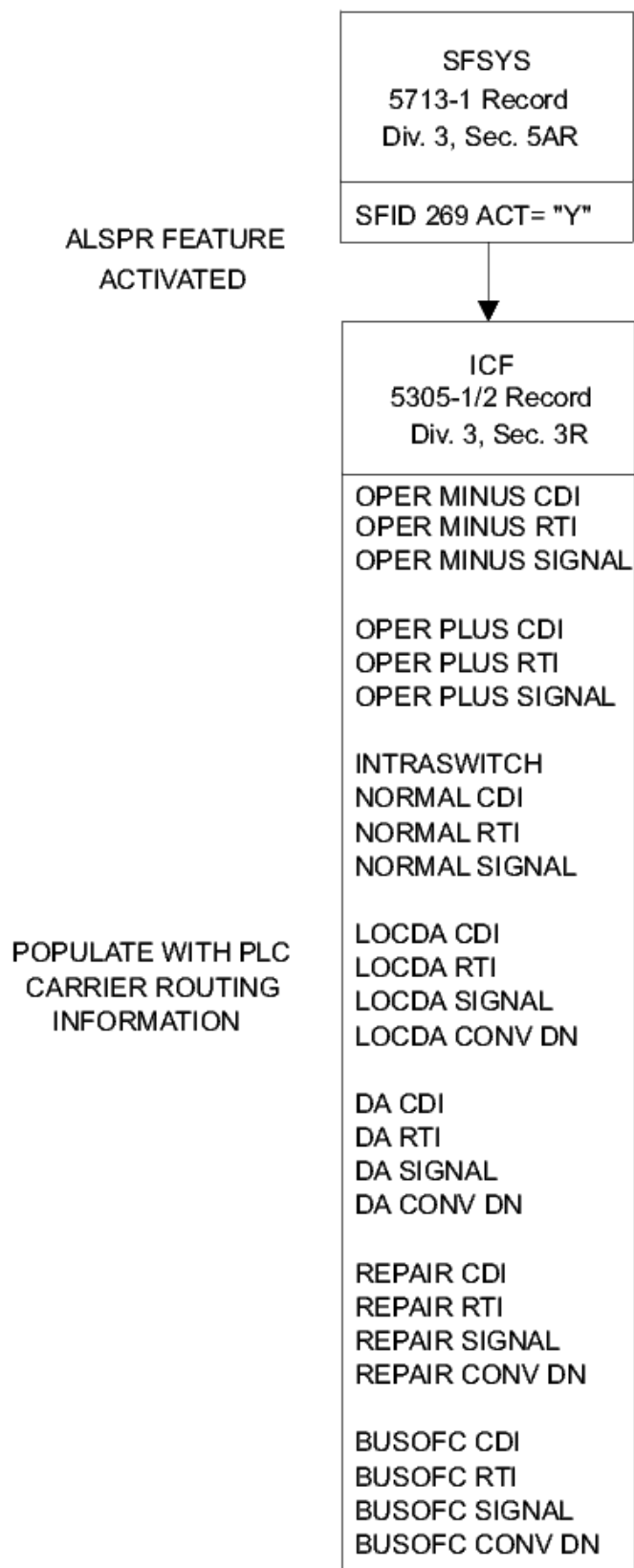
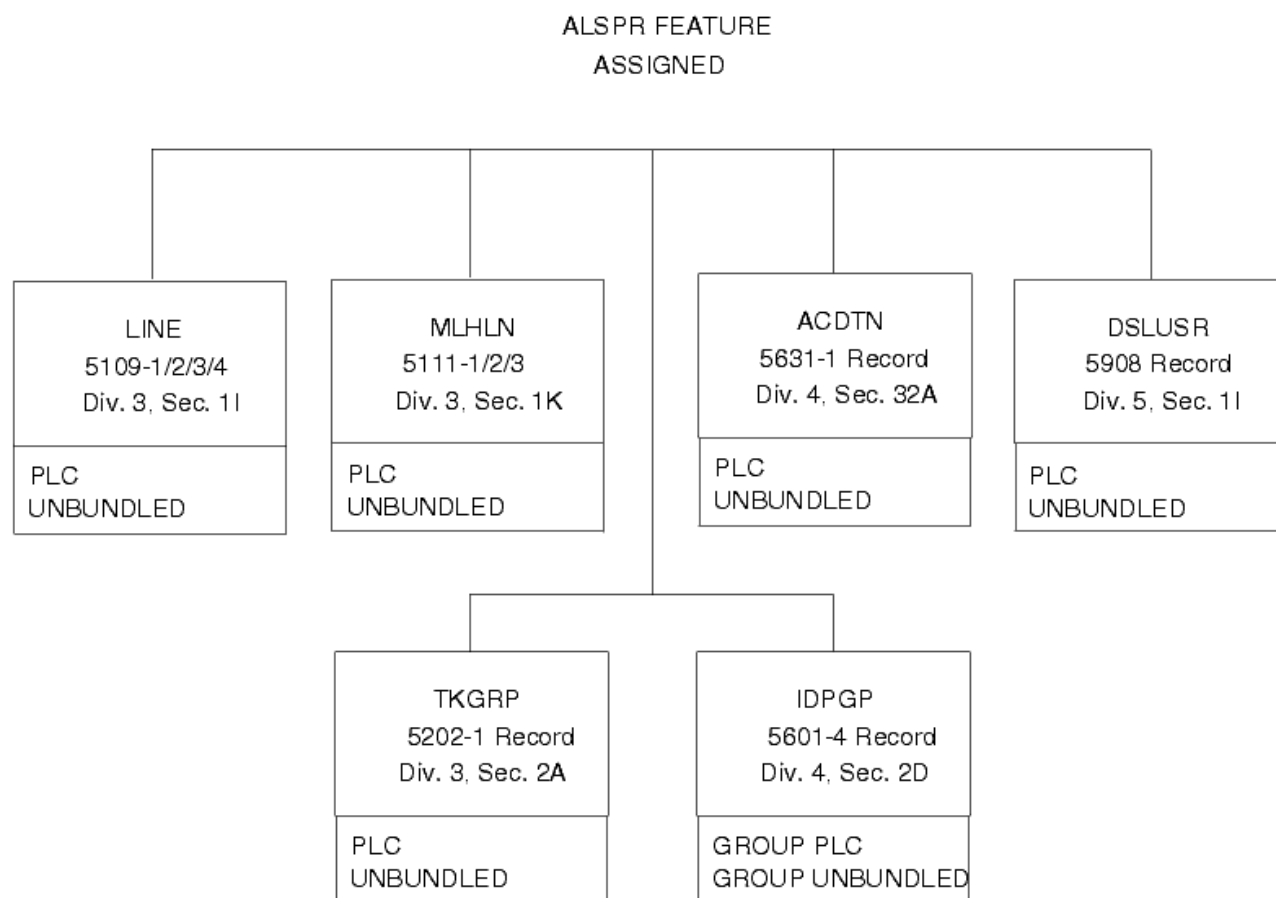


Figure 1 PLC CARRIER ATTRIBUTES ON THE ICF FORM**Figure 2 ALSPR FEATURES ASSIGNED TO A LINE, TRUNK, OR IDP GROUP****SEC. 4A270: VPA EXPANSION PACKAGE A****1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-200-110 Long Distance Platform*.

SEC. 4A271: DNIS II**1. FEATURE DESCRIPTION**

DNIS (Dialed Number Identification Service) II is a secured feature using SFID (Secured Feature ID) 271 and must be purchased before being activated. The feature number for this feature is 99-5E-4208.A.

This feature is being deployed on the 5ESS-2000 Switch in a software update for the 5E12 Software Release and for the Beginning Managed Introduction of the 5E13 Software Release.

The DNIS II feature provides the ability to deliver the original dialed digits to a PBX (Private Branch Exchange) from the 5ESS-2000 Switch. The PBX uses this information for further call processing and routing. This

feature allows the PBX to receive the original digits that the caller dialed and to use this information to route the call to the called party.

The DNIS identifies the dialed toll free number to call centers, allowing toll free information (e.g., up to ten digits of the actual dialed or translated 8XX number) to be displayed at a terminating PBX. This feature increases customer information retrieval for call centers, expanding the value of toll free service to service providers and end users.

2. FEATURE ASSIGNMENT

For 5E13 and later, to activate this feature, set the ACT field for SFID 271 on the SFSYS form (5713-1 Record) to "Y". When the feature is activated:

- Populate the trigger numbers to be used for DNIS on the NSTRIG form (5324 Record) using the trigger as the key and set the DNIS field to "Y".
- Set the DNIS USER field on the TKGRP form (5202 Record) to "Y".

See Figure 1 for provisioning form flow.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
NSTRIG	5324	3	3AK	9.35
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

NSTRIG form (5324 Record) - This form is used identify a network service application. For 5E13 and later, the DNIS field and its associated data rules were added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 271 must be set to "Y" to enable the DNIS II feature for 5E13 and later.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. For 5E13 and later, the DNIS USER field and its associated data rules were added.

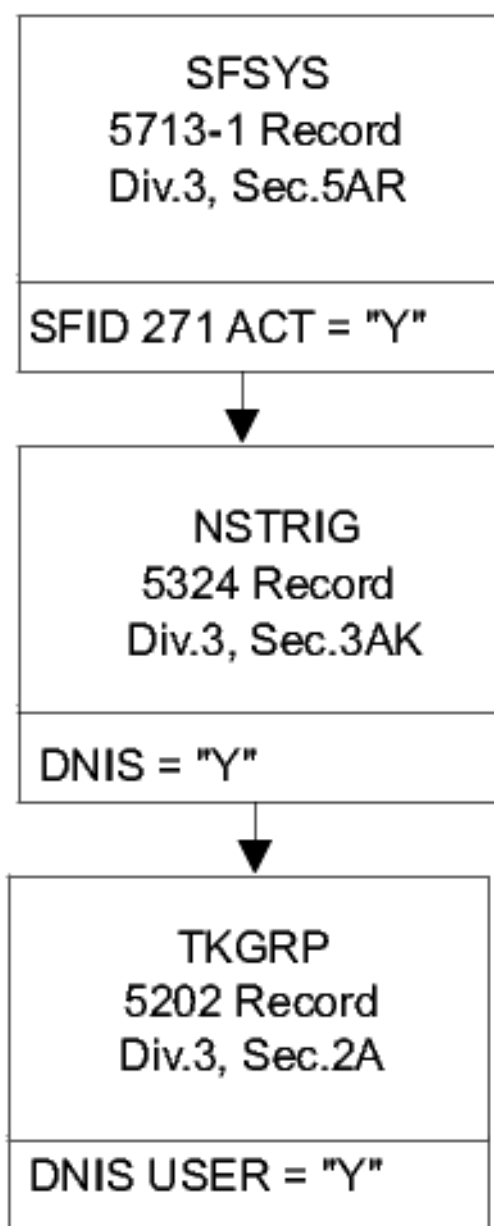


Figure 1 FORM FLOW FOR DNIS II

SEC. 4A272: DIRECT ACCESS LINKS

1. FEATURE DESCRIPTION

The DAL (Direct Access Links) feature is a secured feature that is being introduced as a Software Update in the 5E12 Software Release. This feature uses SFID (Secured Feature ID) 272 and has feature number 99-5E-4307.

The DAL feature provides the ability to allow direct access between a PBX (Private Branch Exchange) and a service provider's network. Direct Access Links are trunks that provide a direct access connection between a

toll network and a PBX or other type of key system. This direct interface supports two-way trunks or incoming trunks from the PBX using either MF (Multifrequency), DTMF (Dual Tone Multifrequency), or Q.931 over PRI (Primary Rate Interface) signaling. A "PF" (Private Facility) type of trunk class is assigned to a DAL trunk group.

Prior to the capabilities provided by this feature, if a PBX wished to directly connect a trunk group to a toll 5ESS Switch, a loop around configuration was used. That is, the PBX trunk group terminated to the "local" side of the toll 5ESS Switch on the PF trunk group, and was looped around to the "toll" side on a trunk group with a terminating LATA trunk class.

The DAL feature allows a Private Facility PBX trunk group to be terminated to the "toll" side of the 5ESS Switch. This feature also allows a DAL field to be set on the DAL trunk group. When this field is enabled, every call that originates on a member of the DAL trunk group launches an ASP (Advanced Services Platform) Info_Collected Query after collecting a variable number of digits from 1 to 32. The collected digits are entered into the CollectedDigits parameter of the Info_Collected Query. After receiving the Info_Collected Query, the SCP (Service Control Point) defines the treatment that should be applied to the call (i.e., play an announcement, route the call, etc.). A specific DAL billing record is created after the query and response.

The users of the DAL feature are callers from the stations connected to the PBX being served by a DAL connection. Although the DAL feature does not introduce a new dialing plan, it supports the dialing pattern used by the PBX customers. Some typical dialing patterns for DAL users are as follows:

- Authorization code + PN (Packet Network) + DN (Destination Number) sequence,

- DN + prompt for account code,

- DN + account code stored on the trunk group.

For any dialed digit string, all of the dialed digits from the DAL user are stored in the CollectedDigits parameter of the Info_Collected Query. The SCP parses the digit string to determine authorization codes, PINs (Personal Identification Numbers), account codes, and DNs.

When the DAL feature is activated, certain features may be provisioned on a DAL trunk group and others may not. Additional features that may be provisioned on a DAL trunk group include the RTCD (Real Time Call Detail) Platform/Application and CPN SCRNM (Calling Party Number Screening) features.

Those features that may not be provisioned on a DAL trunk group when the DAL feature is activated include the following:

- BRCS (Business and Residential Custom Services) features,

- VPN (Virtual Private Network),

- Centrex features.

There are trunk member characteristics necessary for the DAL feature. The members of a DAL trunk group can be defined as digital or analog trunk members on the TRUNK form (5204 Record). Normal values for digital and analog trunk members can be defined for a DAL trunk group. The only field on the TRUNK form that has specific requirements for a DAL trunk member is the IN START DIAL field. (For more detailed information on the IN START DIAL field, see Division 3, Section 2C.)

1.1 Call Processing

DAL call processing is initiated when a member of a DAL trunk group (i.e., a trunk group that has the DAL ACCESS field on the TKGRP form (5202 Record) set to "Y") is seized by the PBX. The appropriate start signal is applied (as defined by the IN START DIAL field on the TRUNK form) to the PBX. An OHD (Off Hook Delay) Trigger is detected and up to 32 digits are collected from the PBX. The DAL feature allows the OHD trigger to be detected for both circuit-switched voice and data calls. The ASP Interworking Circuit-Switched Data feature (SFID 237) must be purchased and active to allow an OHD trigger to be detected on a circuit-switched data call. The interdigit timing value applied during digit collection of a DAL-originated call is the existing Critical Timer value derived from the Trunk Class, Start Signal, and Signal Type. No digit analysis is done on the collected digits.

2. FEATURE ASSIGNMENT

To activate this secured feature:

Set the ACT field for SFIDs 126 and 272 respectively on the SFSYS form (5713-1 Record) to "Y". Since the DAL feature depends on the ASP Release O.1B secured feature (SFID 126), SFID 126 must be activated first.

Set the TRK DIR, TRKCLS, INPULSING, and TRIG NBR fields on the TKGRP form (5202 Record). (The trigger number entered in the TRIG NBR field must also be entered on the NSTRIG form (5324 Record) with the APPLICATION field set to "ASP" and the AIN REL field set to "R0D1".)

Set the DAL ACCESS field on the TRGRP form to "Y". To implement the DAL feature functionality, the DAL ACCESS field must be set only after the TRK DIR, TRKCLS, INPULSING, and TRIG NBR fields have been set.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFIDs 126 and 272 respectively, must be set to "Y" to activate the DAL feature for 5E12 and later.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. For 5E12 and later, the DAL ACCESS field and its associated data rules were added.

4. GLOSSARY

ASP	Advanced Services Platform
BRCS	Business and Residential Custom Services
CPN SCRN	Calling Party Number Screening
DAL	Direct Access Links
DTMF	Dual Tone Multifrequency
MF	Multifrequency signaling

OHD	Off-Hook Delay
PBX	Private Branch Exchange
PF	Private Facility
PRI	Primary Rate Interface
RTCD	Real Time Detail Platform/Application
SCP	Service Control Point
VPN	Virtual Private Network

SEC. 4A273: CALL FORWARD ON TRUNKS

1. FEATURE DESCRIPTION

The Call Forward on Trunks feature is a secured feature (SFID 273) deployed with the 5E13 Software Release and available as a 5E11 and later Software Update. The feature number for this feature is 99-5E-4029.

This feature provides a "call forwarding busy trunk" capability from a trunk to any public number in the network. Forwarding of calls will take place in the event that all trunks in the trunk group are busy or out of service.

Without this feature, when a trunk group is busy or out of service, an incoming call routed to the designated trunk group receives a busy tone, or, in order to avoid a busy condition, the Next Route Index field can be used to route the call to another trunk group. A total of six route indexes can be provisioned to reroute the call to an alternate trunk group in the event that the original trunk group is busy.

The Call Forward on Trunks feature provides the capability to reroute the call to another DN (Directory Number) instead of rerouting it to another trunk group. This provides increased probability of having the call completed successfully.

Effective with the 5E14 software release, the provisioning of this feature was redesigned to simplify provisioning. For example, prior to 5E14, the TN used as the Call Forward TN is defined by using a combination of the PREFIX DIGITS and NEXT ROUTE fields and the NOC (Normalized Office Code) from the NOC form. Note that this is not typically how the PREFIX DIGITS and NEXT ROUTE field are used. To eliminate this confusion, for 5E14 and later this feature was redesigned by adding a new TN field to the RTIDX form to avoid having to use the PREFIX DIGITS and NEXT ROUTE fields. The 5E13 and earlier and 5E14 and later provisioning steps are presented below.

For 5E13 and earlier, the following steps are used to provision this feature:

1. Set the ACT field for SFID 273 on the SFSYS form (5713-1 Record) to "Y".
2. From the NOC form (5501 Record), obtain the NOC number of the TN being used.
3. On the RTIDX form:
 1. enter a new route index in the ROUTE INDEX field,
 2. ROUTE TYPE = "DNTRAN",

3. PREFIX DIGITS = last 4 digits of the TN,
 4. NEXT ROUTE = the NOC number from the NOC form,
 5. CI ROUTE TYPE = "NMFAIL" (5E12 and earlier),
 6. CI ROUTE TYPE = "CALLFORWARD" (5E13 and later).
4. Find the route index that points to the trunk group that is to have the "Call Forwarding on Trunks" feature. Use that route index to access the RTIDX form. Set the NEXT ROUTE to the route index in step 3.

At this point, the feature is set up. Any calls encountering a "trunk group busy" condition for the trunk group in step 3, will be routed to the TN defined in step 4.

See Figure 1 for the 5E13 and earlier form flow.

For 5E14 and later, the following steps are used to provision this feature:

1. Set the ACT field for SFID 273 on the SFSYS form (5713-1 Record) to "Y".
2. On the RTIDX form:
 - a. set ROUTE TYPE to "DNTRAN",
 - b. set CI ROUTE TYPE to "CALLFORWARD",
 - c. enter the desired TN in the TN field.

See Figure 2 for the 5E14 and later form flow.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22

RTIDX form (5303) - This form is used to define characteristics of the Route Index. For 5E11 and later, added data rules to the CI ROUTE TYPE, TRUNK GROUP NUMBER, and ROUTE TYPE fields.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 273 to "Y".

Activate Call Forward on Trunks
feature.

Obtain the NOC of the TN to
use to insert route index

Insert route index

5E11 - 5E12 Software Release

5E13 and later Software Release

SFSYS 5713-1 Record Div. 3, Sec. 5AR
SFID 273 ACT = "Y"

↓

NOC 5501 Record Div. 3, Sec. 3P

↓

RTIDX 5303 Record Div. 3, Sec. 3P
ROUTE TYPE = DNTRAN PREIX DIGITS = (last 4 digits of TN) NEXT ROUTE = NOC CI ROUTE TYPE = NM FAIL or CI ROUTE TYPE = CALLFORWARD

Figure 1 FORM FLOW FOR CALL FORWARD ON TRUNKS - 5E11 - 5E13 SOFTWARE RELEASES

Activate Call Forward on Trunks
feature.

Insert route index

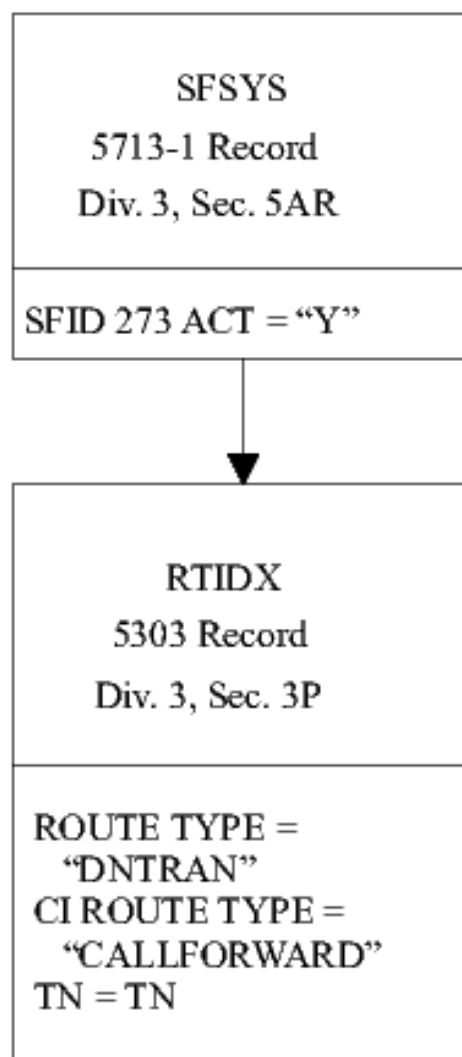


Figure 2 FORM FLOW FOR CALL FORWARD ON TRUNKS - 5E14 AND LATER SOFTWARE RELEASES

SEC. 4A274: SIGNALING SYSTEM 7 F-LINKS

1. BACKGROUND

Prior to the 5E12 Software Release, the 5ESS-2000 Switch would communicate through the CNI (Common Network Interface) signaling platform as shown in Figure 1. Originally, A-links were installed to communicate to the home STP (Signal Transfer Point) pair. Some telephone companies deployed E-links for enhanced signaling network reliability and increased network routing efficiency.

Some customers, however, wanted the capability to directly connect their 5ESS-2000 Switch to other switches or databases. To achieve this through the CNI signaling platform, customers had to provision this link connection as A-links.

2. FEATURE DESCRIPTION

This feature (SS7 F-Links) modifies the CNI signaling platform to allow the customer to provision the link

connection as F-links. In addition, additional requirements allow for the provisioning of alternate routing of F-link traffic into the backbone network upon F-link set failure. Figure 2 illustrates the signaling connections introduced by this feature.

The SS7 F-Links feature (99-CP-3627) is a secured feature (SFID 274).

Signaling operates the same for F-links as for A-links and E-links. This includes:

- Strategies for alternate routing

- Signaling link management

- Congestion control capabilities

- Signaling route management

Changeover procedures, which are invoked when:

- One link of an F-linkset fails, is blocked, or inhibited. Changeover is performed to another in-service link in the linkset.

- An F-link set fails. Changeover is performed to the next available alternate route as provisioned.

Changeback procedures, which are invoked when at least one link of an F-linkset is restored, unblocked, or uninhibited. Changeback is performed on the reactivated link(s) in the linkset.

3. FEATURE ASSIGNMENT

The SS7 F-links feature is a Recent Change only feature. There are no ODA impacts.

This feature is provisioned the same way as the E-links and the A-links (see Reference Manual 235-190-120 Issue 10.00B). The only thing added with this feature is a new Link Type (F-LINK). In addition to what is found in the Reference Manual, the following are the applicable provisioning rules:

Before an F-linkset can be provisioned as an alternate signaling route for a destination point code, the E-Link Access and Alternate A-Link Set feature (SFID 131) must be activated.

Activate the secured feature by setting the ACT field for SFID 274 on Recent Change View 8.22 to "Y".

Other Recent Changes Views impacted by this feature are:

VIEW NUMBER AND FIELD NAME	DESCRIPTION
15.2 LINK TYPE	The type of link used for signaling between a 5ESS-2000 Switch and a signaling point.
15.9 PRI ROUTE	The linkset number for primary route based on the routing level.
15.9 ALT1 ROUTE	The linkset number for alternate 1 route based on the routing level.
15.9 ALT2 ROUTE	The linkset number for alternate 2 route based on the routing level.
15.18 PRI ROUTE	The linkset number for primary route based on the routing level.
15.18 ALT1 ROUTE	The linkset number for alternate 1 route based on the routing level.
15.18 ALT2 ROUTE	The linkset number for alternate 2 route based on the routing level.

4. TRANSLATION REQUIREMENTS

Translation requirements are the same for F-links as for E-links. To see the E-link requirements, see Division

9, Section 1A of the TG.

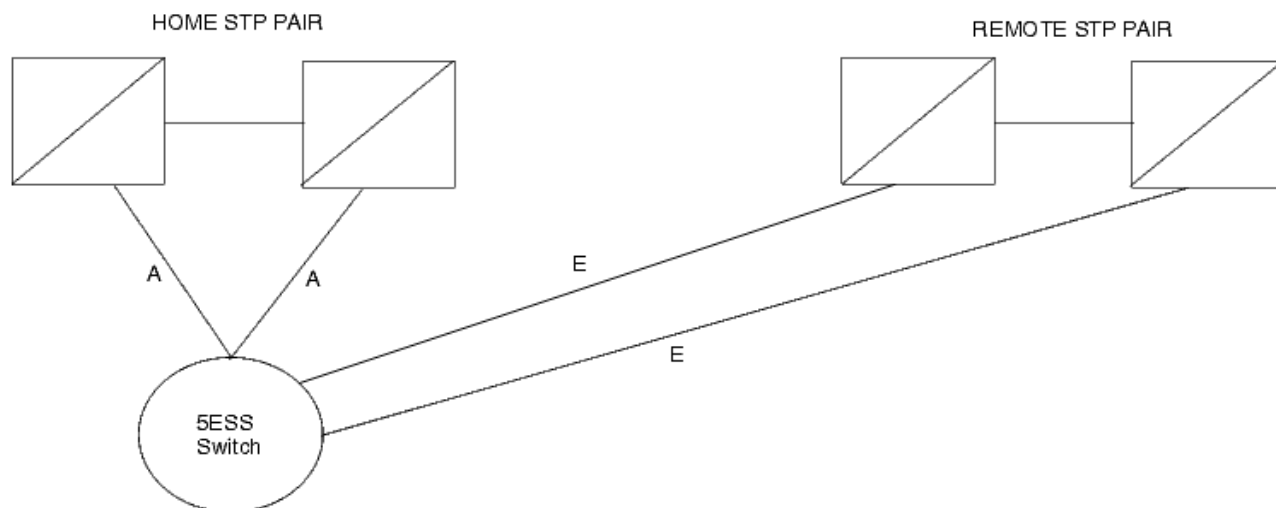


Figure 1 SUPPORTED SS7 SIGNALING CONNECTIONS BEFORE THIS FEATURE

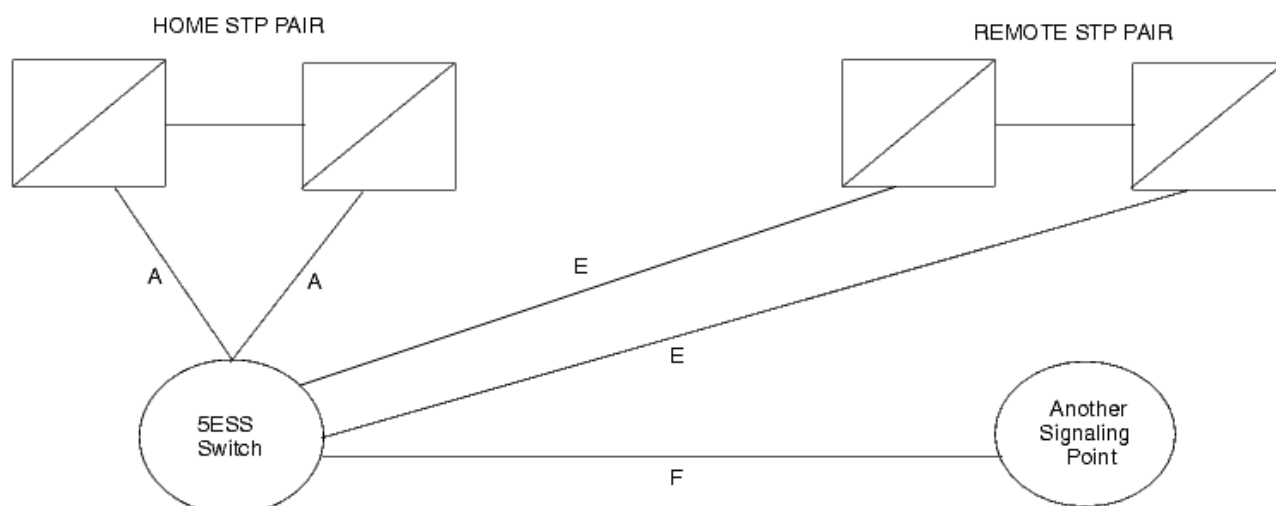


Figure 2 SUPPORTED SS7 SIGNALING CONNECTIONS AFTER THIS FEATURE

SEC. 4A275: FEATURE INTERACTIONS WITH 10-DIGIT OFFICE DIALING PLAN

1. FEATURE DESCRIPTION

The Feature Interactions with 10-Digit Office Dialing Plan feature is available as a software update to 5E12, and for deployment as part of 5E13 Software Releases. This is a secured feature using SFID 275 and must be purchased before being activated. The feature number for this feature is 99-5E-4510.

- **NOTE:** This feature is also available in 5E10 and 5E11, but with less functionality, as listed in the table of features below.

The Feature Interactions with 10-Digit Office Dialing Plan feature provides the ability for certain features, listed below, to operate properly in a dial plan that consists of 10-digit dialing, and only 10-digit dialing, where

10 digits are required to reach all directory numbers, even directory numbers on the same switch in the same area code as the calling party's directory number. If only seven-digit dialing is used, or if the dial plan allows the subscriber to use either seven-digit dialing or 10-digit dialing (called permissive 10-digit dialing in this section), this feature is not required. In the context of this section, a dial plan that requires the subscriber to dial 10 digits for all directory numbers will be called mandatory 10-digit dialing.

If the "Number Portability - NPA-NXX Growth" feature is active (Secured Feature ID 198), that feature provides the equivalent functionality (in addition to other functionality) and this feature is not required. However, the two features are compatible with each other and both may be active in a switch at the same time.

Use of any of the features in the following list requires the purchase of SFID 198 or SFID 275 in an office that has mandatory 10-digit dialing:

- ISDN Intercom
- ISDN Attendant Direct Station Select
- Series Completion to a Multi-Line Hunt Group
- Directed Call Pickup of a Pre-Stored DN
- Terminal Group Attendant
- ACD/BRCS
 - Queue Dialing
 - Agent Intercom
 - Service Observe
 - Third Party Call Control
- Remote Access, including RACF (Remote Access to Call Forwarding) and RASI (Remote Access to ASI-Proxy). The Remote Access capability changes an announcement in the RAF and SAS frames. This requires the circuit pack supporting the announcement to be upgraded to support the new announcement.
- Automatic Customer Station Rearrangement (See footnote 1)

NOTE: These features are not supported prior to the 5E12 release of this feature.

When both the Feature Interactions with 10-Digit Office Dialing Plan feature and the "Number Portability - NPA-NXX Growth" feature are inactive (i.e., not purchased), the above features will not work in an office with mandatory 10-digit intra-switch dialing. If the office is in a permissive state (7 or 10-digit intra-switch dialing is allowed), the features will work correctly.

When either the "Feature Interactions with 10-Digit Office Dialing Plan" feature or the "Number Portability - NPA-NXX Growth" feature is active, or both are active, the above features work correctly in an office with mandatory or permissive 10-digit intra-switch dialing.

2. FEATURE ASSIGNMENT

This is a secured feature and is activated by setting the ACT field for SFID 275 on the SFSYS form (5713-1 Record) to "Y". No forms were modified or added to support this feature.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 275 to "Y".

SEC. 4A276: NP SERVICE PROVIDER PORTABILITY AMA ENHANCEMENTS

1. FEATURE DESCRIPTION

The feature number for the NP (Node Processor) Service Provider Portability AMA (Automatic Message Accounting) feature is 99-CP-4322. This Secured Feature (SFID 276) is being deployed as a Software Update for 5E11.

There are three AMA functions that are included in this feature. The first function is provided in Phase 1 (99-CP-4322) and the remaining two functions in Phase 2 (99-CP-4322.A). However, since operating companies may not require all three functions in their network, each function is controlled via independent office options (e.g. OFID (Office Option ID) bits or per-office parameters). The three functions are packaged under a single Secured Feature lock which must be purchased and activated before any/all of these functions can be activated in the switch. The three AMA functions covered by this feature are as follows:

- Attach an originating party LNP (Local Number Portability) BAF (Bellcore AMA Format) module (MOD 720) to all AMA records generated for calls originating from (or forwarding from) "ported" DN's (Directory Numbers). The LNP module should contain the LRN (Local Routing Number) (at least the NPA-NXX (Numbering Plan Area-Office Code) digits) of the originating switch or Switching Module (5ESS only). This applies to AMA records for:
 - local and non-IXC (Inter Exchange Carriers) toll handled calls including LEC (Local Exchange Carrier) handled 800/888 calls
 - all supplementary service feature usage (e.g., USTWC (Usage Sensitive Three-Way Calling), LASS (Local Area Signaling Services) AR/AC (Automatic Recall/Automatic Callback), CFV (Call Forwarding Variable), etc.)
 - all ASP (Advanced Services Platform) (a.k.a., AIN (Advanced Intelligent Network)) AMA records for OHDs (Off-Hook Delays), OHI (Off-Hook Immediate), ONA (Originating No answer), and OCPB (Originating Called Party Busy) applied to the originating ported DN, and
 - all daily aggregate AMA records for services subscribed to a ported DN (e.g., LASS SLE (Screen List Editing), ICLID (Individual Calling Line Identification), BCLID (Bulk Calling Line Identification), and CNAM (Calling Name) records).

This function is intended to be performed at the serving end-office for the ported DN but also applies to

"originating" type AMA records (e.g., 800/888 records) generated at subsequent exchanges in the call path.

- Attach a terminating party LNP BAF module (MOD 720) to all terminating AMA records generated for calls terminating to "ported" DNs. The LNP module should contain the LRN (at least the NPA-NXX digits) of the terminating switch or Switching Module (5ESS only). This applies to AMA records for:
 - INWATS (Inward Wide Area Telecommunications Service),
 - ASP TAT (Terminating Attempt Trigger) AMA SC221 records,
 - PBX (Private Branch Exchange) DID (Direct Inward Dialing), and
 - any other terminating event type records.
- Generate a new "default" flat rate AMA record using either Structure Code 001 or Structure Code 500 and a Call Code of 721 "LNP DFR" for line originations and private facility trunk originations (e.g. PBX trunk groups) when an NP query is performed at the originating switch and when no other AMA record is already being generated for the call. This should apply to "flat rate" local calls when full detail recording is not in use. The generation of this "default" flat rate record is controllable on a per-office basis either for all calls for which an NP query is performed by the originating end-office (unconditional option) or only for calls for which an LRN was returned in the NP response message (conditional option).

2. FEATURE ASSIGNMENT

To enable this feature the following must be done:

- the ACT fields for SFID 199 and SFID 276 are set to "Y" on the SFSYS form (5713-1 Record)
- the ACT fields for OFID 704 and OFID 705 on the FOSYS form (5713-2 Record) must also be set to "Y", and
- the PORTED field on the LINE form (5109 Record) must be set to "Y".

See form flow on Figure 1 for further provisioning.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
LINE	5109	3	1I	1.5, 1.6
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency features. To use this feature, the ACT fields for OFID 704 and OFID 705 must be set to "Y" on this form.

LINE form (5109 Record) - The LINE form defines the office Equipment Number and features for each telephone number in a 5ESS Switch. The PORTED field must be set to "Y".

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and

parameters. This form is required at the time of initial translations for all offices. Two new fields (DFLT FLAT RATE and DFR STRCT CODE) were added to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 199 and SFID 276 to "Y".

4. GLOSSARY

AC	Automatic Callback
AIN	Advanced Intelligent Network
AMA	Automatic Message Accounting
AR	Automatic Recall
ASP	Advanced Services Platform
BAF	Bellcore Communication Research
BCLID	Bulk Calling Line Identification
CFV	Call Forward Variable
CNAM	Calling Name
DID	Direct Inward Dialing
DN	Directory Number
ICLID	Individual Calling Line Identification
INWATS	Inward Wide Area Telecommunications Service
IXC	Inter Exchange Carriers
LASS	Local Area Signaling Services
LEC	Local Exchange Carriers
LNP	Local Number Portability
LRN	Local Routing Number
NP	Node Processor
NPA	Numbering Plan Area
OCPB	Originating Called Party Busy
OFID	Office Option Identification
OHD	Off-Hook Delay
OHI	Off-Hook Immediate

ONA	Originating No Answer
PBX	Private Branch Exchange
SLE	Screen List Editing
TAT	Terminating Attempt Trigger
USTWC	Usage Sensitive Three-Way Calling

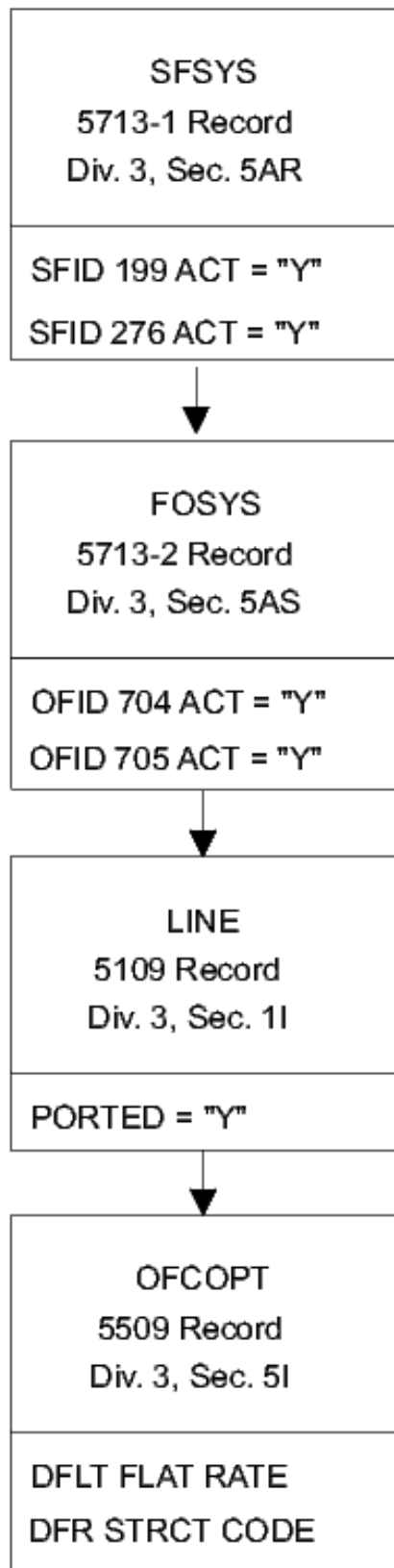


Figure 1 FORM FLOW FOR NP SERVICE PROVIDER PORTABILITY AMA ENHANCEMENTS

SEC. 4A277: VOICE FREQUENCY DATA ENHANCEMENT

1. FEATURE DESCRIPTION

The Voice Frequency Data Enhancement feature is available as a software update to 5E11 and 5E12, and for deployment as part of 5E13 Software Releases. This is a secured feature using SFID 277 and must be purchased before being activated. The feature number for this feature is 99-5E-4413.

Prior to the implementation of this feature, the 5ESS-2000 Switch supported the TR-303 interface specification hybrid signaling standard, which uses both in-band robbed bit and out-of-band (i.e., over the TMC (Timeslot Management Channel)) signaling to convey supervisory and signaling information between the RDT (Remote Digital Terminal) and 5ESS-2000 Switch. In the robbed bit mode of operation, the least significant bit of the 8 bits for each DS0 (Digital Signal Level 0) is overwritten every 6th DS1 (Digital Signal Level 1) frame with a bit which can be decoded over a number of frames to convey signaling or supervisory information. This hybrid signaling standard is employed for analog circuit switched services on the IDCU (Integrated Digital Carrier Unit) TR-303 platform and on the DNU-S (Digital Networking Unit - SONET) TR-303 platform beginning in 5E12. The use of robbed bit signaling has been shown to degrade the performance of voice band data modems.

This feature will enhance the TMC message set to contain additional TMC messages that will be used to eliminate the use of DS0 robbed bit signaling in the path between the RDT and switch once a call has been set up. In other words, it will allow a given DS0 to use the clear channel mode of operation. These new TMC messages will be used to transition between robbed bit mode and clear channel mode for each individual call. This new messaging scheme is inter-operable with RDTs that do not support these new messages. This new messaging scheme will be supported in the Lucent SLC-2000 Access System DLC (Digital Loop Carrier) Subsystem Software Release 4.06.00 (known as Software Release 4.6).

NOTE: The SLC (Subscriber Loop Carrier)-2000 Access System provides the functionality of a TR-303 RDT. This new messaging scheme will NOT be supported on Lucent's SLC 96 and SLC Series 5 DLC systems.

This feature is operational on the IDCU TR-303 platform in 5E11 and on both the IDCU and DNU-S TR-303 platforms in 5E12. When activated, this feature applies to all analog calls to/from single party POTS (Plain Old Telephone Service) Lines, WATS (Wide Area Telephone Service) Lines, and Ground Start PBX (Private Branch Exchange) Lines.

2. FEATURE ASSIGNMENT

This is a secured feature and is activated by setting the ACT field for SFID 277 on the SFSYS form (5713-1 Record) to "Y". No forms were modified or added to support this feature.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 277 to "Y".

4. GLOSSARY

DLC - Digital Loop Carrier

DNU-S Digital Networking Unit - SONET

DS0 Digital Signal Level 0

DS1 Digital Signal Level 1

IDCU Integrated Digital Carrier Unit

PBX - Private Branch Exchange

POTS Plain Old Telephone Service

RDT Remote Digital Terminal

SLC Subscriber Loop Carrier

TMC Time Slot Management Channel

WATS Wide Area Telephone Service

SEC. 4A278: LOCAL TRUNK BILLING ENHANCEMENTS

1. BACKGROUND

Due to the increase in local service competition created by the Telecommunications Act of 1996, local service provider's tariffs need to be changed. A set of AMA billing options are now needed to identify calls for which mutual compensation is owed.

2. FEATURE DESCRIPTION

The Local Trunk Billing Enhancements feature is a secured feature (SFID 278), is available as a software update for the 5E11 and 5E12 software releases and is included in the 5E13 and later software releases. This feature has feature number 99-5E-4498.

The Local Trunk Billing Enhancements feature (99-5E-4498) allows Module 104 to be appended to AMA records for inter-office calls. One instance of Module 104 is appended for the originating trunk of the leg of the call represented in the AMA record, another for the terminating trunk.

This feature applies to LASS (Advanced Services Platform) and non-Operator Services Position System (OSPS) AMA.

This feature does not apply to direct line to line calls (as no trunks are involved), OSPS, packet, LASS (Local Area Signaling Services) event records, or to AMA records for non-call-related events (such as Time of Day, Automatic Customer Station Rearrangement, aggregate AMA recording, Computer Access Restriction, Customer Originated Trace).

This feature does not apply to MDR (Message Detail Recording), except the associated MDR via a RAO (Revenue Accounting Office).

This feature does not apply to calls involving originating or terminating trunks when the trunk group fields in the call record are not set.

For calls or legs of calls either originating from and/or terminating to a trunk, and for which an existing AMA billing record is produced on the originating line or trunk, this feature adds the following functionality when the TRUNK field on the OFCOPT form is set:

For Line to Trunk Calls, module 104 will be appended. Character 1 will be 0 (padding), characters 2-5 will contain the outgoing trunk group number and characters 6-9 will contain the outgoing trunk group member, provided the outgoing trunk field is populated in the call record.

For Trunk to Line Calls, module 104 will be appended. Character 1 will be 0 (padding), characters 2-5 will contain the incoming trunk group number and characters 6-9 contain the incoming trunk group member, provided the incoming trunk group field is populated in the call record.

For Trunk to Trunk Calls, two module 104's will be appended:

In one module 104, character 1 will be 0 (padding), characters 2-5 will contain the incoming trunk group number and characters 6-9 will contain the incoming trunk group member provided the incoming trunk group field is populated in the call record.

In the second module 104, character 1 will be 0 (padding), characters 2-5 will contain the outgoing trunk group number and characters 6-9 will contain the outgoing trunk group member, provided the outgoing trunk group field is populated in the call record.

This functionality is supported on the CDX (Compact Digital Exchange) Switch and on the VCDX (Very Compact Digital Exchange) Switch

The operation of these features applies to either the SMs or SM-2000 processors.

The AMA record format is enhanced with module(s) appended for line to trunk, trunk to trunk, trunk to line calls or legs of calls, except when the call record fields of incoming and/or outgoing trunk groups are not populated. One module 104 is appended for each originating or terminating trunk involved in the call or leg of the call, if the TRUNK field is set to "Y" on the OFCOPT form, and Secured Feature ID 278 is unlocked. Two module 104s are appended when the call is a trunk to trunk call, and therefore has both an incoming and outgoing trunk, and if the TRUNK field is set to "Y" on the OFCOPT form, and Secured Feature ID 278 is unlocked. Again, this last statement applies except for cases noted when the call record fields of incoming and/or outgoing trunk groups are not populated.

3. FEATURE ASSIGNMENT

This is a secured feature and is activated by setting the ACT field for SFID 278 on the SFSYS form (5713-1 Record) to "Y". The TRUNK field on the OFCOPT form must then be set to "Y" to specify that the trunk module should be appended to AMA records in the office.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. The TRUNK field and a data rule were added for the Local Trunk Billing Enhancements feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 278 to "Y".

SEC. 4A279: GOVERNMENT EMERGENCY TELECOMMUNICATIONS SERVICE HIGH PROBABILITY OF COMPLETION

1. BACK GROUND

The OMNCS (Office of the Manager, National Communications System) has been charged by the White House with providing a survivable and enduring telecommunications capability for the purposes of NS/EP (National Security and Emergency Preparedness). To this end, a set of switch-based and Advanced Intelligent Network features have been requested to provide a HPC (High Probability of Completion) for critical users of the PSTN (Public Switch Telephone Network) before, during and after a national security emergency. A National Security Emergency is an occurrence, including natural disaster, military attack, technological emergency, or other emergency which degrades or threatens the security of the United States.

The HPC Network Capability is applied during call setup, and is intended to provide enhanced call completion capabilities to authorized GETS (Government Emergency Telecommunications Service) users during times of network stress and/or congestion.

GETS is an evolving service which allows authorized government users to gain access to enhanced call completion features. In its current form, GETS capabilities are offered in the networks of AT&T, MCI, and Sprint. A user dials 1-710-NCS-GETS to place a GETS call, which causes the call to complete to one of the IXC (Inter-Exchange Carrier) networks, where authentication via PIN code and collection of the final routing number are performed. Within the IXC network, GETS calls are provided with special treatment to assure a high probability of completion.

Starting in 1995, GETS has been introduced into Local Exchange Carrier networks using AIN (Advanced Intelligent Network) 0.1 capabilities. The 710-NCS-GETS number is defined as a DNT (Dialed Number Trigger), and causes a query to be launched. The SCP's (Service Control Point) routing instructions include the same DN (Directory Number), and a set of three Carriers which the SSP (Service Switching Point) attempts to use hierarchically.

During severe stress conditions the completion of a call is influenced by blocking due to lack of circuits in trunk groups, or due to network management controls that may be implemented by the network operators. GETS service defines a set of features that allow these specially identified users to bypass network control restraints and queue for trunk circuits to become available thereby increasing the probability of the call completion.

2. FEATURE DESCRIPTION

Available with 5E13 and later, the Government Emergency Telecommunications Service High Probability Of Completion Secured Feature has feature number 99-5E-3945 and uses SFID (Secured Feature ID) 279.

The requirements defined in this document are applicable to the 5ESS-2000 Switch, CDX, and VCDX product lines. They may be used as a basis for other switching products but not all requirements may be applicable.

The use of HPC Network Capabilities is restricted in the United States and U.S. Territories to National Security/Emergency Preparedness (NS/EP) users authorized by the Office of the Manager, National

Communication System (OMNCS). Telco deployment of these HPC Network Capabilities must be co-ordinated with the OMNCS at the following address:

Office of the Manager
National Communication System
Attn: GETS Program Office
701 South Courthouse Rd
Arlington, VA, 22204-2198
email: gets@ncs.gov

2.1 Overview

From a User perspective, this capability provides the ability for a GETS call to be recognized as such, and paves the way for other GETS-related capabilities to provide additional call completion services. The User is not aware of the operation of this capability other than through the need to dial the GETS access number (1-710-NCS-GETS). Once recognized as a HPC call, the user may become aware of other GETS capabilities which operate on the call, such as Trunk Queuing.

2.2 Operational User

The operational user is expected to be a government authorized GETS user placing a call during a period of local, regional, or national emergency. While not necessarily sophisticated in telecommunications, the user will have a working knowledge of how to place a GETS call, and of what treatment to expect, such as long delays and multiple announcements/tones due to queuing, and the need to authenticate and provide the "true" destination address.

2.3 End User Scenarios - A Simple GETS Call

This capability is invoked when a caller originates a call and dials a number of the form 710-NXX-XXXX, typically 710-NCS-GETS. This capability detects such originations and marks them as GETS-HPC calls, whether at the originating EO (End Office), or at a Local Tandem. Once the call has been marked HPC, other GETS-HPC capabilities will provide trunk queuing, network management exemption, etc., to attempt to give the HPC call a higher probability of completion than non-GETS traffic during times of natural disaster or local or national emergency, when network congestion is likely. In normal practice, an AIN SDS (Specific Digit String) trigger, known as a DNT, is also assigned to the GETS number. This allows AIN-based capabilities such as Alternate Routing and Network Busy event detection to aid in the processing of the GETS call. (Note however that it is not required to have an AIN trigger assigned to the GETS number.)

Typical processing for a HPC call, after origination in a LEC (Local Exchange Carrier) End Office, is for the call to be routed to one of three IXC's (AT&T, MCI, or Sprint). Within the IXC network, the caller is prompted for an authorization code and destination address. Once the caller is authenticated, the IXC routes the call to the Local Exchange serving the true destination, and that LEC completes the call. At this time, all HPC calls are completed via an IXC, even when they are to be completed to a destination within the originating LATA (Local Access & Transport Area).

2.4 End User Scenarios - GETS interactions with ASP Dialed Number Triggers and Network Busy

A GETS user places a call to 1-710-NCS-GETS. This number is assigned as a DNT, causing a Query to be launched to the serving SCP. Service logic at that SCP processes the call, and returns a message to the switch composed of a Routing Component and a Request Component. The Routing Component contains instructions to complete the call to the dialed number (710-NCS-GETS), using a list of three IXC's. The

Request Component contains a NEL (Next Event List) with the Network Busy Event armed. (In this example, a Request Component is received which arms the Network Busy event. While receipt of this component is not a mandatory part of GETS service, it may be received in order to provide the GETS Retry capability).

When attempting to complete the call, the SSP determines that the direct trunk group associated with IXC 1 is busy, and overflows to the indirect (via Access Tandem) route. An outgoing trunk is seized, but at the AT (Access Tandem) no trunks are available to IXC 1. The AT sends the SSP a release message with Cause value indicating a Network Busy condition. The SSP invokes Enhanced Alternate Carrier Routing, and overflows to IXC 2, skipping any remaining routes associated with IXC 1 since the Network Busy condition was detected remotely.

All members of the direct Trunk Group to IXC 2 are busy, but the Trunk Group has a HPC queue assigned to it. The call is placed in queue, but does not receive an idle trunk before timing out of the queue. The call overflows to the indirect route via an AT. No idle trunks to the AT are found, so ACR (Alternate Carrier Routing) is invoked leading the switch to attempt routing via IXC 3.

When attempting IXC 3, the SSP determines that all trunks in the direct route to IXC 3 are busy, and that a HPC queue is assigned to the Trunk Group. The call is placed in queue, but does not receive an idle trunk before timing out of the queue. The call overflows to the indirect route via an AT. No idle trunks are available to the AT, but a HPC queue is assigned and the call is placed in queue. While in queue, a trunk becomes idle and the call is routed to the AT. However, at the AT, no idle trunks to IXC 3 are found. The AT sends the SSP a release message with Cause value indicating Network Busy. The SSP invokes EACR (Enhanced Alternate Carrier Routing), skipping any additional routes associated with IXC 3 since the Network Busy condition was detected remotely, and there are no more carriers to try. Because the Network Busy event is armed, the SSP sends a Network Busy message to the serving SCP reporting the Network Busy event and asking for additional instructions.

The SCP instructs the switch to attempt routing to the same DN, with the same carrier set. This time, though, the SSP finds a member of the direct TG (Trunk Group) to IXC 1 available, and completes the call to IXC 1. Within IXC 1's network, additional GETS capabilities are invoked to authenticate the caller and collect the destination address, and to complete the call using GETS features within the IXC network to provide a high probability of completion.

2.5 End User Scenarios - HPC Trunk Queuing

The HPC TQ (HPC Trunk Queuing) capability allows end users HPC calls to be placed in a HPC trunk group queue when trunk facilities are not available to complete the call.

When a HPC call is made by the end user the call will either complete, be placed in a HPC trunk queue, or receive final call treatment.

The end user may encounter one or more of the following events in a HPC call attempt.

- An idle trunk group member is seized and the HPC call successfully completes.
- When a HPC call is placed in the HPC TQ queue, the end user may hear a HPC TQ announcement stating the HPC call has been queued.
- An end user's previously queued call may successfully complete.
- If the call is not abandoned by the user, their HPC call may queue multiple times in an attempt to complete the call.
- If all attempts to complete the HPC call fail, an end user may receive final call treatment of either reorder

tone or an all circuits busy announcement.

- If an end user abandons a HPC queued call, the HPC TQ call ends.

3. FEATURE ASSIGNMENT

3.1 HPC Assignment in Digit Analysis Tables

Assignment of GETS HPC to an address is conceptually very simple. Once it has been determined how the address will be defined as HPC - whether at the 3-digit level on the NPA for all addresses within the NPA, at the 6-digit level on the NPA-NXX for all addresses with the NPA-NXX, or on a specific 10-digit address - it is only necessary to go to the appropriate form and mark the GETS HPC field as "Y" and set the NBR OF DIGITS field to 10. No other changes (other than unlocking the GETS feature) are needed for calls to the address(es) to receive HPC treatment. It may also be desirable to provision an ASP DNT at the same time as the GETS service is being provided.

3.2 GETS HPC Assignment in LDIT (Figure 1)

This scenario describes how to define a GETS-HPC number. Assume for this example that the number is 710-NCS-GETS, and the decision is made to assign GETS HPC at the 3-digit NPA level.

To activate this feature, the ACT field for SFID 279 must be "Y" on the SFSYS form (5713-1 Record).

It is highly likely that an ASP 3/6/10 Digit Trigger will also be defined against the GETS number using the TRIG NBR field, and a corresponding NSTRIG form entry, and that Default Routing will be assigned using the DFLT RT field.

For all DASs that could reach the GETS number, determine the LDITs used by the DASs.

Assigning GETS HPC can be done at the NPA and NPA-NXX level using LDIT form. Update the translations for the LDITs determined from the above step. These translations should not be changed except to mark the GETS HPC field to "Y" (assuming that the number already has the correct CALL TYPE, TYP CI CALL, etc).

3.3 GETS HPC Assignment in RDIT (Figure 1)

Assigning GETS HPC at the 7-, 8-, 9-, or 10-digit level is done on appropriate RDIT forms, and is performed in a manner similar to the LDIT example given above.

Another possible provisioning scenario would be to have the 3/6/10 Digit Trigger defined at the RDIT level and the GETS HPC indicator defined at the LDIT level.

3.4 GETS HPC Assignment in INDIT (Figure 1)

Assigning GETS HPC for dialing plans associated with incoming trunks can be done on appropriate INDIT forms in a manner similar to the LDIT example given above.

3.5 HPC Trunk Queuing - Scenario 1 (Figure 2)

In this scenario the end user has requested the Telco to provide the /HPCTQ feature on trunk group 20. Trunk group 20 has a trunk class of IC (Interexchange Carrier).

To activate this feature, the ACT field for SFID 279 must be "Y" on the SFSYS form (5713-1 Record).

The customer may first wish to customize trunk queuing announcements using the QUGPA form as shown in Figure 2.

Preconstructed feature /HPCTQ is assigned to trunk group 20 using the TKGRP form. The switch comes with the preconstructed feature already created and defined.

3.6 HPC Trunk Queuing - Scenario 2 (Figure 3)

In this scenario the end user has requested the Telco to construct a HPC trunk queuing feature and assign the feature to trunk group 9. Trunk group 9 has a trunk class of LTOLLCON (Local Toll Connecting).

Constructed feature HPCTQC is created and defined using the QUFD form.

The feature may be defined as shown in Figure 3.

All other fields on this form do not apply for HPC Trunk Queueing and are given default values.

Constructed feature HPCTQC is then assigned to trunk group 9 using the TKGRP form as shown in Figure 3.

All other fields on this form do not apply for HPCTQ and may be given default values.

The assignments will successfully complete and the trunk will have HPC TQ capabilities.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
INDIT	5309	3	3V	9.5
LDIT	5300	3	3C	9.3
MLDIT	5300-3a	3	5C	9.15
OFCOPT	5509	3	5I	8.1
				8.15
QUFD	5617-1a	4	18A	12.40
RDIT	5300-7a	3	3H	9.9
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

INDIT (5309 Record) - The 5309 Record provides information pertaining to the disposition of incoming calls. That is, it directs incoming calls based on the trunks' directing codes to appropriate translators for either local terminating or tandem treatment. The GETS HPC field was added to support the GETS HPC feature. This feature was first made available in the 5E13 Software Release.

LDIT (5300 Record) - The 5300 Record defines valid dialed or impulsed digits. The GETS HPC and CONFLICT RESOLUTION GETS HPC fields were added to support the GETS HPC feature. This feature was first made available in the 5E13 Software Release.

MLDIT (5300-3 A/B Record) - The 5300-3 A/B Record is used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS-2000 Switch. The GETS HPC field was added to support the GETS HPC feature. This feature was first made available in the 5E13 Software Release.

OFCOPT (5509 Record) - The 5509 Record provides the office option global parameters residing in the Central Processor. The IAM CRM PRIOR field was added to support the GETS HPC feature. This feature was first made available in the 5E13 Software Release.

RDIT (5300-7a Record) - The 5300-7a Record defines valid dialed or impulsed digits. The GETS HPC and CONFLICT RESOLUTION GETS HPC fields were added to support the GETS HPC feature. This feature was

first made available in the 5E13 Software Release.

QUFD (5617-1a Record) - The 5617 Record is used to define Modular Queuing features. The QUEUE TYPE field has been modified to allow the additional value of "HPCOHQ" to support the GETS HPC feature. Two new preconstructed features "/HPCQ15" and "/HPCQ30" for queuing coupled with "HPCOHQ" have been added for GETS HPC. This feature was first made available in the 5E13 Software Release.

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. For 5E13 and later, added SFID 279.

TKGRP (5202 Record) - The 5202 Record used to define each Trunk Group in a 5ESS-2000 Switch. For 5E12 and later, added Data Rules to the QUEUE ALLOWED field to support the GETS HPC feature.

4.1 GLOSSARY

5ESS-2000 - No. 5 Electronic Switching System 2000

A/N - Advanced Intelligent Network

ARS - Automatic Route Selection

BRCS - Business & Residential Customer Services

CDX - Compact Digital Exchange

DAS - Digit Analysis Selector

DNT - Dialed Number Trigger

EACR - Enhanced Alternate Carrier Routing

EO - End Office

EP - Emergency Preparedness

FSD - Feature Specification Document

HPC - High Probability of Completion

HPCTQ - High Probability of Completion Trunk Queue

IAM - Initial Address Message

IC - Interexchange Carriers

ICX - Carrier Index

ISUP - Integrated Services Digital Network User Part

IXC - Inter-Exchange Carrier

LATA - Local Access & Transport Area

LEC - Local Exchange Carrier

MCI - Malicious Call Identification

MF - Multi-Frequency

MFR - Multi-Frequency Ringing

NCS - National Communications System

NEL - Next Event List

NPA - Numbering Plan Area

OMNCS - Office of the Manager - National Communications System

PSTN - Public Switched Telephone Network

RC - Recent Change

RCV - Recent Change & Verify

SCP - Service Control Point

SDS - Software Development System

SFID - Special Feature ID

SS7 - CCITT Signaling System No. 7

SS7 - Signaling System 7

SSP - Service Switching Point

TG - Trunk Group

TGN - Trunk Group Number

TGSR - Terminal Group & Station Restriction

TQ - Trunk Query

VCDX - Very Compact Digital Exchange

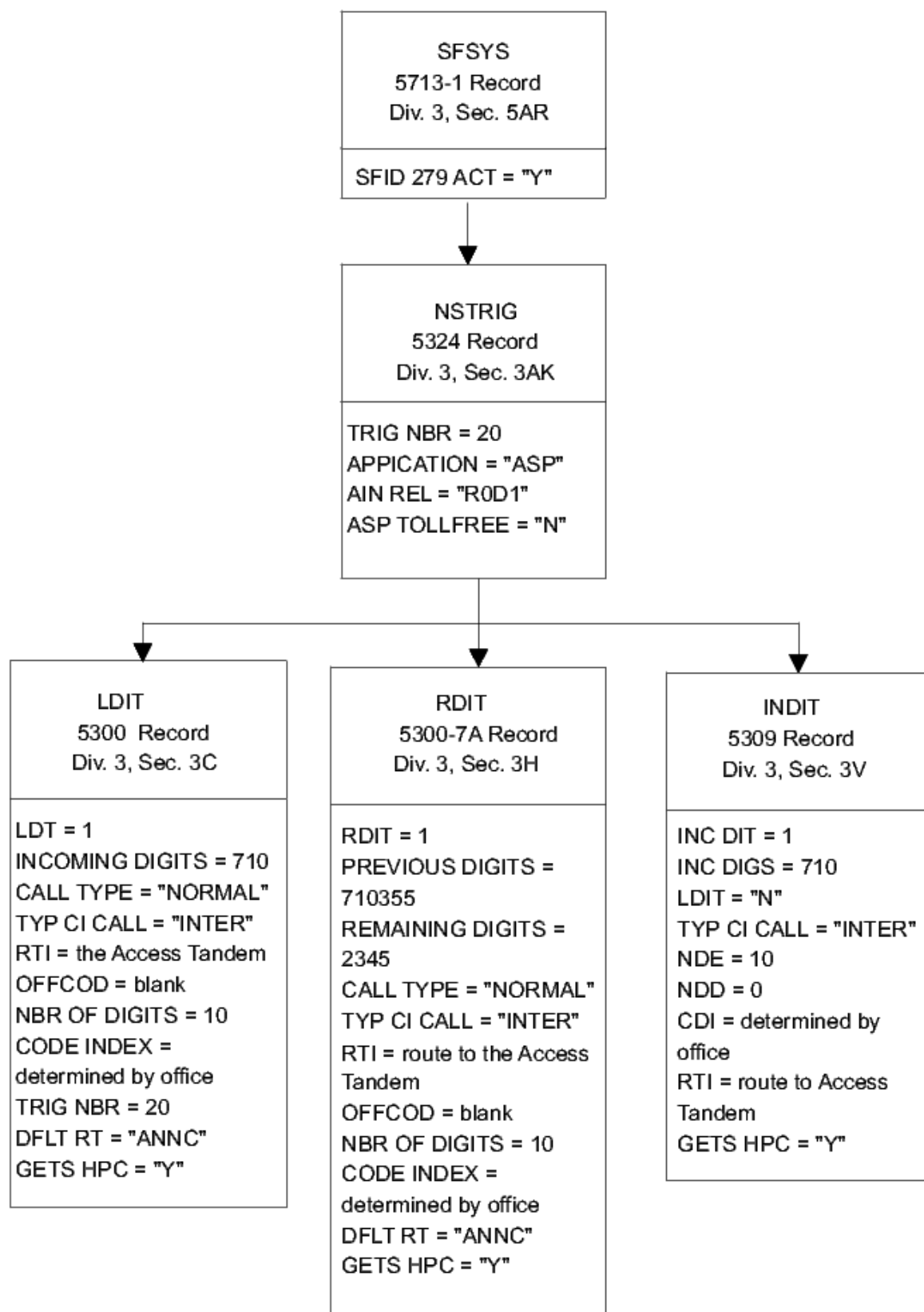


Figure 1 FORM FLOW FOR GETS HPC ASSIGNMENT FOR LDIT, RDIT, AND INDIT

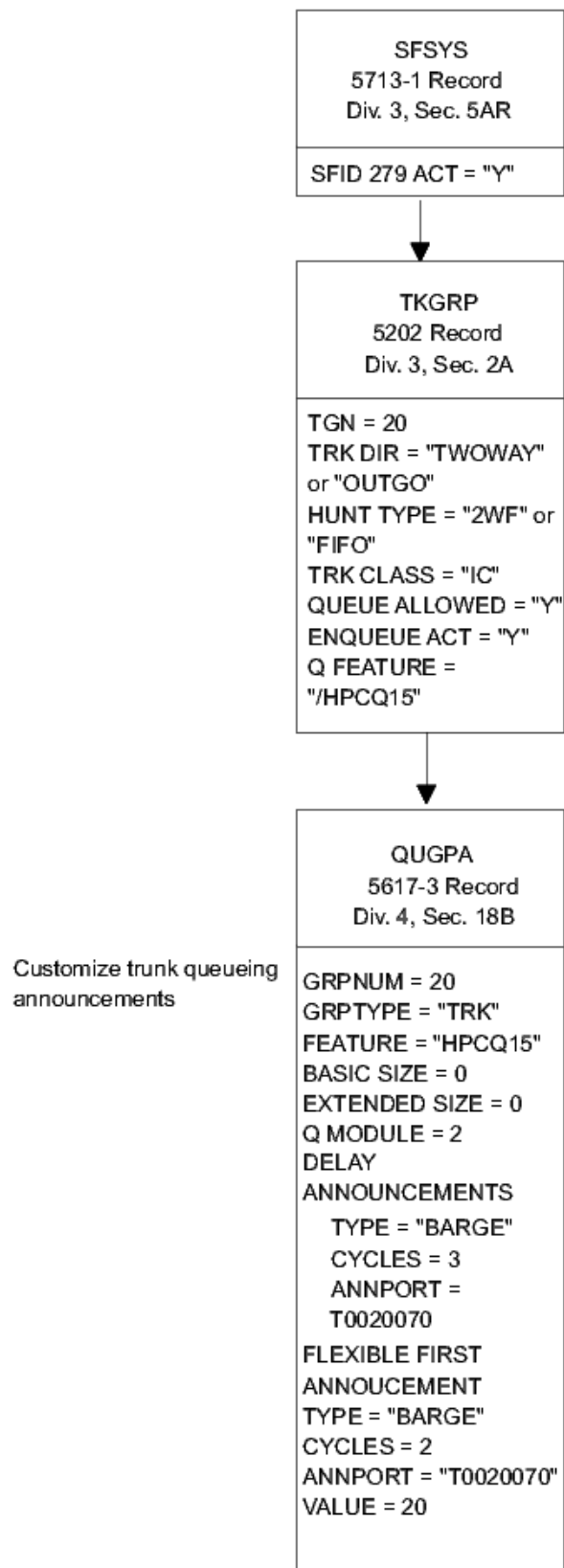


**Figure 2 FORM FLOW FOR HPC TRUNK QUEUING SCENARIO 1 - PRECONSTRUCTED QUEUE
FEATURE**

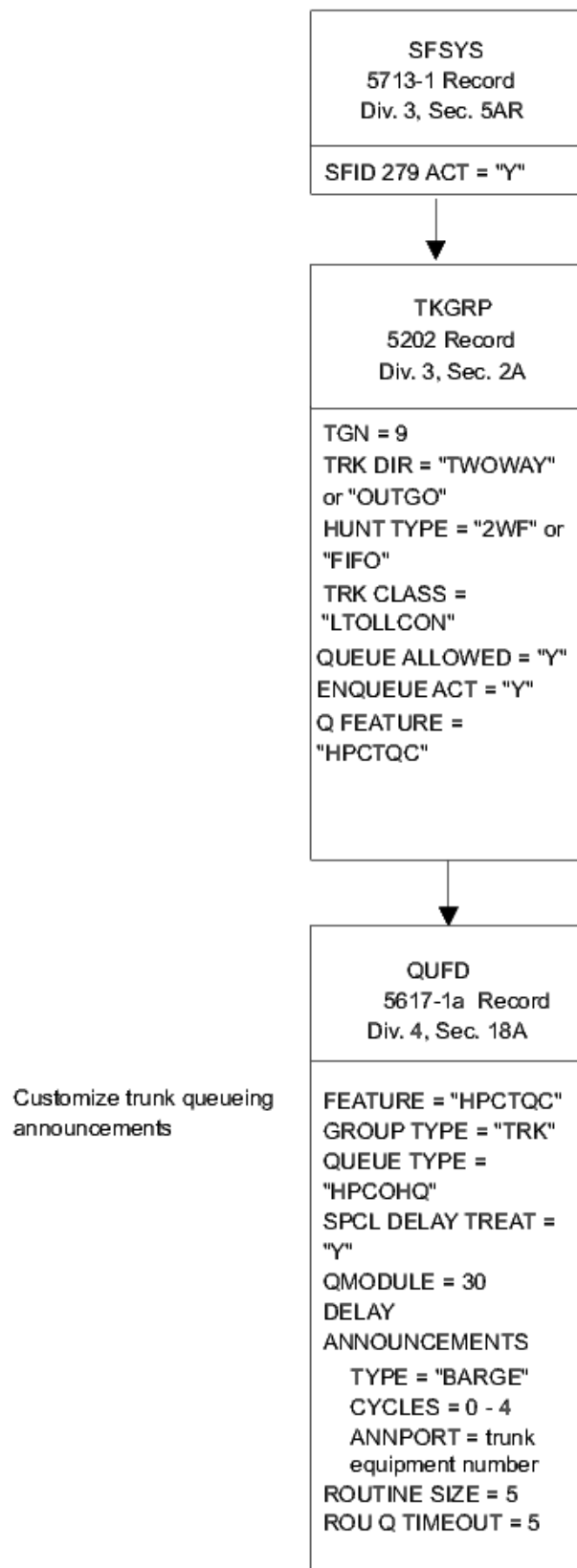


Figure 3 FORM FLOW FOR HPC TRUNK QUEUING SCENARIO 2 - PRECONSTRUCTED QUEUE FEATURE**SEC. 4A280: INTERNALLY BRIDGED DUAL SERVICE - PACKAGE 3****1. FEATURE DESCRIPTION**

The IBDS (Internally Bridged Dual Service) - Package 3 feature is a Secured Feature (SFID 280) that is being made available in the 5E13 Software Release. The feature number for this feature is 99-5E-4184.

The IBDS feature interaction modifications are an enhancement to the current 5ESS-2000 Switch One-TN (Telephone Number) LTSB (Line Time Slot Bridging) feature. This enhancement will allow certain features to be assigned to and used on One-TN LTSB lines. These features are not allowed for Two-TN LTSB service. The features are as follows:

- ACCT (Account Codes) (ACCTFD form)
- ARS (Automatic Route Selection) (ARSFD form)
- ASI (Advanced Services Interface) Proxy (ASIFD form)
- ATH (Authorization Codes) (ATHFD form)
- BCLID (Bulk Calling Line ID) (BCLIDFD form)
- CWD (Call Waiting Deluxe) (CW DELUXE = "Y" on CWTFD form)
- Direct Connect (NO DIAL = "Y" on LINE form)
- Private Facility Access with Queueing (QUEUE ALLOWED and PRIORITY QUEUE = "Y" on PFAFD form)
- TOD (Time of Day) (TODFD form)

This feature does not change the current originating COS (Class of Service) requirements for LTSB lines. The switch allows LTSB service only on lines with an "INDIV" originating COS.

The IBDS Package 3 feature depends on the IBDS Package 2 (SFID 263) feature and IBDS Package 2 depends upon IBDS Package 1 (SFID 262). For further information on the Package 1 and Package 2 features, see Division 2, Section 4a262 and Division 2, Section 4a263, respectively.

2. FEATURE ASSIGNMENT

For 5E13 and later, to provision this feature:

- Activate the SFIDs 262, 263, and 280 on the SFSYS form, by setting the respective ACT fields to "Y".
- Setup a line having One-TN LTSB on the LINE form.
- Setup MLHG (Multi-line Hunt Group) line having One-TN LTSB on MLHLN form.
- Assign any of the Package 3 features to the LINEFA form or MLHLNFA form for a cluster or BFG (BRCS (Business and Residential Custom Services) Feature Group).

For provisioning, see form flow on Figure 1.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.6
MLHLN	5111	3	1K	1.6
SFSYS	5713-1	3	5AR	8.22

LINE form (5109 Record) - The LINE form defines the office Equipment Number and features for each telephone number in a 5ESS Switch. Data rules were added for the ASSOC OE field.

MLHLN form (5111 Record) - The MLHLN form defines the individual Terminal Numbers assigned to a particular Multi-Line Hunt Group. Data rules were added for the ASSOC OE field.

SFSYS form (5713-1 Record) - This form is used to activate SFIDs (Secured Features IDs). This feature is activated by setting the ACT fields for SFIDs 262, 263, and 280 to "Y".

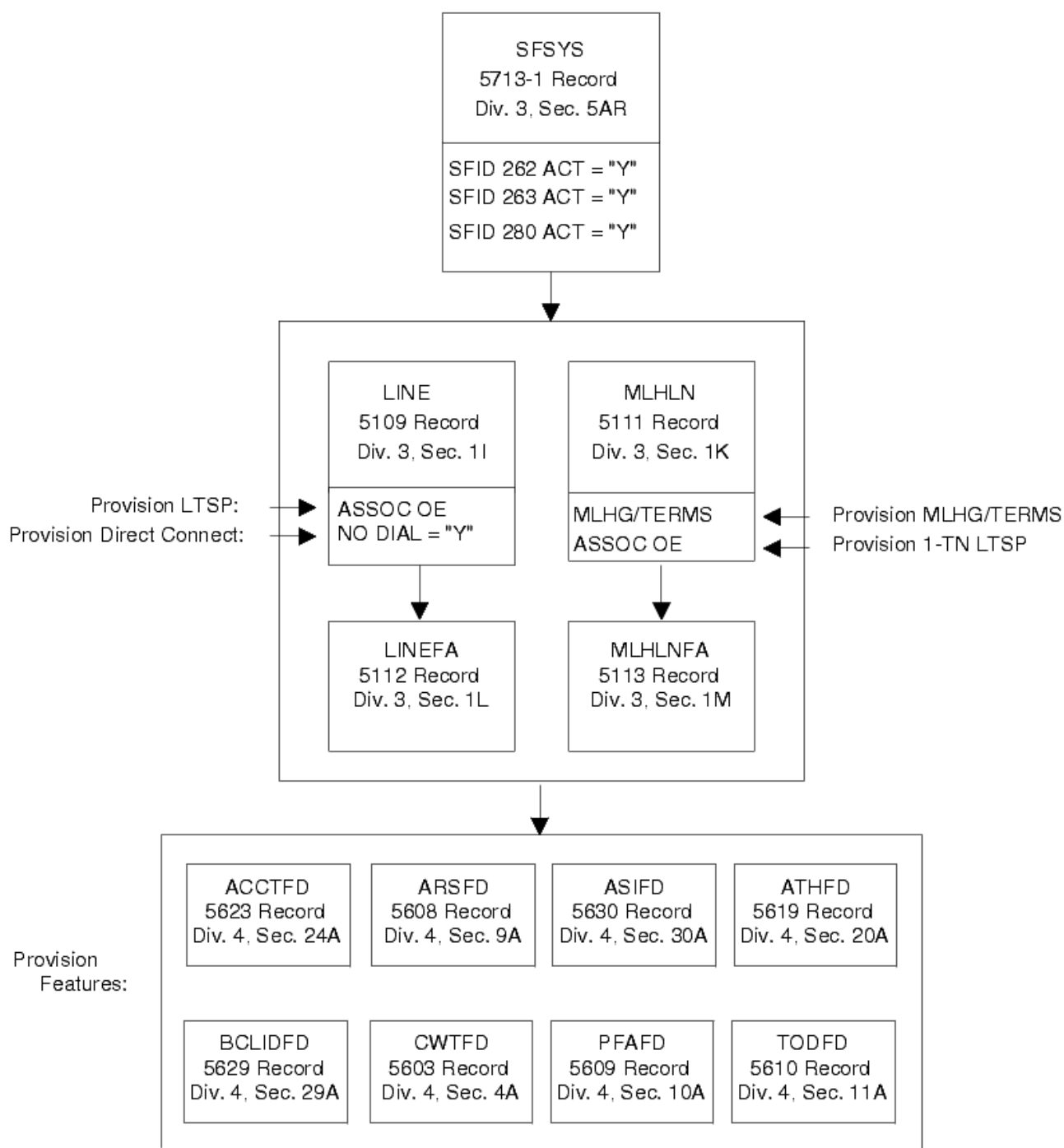


Figure 1 FORM FLOW FOR INTERNALLY BRIDGED DUAL SERVICE - PACKAGE 3

SEC. 4A281: OPERATOR AND BILLING ASSISTANCE FOR UNBUNDLED LOCAL SWITCHING

1. BACKGROUND

Due to the increase in local service competition created by the Telecommunications Act of 1996, local service provider's tariffs need to be changed. Since an alternative routing to multiple operator services can now be provided in an end office, a set of AMA (Automatic Message Accounting) billing options are now needed to record operator calls and directory assistance calls from one network to another. This is done in order to identify calls for which mutual compensations are owed.

2. FEATURE DESCRIPTION

The Operator and Billing Assistance for Unbundled Local Switching feature (99-CP-4477) allows AMA recording of Operator Service and Directory Assistance calls using Structure Code 0001 for 0- Operator Service calls, 0+ Operator Service calls, and Directory Assistance calls.

If the outgoing TSPS (Traffic Service Position System) trunk has FREE TERM set to "Y", there are no AMA records generated for 0- and 0+ Operator Services and for Directory Assistance calls. Or, if a free or flat rate charge index is set up in translation, no AMA records are generated.

This feature is made available as a Software Update for the 5E11 and 5E12 Software Releases and is included in the 5E13 and later Software Releases. This is a secured feature that is being controlled by SFID 281. The feature number is 99-CP-4477.

3. FEATURE ASSIGNMENTS

In order to provision this feature:

Set the ACT field to "Y" for SFID 281 on the SFSYS form (5713-1 Record) to activate the Base SIP-T feature.

Set the OPER field on the OFCOPT form (5509 Record) to "Y".

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 281 to "Y". Added SFID 281 to the table.

SEC. 4A282: II DIGITS SCREENING

1. FEATURE DESCRIPTION

Available as a 5E13 Software Update, the II Digits Screening feature is a secured feature using SFID (Secured Feature ID) 282. The feature number for this feature is 99-5E-4299. This feature expands the information screening capability. It allows for selective information (II) digit screening based on incoming trunk group and two digits. With this feature, incoming calls are routed based on information digits as allowed or disallowed on a trunk group basis, in order to handle calls without ANI (Automatic Number Identification), i.e., casual calls.

The II Digits Screening feature can be used for fraud prevention. For example, calls with a coin indication in the information digits to 8XX numbers can be restricted. This feature ensures the service providers' ability to offer the best in long distance class of service.

2. FEATURE ASSIGNMENT

To provision this secured feature:

- Set the ACT field for SFIDs 165 and 282 respectively on the SFSYS form (5713-1 Record) to "Y". This feature is dependent on the Toll Digital Exchange Basic Call Processing feature (SFID 165). (For more information regarding this feature, see Division 2, Section 4a165.)
- Set the LDP field on the TKGRP form (5202 Record) to "Y".
- Set the II DIGITS and TGN fields on the IIDIGTBL form (5573 Record) as required.
- Set the II SCREEN field to "Y" on either the ANITBL form (5561 Record) or the LDPCTBL form (5562 Record).

See Figure 1 for provisioning form flow.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANITBL	5561	3	5BE	8.51
IIDIGTBL	5573	3	5BN	8.57
LDPCTBL	5562	3	5BF	8.52
SFSYS	5713-1	3	5AR	8.22

ANITBL form (5561 Record) - This form contains the switch-based ANI Table. The ANI Table contains ANIs designating special treatment when a match occurs with an ANI associated with an incoming LDP (Long Distance Platform) call based on the option set, which is defined on this form. Added the II SCREEN field.

IIDIGTBL form (5573 Record) - This form contains information for call processing to route the call. A II Digits Screen bit is added to each entry of the ANI Table and LDP Carrier Table. When this II Digits Screen bit is set and a match occurs with the call's II digits and incoming trunk group, the call is routed based on the option set in this form. This is a new form added to support this feature.

LDPCTBL form (5562 Record) - This form contains the switch-based LDP Carrier Table. The LDP Carrier Table contains LDPs designating special treatment when a match occurs with an LDP associated with an incoming LDP call based on the option set, which is defined on this form. Added the II SCREEN field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFIDs 165 and 282 respectively to "Y". This feature is dependent on the Toll Digital Exchange Basic Call Processing feature (SFID 165).

SEC. 4A283: ABILITY TO STOP RST:TRK

1. FEATURE DESCRIPTION

The Ability to Stop a Restore Trunk feature is a secured feature available as a software update to 5E12, and for deployment as part of 5E13 Software Releases. This feature uses SFID (Secured Feature ID) 283 and has feature number 99-5E -3954.

This secured feature provides the craft with the ability to stop the restoral of trunks and leave the trunks in a

known out-of-service status without waiting for the restoral to complete. The new input message has the format of STP:RST,TRK. The user can specify what trunk to use by indicating the trunk group, trunk group and member number, equipment number, or process ID (Identification) of the restoral job. This command stops a restoral request on a trunk that is entered erroneously. The active restoral job is aborted and then a job to remove the trunks into an out-of-service status occurs.

Situations arising in an office where an incorrect restoral command is issued can cause service inconsistencies until these trunks can be returned to the proper out-of-service status. In cases where large numbers of trunks are erroneously specified can take an undesirably long time. This command is used to request that the restoral process be stopped as soon as the craft determines that it is incorrect, and then the effects are reversed.

2. FEATURE ASSIGNMENT

On the SFSYS form (5713-1 Record), SFID 283 must have the ACT field set to "Y".

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 283 must be set to "Y" on this form.

SEC. 4A284: RECOVERY FROM ALTERNATE BOOT DISK

1. FEATURE DESCRIPTION

The Recovery from Alternate Boot Disk feature is available with the 5E13 and later Software Releases. This feature provides the capability to recover a 5ESS-2000 Switch from a remote monitoring site, such as the SCC (Switching Control Center), from a disk other than the primary and secondary boot disks.

This feature is a secured feature (SFID 284) which the switch owner must purchase before it can be activated.

The feature number for this feature is 99-5E-2406.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	None.
SFSYS	5713-1	3	5AR	8.22

ECDOPT form (5706 Record) - This form is used to define all options in the AM (Administration Module) for initial offices. To activate the Recovery from Alternate Boot Disk feature, the ALT BOOT DSK field was added which must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to activate secured features. SFID 284 must be set to "Y" to enable the Recovery from Alternate Boot Disk feature.

SEC. 4A285: CDMA DATA SERVICES - PACKET MODE

1. FEATURE DESCRIPTION

The CDMA (Code Division Multiple Access) Data Services - Packet Mode feature is a secured feature (SFID 285) that is available in the 5E15 Software Release. The feature number is 99-5E-4076.

This feature allows service providers to offer packet mode data services such as E-mail, database access, file transfer, etc. It allows a cellular/PCS (Personal Communication Services) subscriber to send and receive data using a MS (Mobile Station), for example a laptop computer, that conforms to IS-657 and IS-707 standard. The IS-657 or IS-707 standard specifies a packet data bearer service for communication between a mobile station and IWF (Interworking Function).

2. FEATURE ASSIGNMENT

To enable this feature, the ACT fields for SFID 221 and SFID 285 must be set to "Y", respectively, on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for both SFID 221 and SFID 285, respectively, to "Y".

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. Added data rules to the TRK CLS field.

SEC. 4A286: TDMA DATA SERVICES-Circuit Mode

1. FEATURE DESCRIPTION

The TDMA (Time Division Multiple Access) Data Services feature is a secured feature (SFID 286) that is being deployed as a 5E13 Software Update. The feature number for this feature is 99-5E-3576.

This feature provides TDMA mobile users access to existing asynchronous modems and Group-3 fax machines in the PSTN (Public Switched Telephone Network).

TDMA voice circuits cannot carry voice band modem tones, so this feature allows for the TDMA air interface to carry the data in a digital form to an interworking function that generates the modem tones for communication through the PSTN.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 286 is set to "Y", and the ACT field for SFID 259 must be blank or "N", on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				

Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5602	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 286 to "Y". The ACT field for SFID 259 must be set to "N" or be left blank.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. Data rules were added to the TRKCLS field.

SEC. 4A287: 5ESS-2000 LDP MINT Expansion Package A

1. FEATURE DESCRIPTION

The 5ESS-2000 LDP (Long Distance Platform) MINT (Multi-vendor Intra-Network) Expansion Package A feature is a secured feature (SFID 287) that is being introduced in the 5E13 Software Release. The feature number for this feature is 99-5E-4311.

This feature is intended for use by a service provider, not an end user. This feature works in conjunction with general MINT capability, implemented under feature number 99-5E-3782, to expand the 5ESS-2000 LDP Switch's functionality by:

- providing additional call termination information for all trunks supported by the LDP Switch,
- providing the flexibility to designate any LDP trunk as a trunk which is egressing a customer defined network boundary,
- providing a wider range (0-63) of T-NSC (Terminating Network Selection Code) values for the BETA signaling format,
- providing Reroute on Release Ingress Facilities functionality for PRI (Primary Rate Interface), Private Facilities and DAL (Direct Access Link) trunks,
- providing a modified Cause Value on a per trunk group basis.

For more information on general MINT capability, refer to Division 2, Section 4A217.

2. FEATURE ASSIGNMENT

To enable this feature, set the ACT field for SFID 287 and SFID 165 to "Y" on the SFSYS form (5713-1 Record). In order to have the expanded Reroute on Release Ingress Facilities functionality, set the ACT field for SFID 250 to "Y".

To allow provisioning, specify the LDP OFFICE ID on the OFCOPT form (5509 Record).

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MCRTIDX	5304	3	3Q	10.4
OFCOPT	5509	3	5I	8.1
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

MCRTIDX form (5304 Record) - This form is used to define MC (Modular Customization) route indices in a 5ESS-2000 Switch. A data rule for the TERM NSC field was modified to expand the field's range from 0-15 to 0-63.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters for a 5ESS-2000 Switch. The LDP OFFICE ID and NST ALL fields were added to this view.

RTIDX form (5303 Record) - This form is used to define route indices in a 5ESS-2000 Switch. A data rule for the TERM NSC field was modified to expand the field's range from 0-15 to 0-63.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFIDs 287 and 165 to "Y". Set the ACT field for SFID 250 to "Y" if the expanded Reroute on Release Ingress Facilities functionality is desired.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The NETWORK IND, DAL EGRESS, and LINE BUSY fields were added to this form as well as new data rules.

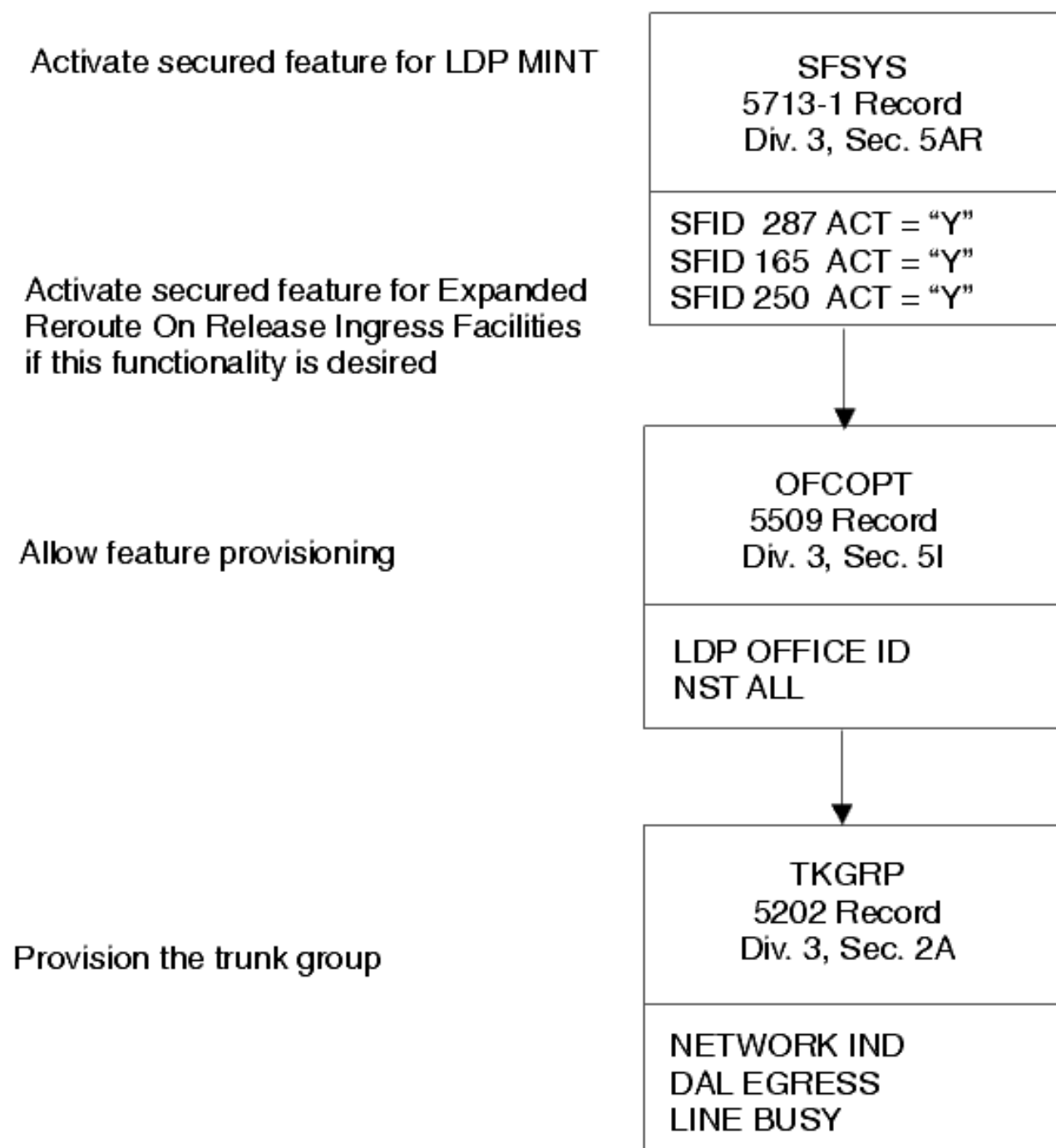


Figure 1 FORM FLOW FOR 5E13 AND LATER LDP MINT EXPANSION PACKAGE A

SEC. 4A289: ROUTING ENHANCEMENTS

1. INTRODUCTION

The feature number for the Routing Enhancements feature is 99-5E-4187. This is a secured feature (SFID 289) that is being deployed as a Software Update for 5E14 Software Release.

The Routing Enhancements feature provides two main capabilities:

- a new RTI (Route Index) List containing up to 16 routes.

- an increase in the number and range of RTIs.

2. FEATURE DESCRIPTION - RTI LIST

This enhancement will allow the end-user to "chain together" a list of RTIs. The route list consists of a key-list RTI and up to fifteen additional RTIs that are linked together by virtue of their position in a route index list. The position of the RTI in the list is used to specify the sequence in which the RTIs are searched for a non-busy route during routing. When a route index list is being used, the "Next RTI" on RC View 10.2 (RTIDX form) will NOT be used to determine the next route.

A route index list is created by entering the RTIs, with the key-list RTI first, on a RC View 10.40 (RTLST form). When an RTI is entered, the RTI and some of its major attributes are displayed on one screen for ease of administration. The RC View 10.40 is used to enter the route index list only. The major attributes continue to be entered on RC View 10.2.

RTI = Route Index; the first RTI is the key-list RTI. The RTIs on this view (10.40) can be added, deleted, or updated. This is the only enterable column on this screen.

The remaining columns are display only. Values are obtained from the RC View 10.2 that has a key RTI that matches the same value as the RTI in this view.

2.1 Feature Overview - Route Index List

End user refers to the operational users of Routing Enhancements which are the recent change personnel that input the RTIs in the Recent Change View 10.2.

The end-user builds the route index list through recent change screens. The end user first provisions one key-list RTI per route index list, which is the first RTI in the route index list. A key-list RTI is unique in that it can only be assigned once per switch as a key-list RTI in any route index list. The end user can then provision up to fifteen non-key-list RTIs in the same route index list.

If call processing reaches the last RTI in the list without finding an idle trunk group, call processing tries queuing or Final Route Trigger, if active, before sending the call to final treatment.

- Position in the list is critical because the RTIs will be attempted in the order that they appear in the route index list.

- The same RTI can be assigned as a non-key-list RTI in other RTI lists (only once per individual list).

- Each RTI in the list must also be provisioned on a RC View 10.2 as the key RTI. All required fields on the RC View 10.2 must be populated. The "Next RTI" field is ignored when a list is present since the presence of a list supersedes the "Next RTI".

2.2 Feature Operation — Route Index List

With the Route Index List feature active, the service provider will observe the following actions:

All call processing up to routing is unchanged by this feature.

Call processing will add a new check before attempting a route in the RC View 10.2. The new check will determine if an RTI has been assigned as a key RTI of a list.

If yes, routing returns the key-list RTI for routing the call. Routing proceeds through the list checking each RTI in order. For each RTI, call processing finds the RC View 10.2 that has a key RTI with the same value and looks up the assigned trunk group. If the assigned trunk group is idle, the call is routed over that group. If an idle trunk group is not found, call processing proceeds to the next RTI in the list and finds the RCView 10.2 that has a key RTI with the same value as the non-key RTI and looks up the assigned trunk group. If call processing reaches the last RTI in the list without finding an idle trunk group, call processing will try reroute queuing or FR Trigger, if they are active, before sending the call to final treatment.

In all cases, the "Next RTI" field on RC View 10.2 is ignored.

If no, current call processing continues, that is, routing proceeds through the RTIs using the current "Next RTI" field from one RC View 10.2 to the next RTI until an idle trunk is found or the call is routed to an announcement or other terminating treatment.

2.3 Feature Interaction — Route Index List

AMA: If AMA is active, an AMA record is generated as usual at call disconnect. There is no impact to the contents of any AMA record.

RTCD: If RTCD is active, a RTCD record will be generated as usual at call disconnect. The RTI used to route the call will be reported.

TDR (Time Dependent Routing): If TDR is active, the LDP switch would potentially alter the RTI from digit analysis by reading the TDR table. The Route Index List feature proposed here applies to the RTI returned from the TDR table, that is, the TDR occurs before the route index list is used.

ROR (Reroute on Release): If ROR is active and the call is released back to the switch, the next RTI in the list shall be the starting point for proceeding through the list until a idle trunk is found or the call is routed to an announcement or other terminating treatment.

SCP Alternate Routes: The route index list can apply to the RTIs returned by the SCP or derived by ASP.

Reroute Queuing: If reroute queuing is active, reroute queuing sends the call back to the first RTI with queuing active and camp on. If the timing expires, the call will proceed through the route index list from the point of queuing to the last RTI and then to FR Trigger if active.

FR Trigger: If Final Route Trigger is active, it is performed before final treatment, which occurs after all the RTIs in the route index list have been tried.

NELS (Network Busy and BLNA): When the NetworkBusy query is used or a Busy Line No Answer is detected by the SCP, the route list used is this route list, when it has been provisioned. Network Busy and BLNA will function as they do today when being returned from the SCP.

MINT - Route Search Limit: When the MINT route search limit has been set and the route index list feature is provisioned, the MINT route search limit takes precedence over the route index list. This is to say that the route search limit will limit the number of RTIs checked even when a route index list is being used. Route search limit is used to limit the number of RTIs tried per switch.

3. FEATURE DESCRIPTION - INCREASED NUMBER OF ROUTE INDICIES

The maximum number of supported RTIs in 5E12 is 4095(to go beyond 3617 RTIs, the Increased Number of Trunk Groups feature is required). This enhancement will allow the maximum number of RTIs to be 16,382. This gives the network administrators increased flexibility in the sequence in which the trunk groups are searched. This feature does not add new trunks, instead it gives the ability to refer to the same trunk group with many different RTIs. This capability is especially important when using the "Next RTI" feature in that there will be the ability to have multiple different trunk group sequences available.

The increase in the number of RTIs affects both voice and data route indices.

The Lucent Technologies version of the trunk group parameter fields in R0.1 TCAP messages does not return a five digit RTI. This means that RTIs available on the switch can not be returned by the SCP. The interface will be modified to support 5-digit RTIs to fully support this capability.

4. FEATURE ASSIGNMENT

4.1 Activation

The Routing Enhancements feature is a secured feature and is activated by setting the ACT field for SFID 289 to "Y" on the SFSYS form (RC View 8.22).

4.2 Installation of Route Index List

All RTIs in the list and the key-list RTI must first be defined on the RC View 10.2.

Insert the 10.40 (RTLST form) with the key-list RTI in key field RTIDX. Field ROUTE INDEX LIST row one should be the key-list RTI. Enter up to 15 additional RTIs in rows 2-16. For a final route treatment of announcement or busy tone, the last RTI entered should point to either an announcement trunk group or 10.2 (RTIDX form) field ETYP of BUSY.

All attributes defined on the RC/V 10.2 apply except for the "Next RTI" field. The "Next RTI" field (field #6) will not be used if this feature is active.

Routing via the key-list RTI is accomplished by populating the RTI in digit analysis (RC Views 9.2 - 9.9) or Time Dependent Routing (RC View 10.39).

4.3 Installation of Increased Number of Route Indices

Change RC View 8.1 (OFCOPT form) field MAX RTIDX to 16382. The operational user can then enter an RTI up to the value of 16,382 on Recent Change View 10.2 (RTIDX form). After the RTI has been established, the user can then use that RTI value on any of the Recent Change Views listed which has an RTI field.

SEC. 4A290: ROUTING ENHANCEMENT: FINAL ROUTE TRIGGER

1. FEATURE DESCRIPTION

The feature number for the Routing Enhancement: Final Route Trigger feature is 99-5E-4187A. This is a secured feature (SFID 290) that is being deployed as a Software Update for 5E14 Software Release.

The Routing Enhancement: Final Route Trigger feature adds the option to query an AIN (Advanced Intelligent Network) SCP (Service Control Point) when a route index list is exhausted. The service provider can then control subsequent treatment of the call through logic at the SCP. The SCP can return a new routing number, private route, etc., or simply direct the switch to tear down the call. This will be accomplished by creating a new AIN trigger called FR Trigger (Final Route Trigger). The FR Trigger will be associated with the RTI (Route Index) using Recent Change/Verify. The FR Trigger will create a "networkBusy" TCAP (Transaction Capability Application Protocol) message to query the SCP when the very last route index that can be attempted is unavailable.

With the Final Route Trigger feature active and the FR Trigger provisioned, call processing will add a new check before release of the call is performed. This check will determine if a FR Trigger has been identified for the last route (RTI). If the FR Trigger has been defined, the switch initiates a transaction with the AIN SCP, providing information relevant to the call such as calling party number, called party number, and bearer capability to the SCP. The SCP could return Analyze Route, NEL (Next Event List), Continue, STR (Selective Trunk Reservation), STOR (Send to Outside Resource), or Disconnect to the SSP which controls subsequent call processing. The new query message called Network Busy message utilizes the Network Busy format.

This feature is dependent on the following two features:

- Advanced Services Platform (SFID 126),

- and ASP Interworking with Circuit Switched Data (SFID 237) for "data" calls to function with the FR Trigger.

1.1 Call Processing

The Final Route Trigger capability will create and launch an AIN SCP query before the call is given final treatment.

Any "voice" (3.1kHz or speech) or "data" call shall be eligible to encounter the FR Trigger. Data calls are supported by ASP only when SFID 237 is unlocked.

The FR Trigger capability is active when:

- the proper SFIDs have been set,

- the FR Trigger has been populated on RTIDX form (5303 Record) for the RTI,

- and the trigger number associated with the FR Trigger has been defined on NSTRIG form (5324 Record) with the AIN REL field set to "R0D1" and the application set to "ASP".

When the FR Trigger is active and the last route on the last route list is busy, prior to the final treatment of a call, the switch will launch the FR Trigger. One way to determine the RTI for the last route is when the ROUTE TYPE on the RTIDX form (5303 Record) is "REORDER" or "BUSY".

The FR Trigger is ignored when it is encountered on any RTI except the very last RTI to be checked before the call goes to reorder. The FR Trigger can be provisioned only on the last RTI, however, RTIs returned from the SCP are not bound by switch provisioning, therefore, it is possible to receive a RTI from the SCP that has been provisioned with a FR Trigger, even when it is not the last RTI to be tried. The FR Trigger is launched only when it is on the very last RTI to be checked before going to reorder.

When the FR Trigger has been encountered, if

the trigger is not found on the NSTRIG form (5324 Record),

OR the protocol has changed since the trigger was provisioned (no longer R0D1),

OR the application is not ASP,

the switch shall issue the appropriate assert and the call will receive final treatment. No query is made to the SCP.

When EACR (Enhanced Alternate Carrier Routing) is provisioned on the switch, all EACR processing is performed before the FR Trigger is fired. The FR Trigger is fired only on the very last RTI being tried. It is possible with EACR active to never hit the RTI that has the FR Trigger attached to it. This happens when the call has left the originating long distance switch and been released back. With EACR, all remaining RTIs for the carrier are skipped and the next carrier is tried. This applies to all ASP routes, including the final SCP supplied route. All EACR processing must occur before the FR Trigger can be fired.

All routes returned via ASP alternate routing shall be tried before the FR Trigger is launched. The FR Trigger is only fired when the very last RTI of the very last route chain is tried. This means that all the ASP alternate routes have already been tried and all were busy before the FR Trigger is fired.

The switch shall invoke the Final Route Trigger capability when the incoming trunk is:

- a Long Distance Platform processed trunk (LDP is "Y" on the TKGRP form (5202 Record)),

- a MINT trunk (MINT SIG TYPE is non-blank on the TKGRP form (5202 Record)),

- a Direct Access Link (DAL) trunk (DAL ACCESS is "Y" on the TKGRP form (5202 Record)).

The Network_Busy Event in a Next Event List can be armed before the FR Trigger is encountered.

If the switch encounters the FR Trigger, then the switch will not provide a busy indication or reorder to the originating access, and must send a networkBusy query message to the SCP. When the final route points to an announcement, the call is considered successfully routed, therefore the trigger does not fire.

Prior to sending the networkBusy query to the SCP, the SSP will check for ACG (Automatic Call Gapping) controls and will send a query only if it is not blocked by ACG (i.e., either no matching ACG control is in effect or, if ACG controls are in effect, the GapInterval timer has expired and has not been restarted). No pre-query ACG controls should be applied prior to launching the Query message. Calls blocked by an ACG control will follow normal ACG processing.

When the T1 timer expires, and the SSP has not received a reply from the SCP, the switch will peg the "Signaling Failure - Timeout at SSP" measurement and send a Report Error message indicating Response_Message_Timer_Expired to the SCP. This message will be in a unidirectional package if the SSP had sent a Query to the SCP. This message will be in a Response package if the SSP had sent a Conversation to the SCP. In addition, the SSP will provide treatment as if a "Disconnect" message were received.

The FR Trigger may only be fired once per call with a single SSP.

2. FEATURE ASSIGNMENT

To provision this feature:

- Since this feature is dependent upon the Advanced Services Platform feature (SFID 126), it must first be activated by setting the ACT field for SFID 126 on the SFSYS form (5713-1 Record) to "Y".
- The Routing Enhancement: Final Route Trigger feature can only then be activated by setting the ACT field for SFID 290 to "Y".
- Find or provision a trigger using the NSTRIG form with the APPLICATION field set to "ASP" and the AIN REL set to "R0D1".
- Provision the FNL RT TRIG NBR field on the RTIDX form.
- Optional: Add an RTI containing the Final Route Trigger to the RTLIST form as the last RTI.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RTIDX	5303	3	3P	10.2
RTLIST	5574	3	5BO	10.40
SFSYS	5713-1	3	5AR	8.22

RTIDX form (5303 Record) - This form is used to create and administer Route Indices in a 5ESS Switch. A Route Index determines a network path, typically used to complete a call or route to error treatment when the call is unable to complete. For 5E14 and later added a new field, FNL RT TRIG NBR.

RTLIST form (5574 Record) - The RTLIST form allows the end-user to "chain together" a list of RTIs. For 5E14 and later added a new field, FNL TRIG.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for both SFID 126 and SFID 290 to "Y", respectively.

SEC. 4A291: DENY TRANSFER OF DIGIT SCREENED CALLS

1. BACKGROUND

This feature is composed of two phases. The feature number for Phase 1 (version 1) is 99-5E-4369.A. The Phase 1 version will be deployed as a 5E12 Software Update until Phase 2 can be delivered. This version (version 2) is composed of hard coded international codes. The switch will have hard coded what dialed digit sequences that would be viewed as international destinations by this feature. The following are the affected call types that will be considered international:

- 01+ or 011+ calls
- 00+ or 00- calls
- 809 area code calls
- 0+ or 0- calls to an outside operator

The feature number for Phase 2 (version 2) is 99-CP-4369 and is also being deployed as a 5E12 Software Update Release feature to replace the Phase 1 functionality. Once Phase 2 is purchased, the Phase 1 version should be turned off on the FOSYS form (5713-2 Record). The Phase 2 version has precedence over

the Phase 1 version. That is, if Phase 2 is turned on using (OFID (Optioned Feature System ID) 712 and SFID (Secured Featured ID) 291), this feature will be used to determine if the call transfer should be denied. If Phase 2 is not turned on (either SFID 291 is off or OFID 712 is off), then the Phase 1 feature will be used, if OFID 709 is turned on.

2. FEATURE DESCRIPTION

The DTDSC (Deny Transfer of Digit Screened Calls) feature (99-CP-4369/Phase 2) is a secured feature (SFID 291) and is optionally turned on using OFID 712 on the FOSYS form. This feature will be deployed in the 5E12 Software Update Release.

The purpose of this feature is to prevent call transfer fraud when a party makes multiple call transfers (analog only) without knowledge of the owner of the line. This feature will change so that the Call Transfer feature's operator can block all transfers when either leg of the transferred call is an outgoing international destination. This feature allows the service provider the ability to provision the dialed digit sequences, international or non-international, to be denied transfers.

3. FEATURE ASSIGNMENT

For 5E12 and later, to enable this feature, the ACT field for SFID 291 on the SFSYS form (5713-1 Record) and OFID 712 on the FOSYS form (5713-2 Record) must both be set to "Y" and OFID 709 on the FOSYS form must be set to "N". However, to use the Phase 1 feature, only OFID 709 must be set to "Y" and SFID 291 and OFID 712 must be set to "N".

Once this feature (Phase 2) has been enabled, there are several other forms that must be provisioned: PDIT (5300-2 Record), LDIT/MLDIT (5300-3/3b/5 Record), IDDD (5307 Record), and RDIT (5300-8 Record).

Particular lines on the LINE and MLHLN forms and terminal groups on the TGATTD form can be provisioned to override denials during a call transfer.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
FOSYS	5713-2	3	5AS	8.31
PDIT	5300-2	3	3B	9.2
LDIT	5300-3/3B/5	3	3C	9.3
IDDD	5307	3	3T	9.6
RDIT	5300-8	3	3H	9.9
MLDIT	5300-3	3	3AB	9.15
LINE	5109	3	1I	1.6
MLHLN	5111-1/2/3	3	1K	1.6
TGATTD	5611	4	12A	4.4

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 291 to "Y".

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency features. In order for this feature to be activated, the Optioned Feature ID 712 ACT field must be set to "Y".

PDIT form (5300-2 Record) - The PDIT form defines the Prefix/Feature Digit Interpreter in a 5ESS-2000 Switch. It provides information defining feature and operator access, and prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). For 5E12 and later, the DENY XFER field is

being added to indicate whether or not to deny call transfer to the digit string.

LDIT form (5300-3/5 Record) - The LDIT form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS-2000 Switch. For 5E12 and later, the DENY XFER field is being added to indicate whether or not to deny call transfer to the digit string.

IDDD form (5307 Record) - The IDDD form is used for IDDD (International Direct Distance Dialing) Country Access Codes. IDDD provides the capability for Direct Distance Dialing points outside the North American Network by the customer without the assistance of an operator. For 5E12 and later, the DENY XFER field is being added to indicate whether or not to deny call transfer to the digit string.

RDIT form (5300-8 Record) - The RDIT form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request. For 5E12 and later, the DENY XFER field is being added to indicate whether or not to deny call transfer to the digit string.

MLDIT form (5300-3 Record) - The MLDIT form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS-2000 Switch. For 5E12 and later, the DENY XFER field is being added to indicate whether or not to deny call transfer to the digit string.

LINE form (5109 Record) - The LINE form defines the office Equipment Number and features for each telephone number in a 5ESS-2000 Switch. For 5E12 and later, the OVRD DNY XFER field is being added to indicate whether or not to allow this line to override denials during a call transfer.

MLHLN form (5111 Record) - The MLHLN form defines the individual Terminal Numbers assigned to a particular MLHG. For 5E12 and later, the OVRD DNY XFER field is being added to indicate whether or not to allow this line to override denials during a call transfer.

TGATTD form (5611) - The TGATTD form provides Terminal Group Attendant and Data Information. For 5E12 and later, the OVRD DNY XFER field is being added to indicate whether or not this terminal group allows override denials during a call transfer.

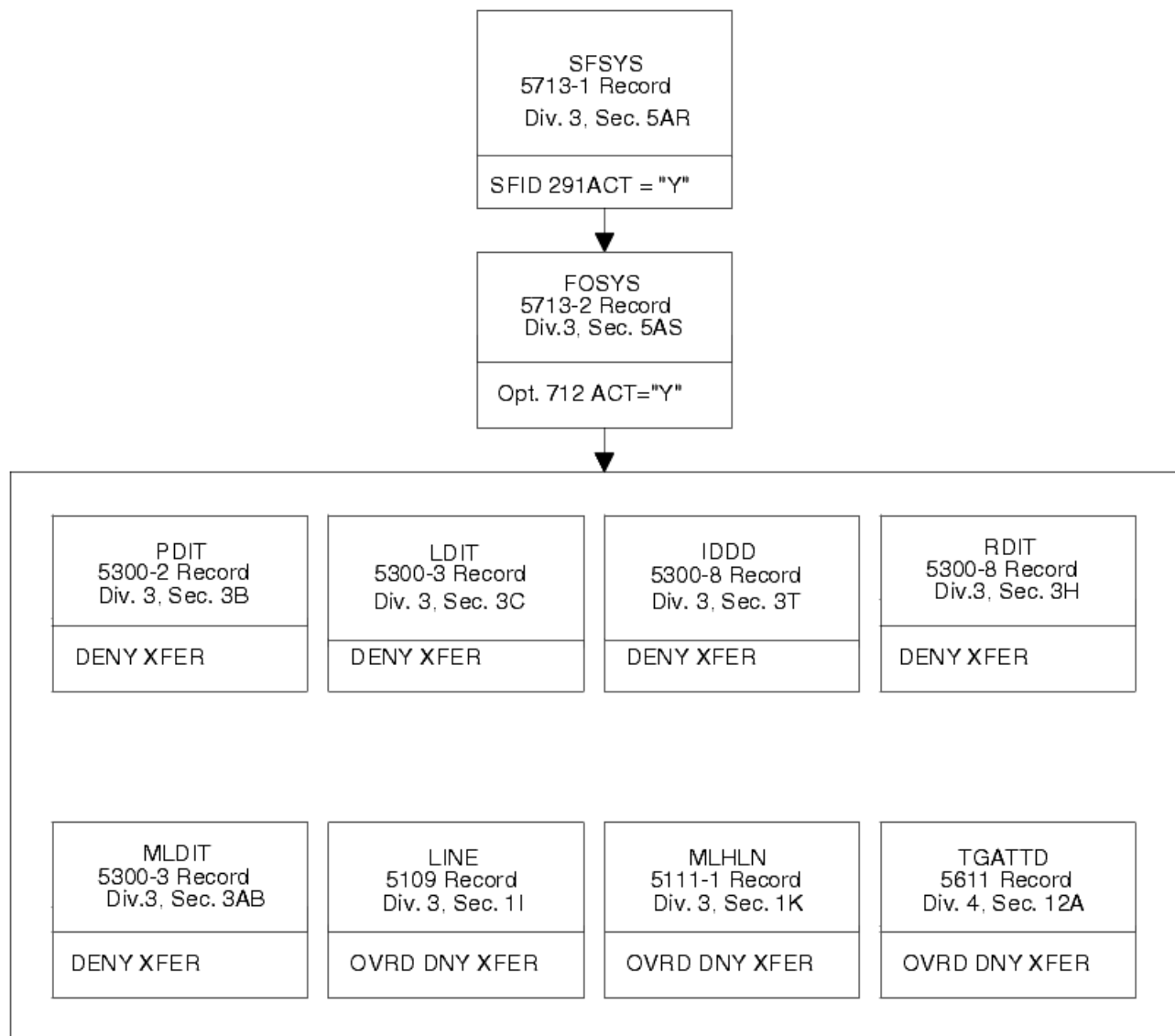


Figure 1 FORM FLOW FOR DENY TRANSFER OF DIGIT SCREENED CALLS

SEC. 4A292: SIMPLIFIED CUSTOM ISDN ATTENDANT CONSOLE

1. FEATURE DESCRIPTION

The Simplified Custom ISDN Attendant Console feature is Secured Feature ID 292. It is available for 5E12 and later. The feature number is 99-5E-4244.

Simplified Custom ISDN Attendant Service is a set of 5ESS Switch attendant features, currently only offered on the Lucent Technologies Business Communications Systems 310/311 Attendant Console, that are now being offered on smaller Custom ISDN Customer Premises Equipment (e.g., the Lucent BCS 8500 series, such as the models ISDN8528T or ISDN8520T).

It is intended to meet the need for a low cost Centrex Attendant Console for a target market in the Small to Medium business range with less than 500 lines.

2. FEATURE ASSIGNMENT

The provisioning sequence for this feature is identical to the present provisioning sequence for Custom ISDN Attendant, with the exception that a TERM TYPE value of "TYPED" will now be assignable to line with an attendant LCC (Line Class Code) and a CLASS of SERVICE value of "ISATND".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907	5	1h	23.2
DSLUSR	5908	5	1i	23.2
FOSYS	5713-2/3	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

DSL form (5907 Record) - This form is used to define the attributes of a DSL and it defines the attributes of the B1 and/or B2 channel of the DSL. New data rules have been added to the TERMTYP field, the D SERV field, and the DSL CLS field. If D SERV is set to "S ONLY", then DSL CLS must be set to "PP".

DSLUSR form (5908 Record) - This form is used to assign an attendant to a Station TN and Station MLHG. The TERMTYP value of "TYPED" may now be assigned to lines with an attendant LCC and a SERVCL value of "ISATND".

FOSYS form (5713-2/3 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) IDs for Special and Transparency features. The feature act ID 717 must be set to "Y" to activate the ISAT feature.

SFSYS form (5713-1 Record) - This form is used to enable secured features. SFID 292 must be set to "Y" to enable the Simplified Custom ISDN Attendant Console feature.

SEC. 4A293: E911 CALL ERROR DETECTION AND ALARM

1. FEATURE DESCRIPTION

The feature number for the E911 Call Error Detection and Alarm feature is 99-5E-4621.A. This is a Secured Feature (SFID 293) that is being deployed in 5E11 and 5E12 as Software Updates.

This feature provides call error detections and alarms for the E911 feature. Errors are detected in two ways, during an E911 call and independent of E911 calls. Alarms are provided after errors are detected so that the operating companies can make corrections as soon as possible. Errors may be reported even if the error does not cause the E911 call to fail. This will prevent the E911 service from deteriorating and causing all E911 calls to fail eventually if problems are not fixed as soon as they are detected.

Independent of E911 calls, out-of-service errors associated with the E911 trunks are reported through Terminal Maintenance as soon as they go out of service.

During E911 calls, the following errors are reported if detectable:

- 911 Call Type
 - The digits "911" have been dialed but are not translated to the emergency call type, FC911.
 - Detection of this error is controlled by Optioned Feature 716. If this OFID is turned on via the FOSYS form (5713-2 Record), then 911 Call Type checking is inhibited. In this case, if the Call Type defined

in the dialing plan for the digits "911" is NORMAL, then this will not be treated as an error condition. However, other Call Types will continue to be treated as errors.

- Partial Dial
 - Digit analysis data is set up so that more than 3 digits are expected; that is, "911" is the beginning of a longer expected string. The user does not enter any more digits and digit analysis times out when the interdigital timer expires. This causes an E911 call to fail.
- Vacant Code
 - Result of digit analysis destination type is vacant code.
- Invalid Primary PSAP (Public Safety Answering Point) DN (Directory Number)
 - Primary PSAP DN fails digit analysis.
- Invalid First Alternate PSAP DN
 - First Alternate PSAP DN fails digit analysis.
- Invalid 2nd Alternate PSAP DN
 - Second Alternate PSAP DN fails digit analysis.
- Invalid Global E911 Digit Analysis Selector (DAS)
 - The Global E911 Digit Analysis Selector points to a digit tree which is used in analyzing all the PSAP DNs, reroute DNs, and selective transfer DNs. An invalid E911 Global Digit Analysis Selector will cause all E911 routing using those DNs to fail and the originator will receive reorder.
- PSAP DN not Provisioned
 - No hundreds group data or relation RT_DNTRAN data defined for the PSAP DN.
- 100% Out-of-Service E911 Dedicated Interoffice Trunk Group
 - E911 dedicated interoffice trunk group is totally out of service.
- 100% Out-of-Service Non-Dedicated Interoffice Trunk Group
 - Non-dedicated interoffice trunk group is totally out of service.
- 100% Out-of-Service CAMA PSAP Trunk Group
 - CAMA (Centralized Automatic Message Accounting) PSAP trunk group is totally out of service.

2. FEATURE ASSIGNMENT

For 5E11 and later, to enable this feature, the ACT field for SFID 293 on the SFSYS form (5713-1 Record) must be set to "Y". Also, the OUTAGE RPT is provided on the TKGRP form to allow the emergency services personnel to designate specific trunk groups to be monitored for 100% OOS (Out of Service) conditions.

See Figure 1 for provisioning form flow.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate Secured Features. This feature is activated by setting the ACT field for SFID 293 to "Y".

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. For 5E11 and later, the OUTAGE RPT field is added to allow the E911 services personnel to designate specific trunk groups to be monitored for 100% OOS conditions.

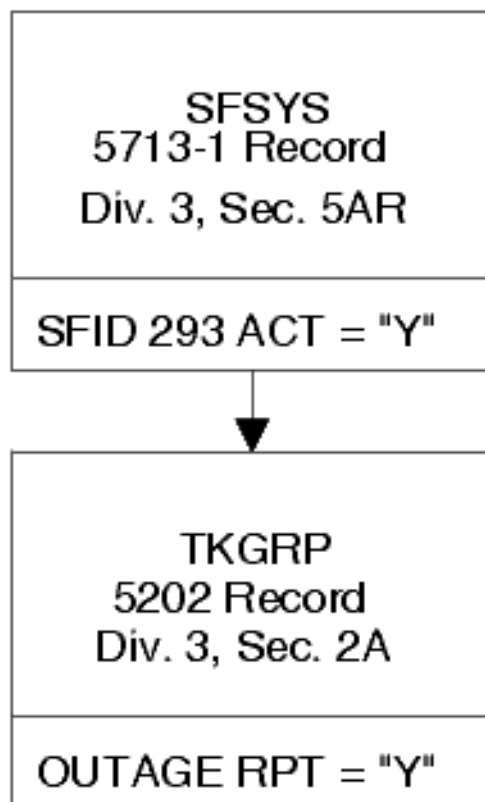


Figure 1 FORM FLOW FOR E911 CALL ERROR DETECTION AND ALARM

SEC. 4A294: ROUTE OUTAGE AML E911 CALL ERROR DETECTION AND ALARM

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4A295: ASP PERSISTENT TRANSACTIONS ENHANCEMENTS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform Document*.

SEC. 4A296: DELETE WARNING DISPLAY FOR ESSENTIAL SERVICES

1. FEATURE DESCRIPTION

Available for the 5E11 Software Release and BMI (Beginning Managed Introduction) for 5E12, the Delete Warning for Essential Services feature is Secured Feature (SFID 296). The feature number for this feature is 99-5E-3900.

This feature is used to send an error message whenever Recent Change is invoked to delete a line or trunk that is provisioned as an Essential Services line or trunk, such as fire, police, hospital, etc., and E911. The Service Provider must first change the line or trunk from being Essential Services before deletion occurs.

When the feature is active, the status of the EL field on recent change views 1.6 (LINE form for analog lines) and 23.2 (DSLUSR form for DSLs), or the CAMA PSAP field on view 5.1 (TKGRP form for trunks), will be checked before allowing a deletion to occur.

If the field is set to "Y", the deletion will be blocked and an error message is sent indicating for which field the crosscheck failed. If the field is set to "N", the deletion will continue.

2. FEATURE ASSIGNMENT

The Delete Warning for Essential Services feature is a secured feature. The ACT field for SFID 296 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 296 must be set to "Y" to enable the Delete Warning for Essential Services feature.

SEC. 4A297: ASM (Administration Services Module) Base

1. FEATURE DESCRIPTION

Available with 5E13 and later Software Releases, the ASM Base feature (99-5E-4237) provides the basic

hardware platform necessary to run ASM applications. The ASM extends the capability of the AM by providing high-speed network connections access to the 5ESS Switch. The ASM is attached to the AM through a 3B21 DSCH (Dual Serial Channel). This link, known as the DCI (DSCH Computer Interconnect), supports multiple logical channels enabling parallel operations. Once the ASM Base feature is in place, multiple applications, providing OA&M (Operations, Administration and Maintenance) enhancements, can be applied. The ASM Base feature is secured with SFID 297 and supports a wide variety of commercially available software and hardware for network access such as UUCP, and FTP with TCP/IP.

2. FEATURE ASSIGNMENT

This feature cannot be assigned using ODA. Assignment can only be done by activating SFID 297 using Recent Change.

3. TRANSLATION REQUIREMENTS

There are no ODA translation requirements for this feature.

SEC. 4A298: WIRELESS E911

1. BACKGROUND

The existing E911 (Enhanced 911) feature (e.g., E911 Serving Switch) provides enhanced 911 service capabilities and PSAP (Public Safety Answering Point) customer services for completing and handling 911 wireline calls. E911 has the capability to selectively route a 911 call that originated from any station in the 911 service area to the correct primary PSAP that is designated to serve the originating station's location.

2. FEATURE DESCRIPTION

The feature number for the Wireless E911 feature is 99-CP-4543. This is a secured feature (SFID 298) that is being deployed as a 5E12 Software Update and for the BMI (Beginning Managed Introduction) of the 5E13 Software Release. Also, see the information in this section on OFID (Office Option Feature) 733 which is associated with the Wireless E911 feature.

This feature provides the capability to selectively route, using the Enhanced ESA (E911 Service Adjunct) system, wireless 911 calls to the appropriate PSAP based on the caller's location using the Cell Site/Sector ID. The Cell Site/Sector ID information is 10 digits and is referred to as the pANI (Pseudo ANI).

When the mobile (cellular) caller dials 911, the MSC (Mobile Switching Center) switch populates and transmits, using SS7 (Signaling System 7) signaling, information in the ISUP7 (Integrated Services - User Part) IAM (Initial Address Message) containing the caller's MDN (Mobile Directory Number), pANI, the wireless nature of the call in the OLI (Originating Line Identification), and possibly the Emergency designation in the CPcat (Calling Party Category). The pANI will be sent in either the GDP (Generic Digits Parameter) field or the CdPN (Called Party Number) field of the IAM.

The 5ESS-2000 E911 Serving Switch will detect 911 calls that are received directly, via SS7 TG (Trunk Group), from an MSC switch as an Emergency wireless call based upon the OLI and CPcat/CdPN values.

The 5ESS-2000 E911 Serving Switch (also works on small switches) will query the Enhanced ESA with a new message type (type 8) containing the pANI to obtain the ESN (Emergency Service Number). If the Wireless E911 feature is not available, the existing message type (type 1) will be used.

The ESA will return an ESN value and the existing E911 call processing will continue.

This feature depends on the existing E911 feature (SFID 61). For more information on the E911 feature, see Division 2, Section 1BD.

The OFID 733 (Send pANI to 8-digit PSAP) is associated with the Wireless E911 feature. When OFID 733 is active in the office, all CAMA 8-digit PSAP facilities will receive the pANI of a wireless E911 call. The pANI sent will consist of the last 7 digits. Note that the pANI is a 10-digit value in the format NPA-NXX-XXXX, where:

NPA = Numbering Plan Area

N = 2-9

XX-XXX = 0-9

The value received at the PSAP will be the NPD (Numbering Plan Digit) defined on the ESCO form (5541 Record) followed by the NXX-XXXX of the pANI. When OFID 733 is not active, the MDN will be sent to the CAMA 8-digit PSAP.

An enhancement to the Wireless E911 feature is available as a 5E13 Software Update and BMI (Beginning Management Introduction) for 5E16. Currently, when a wireless E911 (emergency) call is received over an ISUP7 trunk at an E911 Tandem, digit analysis is by-passed and the call is routed as E911. This enhancement provides a new non-dedicated E911 trunk type (WLNONDED) to allow the service providers to designate an ISUP7 trunk group as a non-dedicated wireless E911 connection. This provisioning allows, for a wireless E911 call, the use of digit analysis for the digits in the Called Party Number field in the ISUP7 IAM (Initial Address Message) to route the call instead of by-passing digit analysis as currently done.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 61 and SFID 298 to "Y".

FOSYS form (5713-2 Record) - This form is used to activate optioned features. The Send pANI to 8-digit PSAP feature is activated by setting the ACT field for OFID 733 to "Y". SFID 61 and SFID 298 must also be set to "Y".

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form. The "WLNONDED" E911 TYPE was added for the feature enhancement.

4. GLOSSARY

BMI	Beginning Managed Introduction
CPcat	Calling Party Category
CdPN	Called Party Nuymber
E911	Enhanced 911
ESA	E911 Service Adjunct

ESN	Emergency Service Number
GDP	Generic Digits Parameter
IAM	Initial Address Message
ISUP7	Integrated Services- User Part 7
MDN	Mobile Directory Number
MSC	Mobile Switching Center
NPA	Numbering Plan Area
NPD	Numbering Plan Digit
OLI	Originating Line Identification
pANI	Pseudo Automatic Number Identification
PSAP	Public Safety Answering Point
SS7	Signaling System 7
TG	Trunk Group

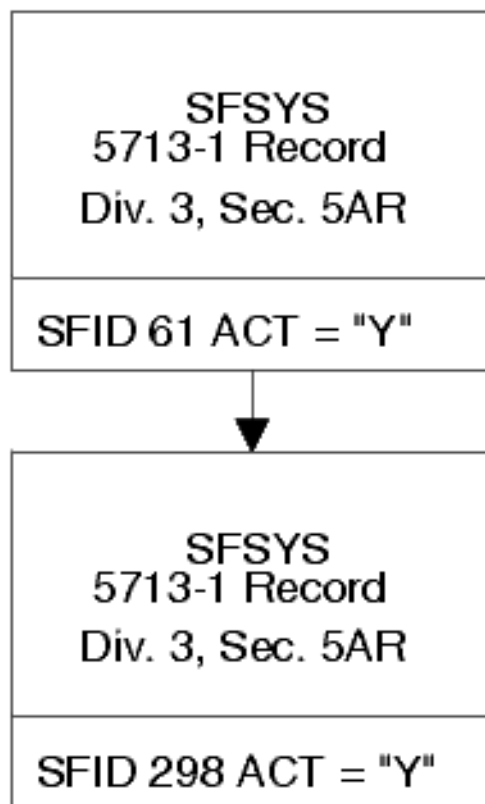


Figure 1 FORM FLOW FOR WIRELESS E911

SEC. 4A299: FGD INTERFACE TO E911

1. BACKGROUND

Current wireless growth has pushed the analog signaling of analog PSAPs (Public Safety Answering Points) for E911 service beyond the existing 4 NPD (Numbering Plan Digit) limitation. Support for the full 10-digit CPN (Calling Party Number) delivery is now required for (analog) product continuity. In addition, with the imposed requirements of FCC (Federal Communications Commission) Docket 94-102 (Phase I), there exists the further requirement of delivery of two 10-digit numbers to the PSAP. One set would provide the MDN (Mobile Directory Number) while the other, the cell site/sector information (pANI). This new analog signaling platform is referred to as "Enhanced MF Signaling" and is a standard defined in Bellcore GR-2953-CORE. This new protocol is a variation of FGD (Feature Group D).

2. FEATURE DESCRIPTION

The feature number for the FGD Interface to E911 feature is 99-5E-4484. This is a Secured Feature (SFID 299) that is being deployed as a 5E12 Software Update and for the BMI (Beginning Managed Introduction) of the 5E13 Software Release.

This feature, in conjunction with the Wireless E911 feature (see Division 2, Section 4A298), will allow the 5ESS-2000 E911 Serving Switch to output the wireless 911 caller's 10-digit MDN (Mobile Directory Number) and 10-digit pANI (Pseudo Automatic Number Identification) together to the CAMA (Centralized Automatic Message Accounting) PSAP (Public Safety Answering Point) handling the wireless 911 call. The pANI will not be available for calls that are routed off the E911 Serving Switch.

If the 911 call is wireline (not wireless), only the 10-digit ANI will be outputted to the CAMA PSAP handling the call.

This feature depends on the existing E911 feature (SFID 61).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 61 and 299 to "Y".

TKGRP form (5202 Record) - This form defines each Trunk Group in a 5ESS-2000 Switch. The trunk information entered is common to the entire group; trunk information for an individual member is entered on a TRUNK form. The following two fields were added for this feature:

1. ENH PSAP SIG (Enhanced Public Safety Answering Point Signaling)
2. TEN DIG ONLY (Ten Digits Only)

The ENH PSAP SIG field is required for the FGD Interface to E911 field. The TEN DIG ONLY field is optional.

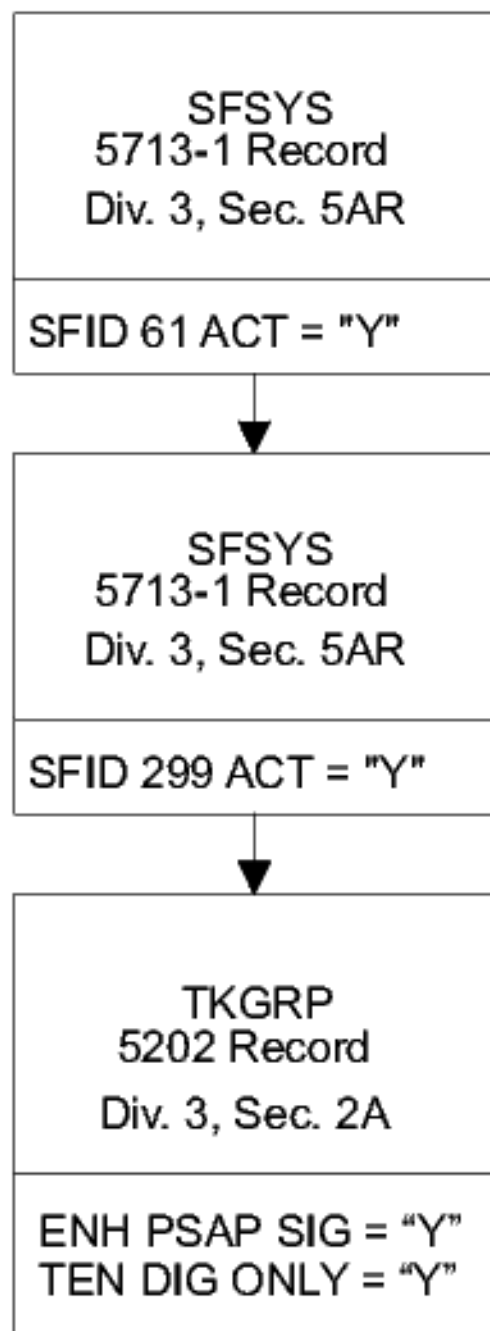


Figure 1 FORM FLOW FOR FGD INTERFACE TO E 911

SEC. 4A300: NUMBER PORTABILITY - TEST QUERY for LRN

1. FEATURE DESCRIPTION

The feature number for the Number Portability - Test Query for LRN feature, is 99-CP-4590. This is a secured feature (SFID 300) which is deployed as a Software Update for 5E11 and 5E12 Software Releases and for the BMI (Beginning Managed Introduction) of the 5E13 Software Release.

The Number Portability - Test Query for LRN feature, allows craft and maintenance personnel to verify the LRN (Location Routing Number) for an input directory number from the end office. This feature is dependent on the ASP (Advanced Services Platform) feature (SFID 126). Prior to unlocking SFID 126, SFID 58 and SFID 51 must be unlocked. The features are built upon one another.

This feature reduces the time required to verify the LRN. New input parameters to the existing TST:ASPTQ option are being provided to simplify the input required to verify the LRN for a specific DN (directory number). The only required input parameter for the NP version (MSGTYPE = NPINFOANAL) is a called party directory number. The option, MSGPART is not valid for NPINFOANAL. The translation type may also be entered for cases in which craft and maintenance personnel do not want to use the default value (TRANSTYPE) parameter on the DSAPP form (RC/V View 8.17). For the 5E13 Software Release and later issues, the OPC (Originating Point Code) of the Calling Party Address may, also, be entered as an optional parameter.

The new TST:ASPTQNP output message is being provided to simplify output. If the directory number is ported, the LRN is returned. If there is no LRN associated with the directory number, DN NOT PORTED is returned.

Included with this feature are enhancements to the output from VFY:OFC, adding indications of PORTED IN and the NP trigger number if they apply to the verified digits. An explicit indication is given if the switch actually serves a number in a portable NXX. In addition, a new LRN keyword has been added to VFY:OFC, which allows craft personnel to verify the routing associated with an LRN, such as the one returned by TST:ASTPQ-NP. Verification of an LRN is supported for both switch triggers and LRNs from incoming SS7 trunks. A specific indication is output if the LRN is determined to be a Home LRN.

2. FEATURE ASSIGNMENT

To provision this feature:

- The correct sequence of activation is built as follows: SFID 58, SFID 51, SFID 126, SFID 174, and SFID 300.

If these secured features are not built in this sequence, the Number Portability - Test Query for LRN feature will not perform all of its NP test-query functions.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSAPP	5537	3	5AK	8.17
SFSYS	5713-1	3	5AR	8.22

DSAPP form (5537 Record) - This form is used to specify the Direct Signaling Application Type, Transaction Type and the Subsystem Number used by the direct signaling trunks which use the CCS7 (Common Channel Signaling System 7) signaling protocols.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for both SFID 174 and SFID 326 to "Y", respectively.

SEC. 4A301: ASP NETWORK BUSY EVENT AND ENHANCED ALTERNATE CARRIER ROUTING

1. FEATURE DESCRIPTION

Available with 5E13 and later, the ASP Network Busy Event and Enhanced Alternate Carrier Routing Secured Feature has feature number 99-5E-3614 and uses SFIDs (Secured Feature ID) 301 and 302 respectively. This Feature provides two enhancements to existing ASP capabilities.

While these two enhancements are independent of each other, that is, the EACR (Enhanced Alternate Carrier Routing) functionality does not depend upon the Network Busy Event being armed in the NEL (Next Event List), the two capabilities do interwork. For example, if Network Busy is armed in the NEL, and because of a series of Network Busy conditions detected both locally and remotely, the SSP (Service Switching Point) reaches the end of its available routes for all parameters in the Routing Message, the Network Busy message will be sent to the SCP (Service Control Point) so that it can further instruct the switch on how to route the call.

1.1 Network Busy Event Reporting (SFID 301)

The ASP Network Busy Event capability provides a means to allow the SCP to be informed when a call has instructed the SSP to route, encounters a Network Busy condition either at the SSP or in another switch in the network, after having exhausted all routes available per the SCP's instructions. The SCP can then provide additional instructions to the SSP.

ASP Busy/No Answer Subsequent Event Detection provides the initial capability to support the Next Event List, the mechanism by which the SCP indicates to the switch the set of subsequent call processing events that should be reported back to the SCP. Included in that feature were four events:

- Term Seized
- Called Party Busy
- No Answer
- Answer

All four events are defined as OCM (Originating Call Model) events, meaning that they are detected in the half-call representing the originating facility in the call. These four events can be indicated in a Next Event List in a request component accompanying either an Analyze Route message or a Forward Call message.

■ **NOTE:** Although the TAT (Termination Attempt Trigger) is defined as a Terminating Call Model Trigger, the Forward Call reply to that trigger causes a new OCM to be created to model the redirected portion of the call.

This feature adds the Network Busy Event to the list of those supported on the 5ESS-2000 Switch. Network Busy is defined to detect all trunks busy conditions in the network during the process of routing a call. This condition can be detected at the SSP where the NEL was received, or can be detected in subsequent switches through which the call routes, and reported back to the SSP with an ISUP release message with an appropriate Cause Value. In either case, the Network Busy event is satisfied and reportable only when all routing parameters provided by the SCP have been attempted and exhausted without successfully completing the call.

A primary service driver for this feature is the GETS (Government Emergency Telecommunications Service) HPC (High Priority of Completion) Network Capability.

The description which follows is based on the GETS service, and therefore includes scenarios only involving Carrier parameters returned by the SCP. This feature provides EACR and Network Busy when the SCP

provides Trunk Group parameters as well.

GETS is a feature that allows authorized government users to gain access to enhanced call completion features. In its current form, GETS capabilities are offered in the networks of AT&T, MCI, and Sprint. A user dials 1-710-NCS-GETS to place a GETS call, which causes the call to complete to one of the IXC (Inter Exchange Carrier) networks, where authentication via PIN code and collection of the final routing number are performed. Within the IXC network, GETS calls are provided with special treatment to assure a high probability of completion.

Starting in 1995, basic GETS service has been introduced into Local Exchange Carrier networks using AIN (Advanced Intelligent Network) 0.1 capabilities. The 710-NCS-GETS number is defined as a DNT (Dialed Number Trigger) and causes a Query to be launched. The SCP's routing instructions include the same DN (Directory Number) and a set of three Carriers which the SSP attempts to use hierarchically. This process is known as Alternate Carrier Routing. The SSP attempts to complete the call to the first carrier provided. If all outgoing facilities associated with routes to that carrier are busy on the SSP, routing overflows to the second carrier, etc.

ACR (Alternate Carrier Routing), as defined in the AIN 0.1 specification (TR-1284), only detects all trunks busy at the SSP and does not recognize the receipt of a release message with an appropriate Cause Value as an event which causes Alternate Routing to occur. Additionally, if all three carrier routes are fully busy, there is no recourse, and the call ends by completing to Reorder Tone.

The two capabilities introduced by this feature provide for more robust alternate routing to occur. With EACR, the SSP recognizes a release message with appropriate Cause Value as an event which causes Alternate Routing to occur, causing the SSP to attempt routing with the next SCP provided routing parameter. (Note that EACR is independent of the Network Busy Event being armed). With Network Busy, the SCP can include a Next Event List with the Network Busy event armed along with the Routing Component. When this event is armed, the SSP will report the Network Busy Event to the SCP when all SCP supplied routing parameters have been exhausted by ACR and EACR. This allows the SCP to take further action if all routes are busy. The expected SCP action for GETS service is to return another Routing component instructing the switch to attempt the same set of carriers again. Other services which use the Network Busy report may provide other treatment, such as providing an announcement or providing a set of different routes to attempt.

Note that this feature is not specific to GETS but is being provided as a generic AIN switch capability. As such, it is available for use for any ASP call, not just to GETS calls.

1.2 Enhanced Alternate Carrier Routing (SFID 302)

The EACR capability enhances the existing ASP Alternate Routing function. It allows a release message received from a forward switch with appropriate Cause Value to be detected as Network Busy. This causes the SSP to invoke Alternate Routing by abandoning any further attempts with the current Routing Parameter and skipping to the next Carrier or Trunk Group Parameter.

When this capability is unlocked, and when a Network Busy condition detected remotely at another switch and is reported to the SSP by way of an ISUP (Integrated Services Digital Network User Part) release message with an appropriate Cause Value, EACR is invoked to overflow to the next Routing Parameter. If overflow is not successful and if the Network Busy event is armed, then it will be reported to the SCP as described below.

If this capability is locked, then the receipt of a release message as described above does not cause ASP to attempt Alternate Routing. ASP will be unable to route the call further and Network Busy will not be reported to the SCP even if armed. Other capabilities such as Reroute on Release may apply, or the call may receive no circuits treatment.

2. FEATURE ASSIGNMENTS

These are secured features and are activated by setting the ACT field for SFID 301 and SFID 302 on the SFSYS form (5713-1 Record) to "Y". On the SREINCR form (5547 Record) set the SOFTWARE RESOURCE field to "ASPTP". See Figure 1.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
SFSYS	5713-1	3	5AR	8.22
SREINCR	5547	3	5AW	8.40

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. For 5E13 and later, added SFID 301 and 302.

SREINCR (5547 Record) - The 5547 Record is used to maintain per MODULE incremental global parameters. For 5E13 and later the ASPTP enumeration was added to the SOFTWARE RESOURCE field.

4. GLOSSARY

AIN	Advanced Intelligent Network
DN	Directory Number
DNT	Dialed Number Trigger
EACR	Enhanced Alternate Carrier Routing
HPC	High Probability of Completion
ISUP	Integrated Services Digital Network User Part
IXC	Inter-Exchange Carrier
NCS	National Communication System
NEL	Next Event List
OCM	Originating Call Model
SCP	Service Control Point
SSP	Service Switching Point

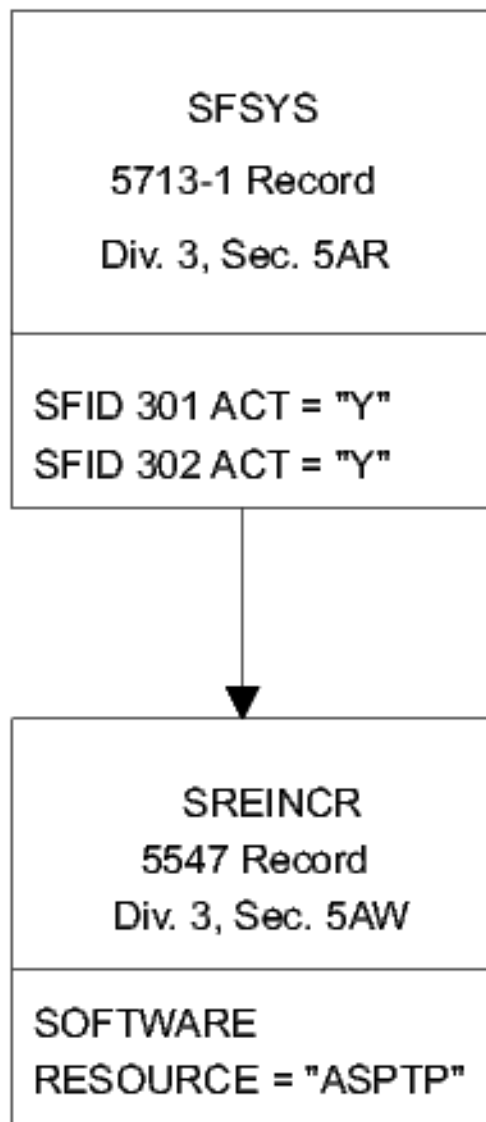


Figure 1 FORM FLOW FOR ASP NETWORK BUSY EVENT AND ENHANCED ALTERNATE CARRIER ROUTING

SEC. 4A302: ENHANCED ALTERNATE CARRIER ROUTING

1. FEATURE DESCRIPTION

The Enhanced Alternate Carrier Routing feature is part of two enhancements to existing ASP capabilities. See Division 2, Section 4A301 (ASP Network Busy Event and Enhanced Alternate Carrier Routing) for details.

SEC. 4A303: LOCAL NUMBER PORTABILITY ON THE LONG DISTANCE PLATFORM

1. BACKGROUND

LNP (Local Number Portability) gives the end-user the ability to move from one switch to another and keep

their original directory number. There are three types of LNPs:

Service portability allows a user to retain their DN (Dialed Number) after changing services (e.g., POTS (Plain Old Telephone Service) to ISDN (Integrated Services Digital Network).

Service provider portability allows a user to retain their DN after changing service providers.

Geographic portability allows a user to retain their DN after changing physical locations.

The 5E11 feature, Number Portability-Basic Location Routing Number (99-CP-3169.A), supports all three types of Local Number Portabilities, with limited geographical portability (portability within the LATA (Local Access Transport Area)). However, this does not provide for portability support on the 5ESS Long Distance Switch.

2. FEATURE DESCRIPTION

The LNP on the LDP (Long Distance Platform) feature will provide LNP support on switches within the Toll Network, provided that the LNP feature is also purchased. Other LDP (Long Distance Platform) features may or may not be purchased.

On the OLDP (Originating LDP) Switch, the LNP Trigger and/or Ported In data may be provisioned, indicating that LNP processing is necessary to determine how to route the call; however, support for incoming calls with LNP information in the CCS (Common Channel Signaling) protocol will be ignored, and the call will route as usual. This is because the LRN (Location Routing Number) and/or LNP data should be derived within the Toll Network. The intermediate and terminating switches may also perform LNP queries/processing. In addition, these switches may receive and process LNP information from the incoming CCS trunk protocol.

For carrier calls, the basic LNP feature does not allow the LEC (Local Exchange Carrier) to provide the LNP processing information to the carrier. An LNP query may be encountered in the translations, but the query will not occur, with the exception of the case where geographical portability is provisioned on the dialed NPA-NXX (Numbering Plan Area - Office Code). In either case, if the call is destined for a carrier, the FCI (Forward Call Indicator) is reset, and the LRN is not forwarded to the carrier. The carrier is responsible for providing its own LNP processing within its Toll Network.

LNP on LDP will also provide the ability to interwork correctly with the LDP feature, including interactions with the AIN/CIC (Advanced Intelligent Network/Carrier Identification Code) Table fields. LNP on LDP will also support the MINT (Multi-vendor Intra-Network Trunks) feature. A new LRN DAS (Digit Analysis Selector) has been added to the T-NSC (Terminating-Network Selection Code) for LRN analysis.

This feature is a secured featured (SFID (Secured Feature ID)303) that is being deployed as a 5E13 Software Update and for the BMI (Beginning Managed Introduction) of the 5E14 Software Release. The feature number for this feature is 99-5E-3837.

3. FEATURE ASSIGNMENT

For 5E13 and later, to enable this feature, the ACT fields for SFID 303 on the SFSYS form (5713-1 Record) must be set to "Y". And since SFID 303 is dependent upon SFID 174, the ACT field for SFID 174 must also be set to "Y" on the SFSYS form. For further information on SFID 174, see Division 2, Section 4A174 in the TG5 (Translation Guide 5).

The rules and procedures for provisioning LNP triggers for the LDP switch follow the same rules as for the local 5ESS Switch offering. The only additional provisioning requirement, is to allow TYPE CI CALL of

"INTER" (inter-LATA) on the LDIT, RDIT, and MLDIT forms where LNP triggers are provisioned. For LNP trigger assignments, the allowed types of Carrier Interconnect calls (TYPE CI CALL) now consist of : INTER, INTRA, NONCI, TOLL, COMP, PRIV, TCONF, and CONFL.

The 5ESS Switch Number Portability User's Guide (235-190-127) contains all the detailed information needed to provision LNP for the local 5ESS Switch, including LNP trigger assignment rules and LRN provisioning. This document also details LNP provisioning, as well as AMA (Automatic Message Accounting) provisioning rules for LNP.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
LDIT	5300-3	3	3C	9.3
LDPTNSC	5568	3	5BJ	8.53
MLDIT	5300-3	3	3C	9.15
RDIT	5300-7	3	3H	9.9
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

LDIT form (5300-3 Record) - The LDIT form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Modified data rules for the LNP TRIG NBR, PORTED IN, and the LNP TRIG NBR and PORTED IN fields in the CONFLICT RESOLUTION ENTRIES list.

LDPTNSC form (5568 Record) - The LDPTNSC form provides the capability for specifying or verifying a TNSC (Terminating Network Selection Code) and its associated DAS (Digit Analysis Selector), and screen index information. Modified data rules for the LNP TRIG NBR, PORTED IN, and the LNP TRIG NBR and PORTED IN fields in the CONFLICT RESOLUTION ENTRIES list. Also added a new field (LRN DAS).

MLDIT form (5300-3 Record) - The MLDIT form defines all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Modified data rules for the LNP TRIG NBR and PORTED IN fields.

RDIT form (5300-7 Record) - The RDIT form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request. Modified data rules for the LNP TRIG NBR, PORTED IN, and the LNP TRIG NBR and PORTED IN fields in the CONFLICT RESOLUTION ENTRIES list.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 303 (LNP on LDP) and SFID 174 (Basic LNP) set to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added data rule to the MINT SIG TYPE field.

5. GLOSSARY

AMA	<i>Automatic Message Accounting</i>
AIN	<i>Advanced Intelligent Network</i>
BMI	<i>Beginning Managed Introduction</i>
CCS	<i>Common Channel Signaling</i>
CIC	<i>Carrier Identification Code</i>

DAS	<i>Digit Analysis Selector</i>
DN	<i>Dialed Number</i>
FCI	<i>Forward Call Indicator</i>
ISDN	<i>Integrated Service Digital Network</i>
LATA	<i>Local Access Transport Area</i>
LDP	<i>Long Distance Platform</i>
LEC	<i>Local Exchange Carrier</i>
LNP	<i>Local Number Portability</i>
LRN	<i>Location Routing Number</i>
PANI	<i>Pseudo Automatic Number Identification</i>
PSAP	<i>Public Safety Answering Point</i>
MINT	<i>Multi-Vendor Intra-Network Trunks</i>
OLDP	<i>Originating LDP</i>
POTS	<i>Plain Old Telephone Service</i>
SS7	<i>Signaling System 7</i>
TG5	<i>Translation Guide 5</i>
T-NSC	<i>Terminating- Network Selection Code</i>

SEC. 4A304: NUMBER PORTABILITY - NON-CONTITIONAL TRIGGER FOR DID TRUNKS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-127 Number Portability User's Guide*.

SEC. 4A305: GLOBAL RECENT CHANGE INTERACTION WITH LASS AR

1. FEATURE DESCRIPTION

Available for the 5E11 and 5E12 Software Releases and BMI (Beginning Managed Introduction) for 5E13, the Global Recent Change Interaction with LASS AR feature is a Secured Feature (SFID 305). The feature number for this feature is 99-5E-4437.

This feature will provide the capability to update the ARALW (Auto Recall Allowed) lines by using GRC (Global Recent Change) views.

2. FEATURE ASSIGNMENT

The Global Recent Change Interaction with LASS AR feature is a secured feature. The ACT field for SFID 305 must be set to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 305 must be set to "Y" to enable the Global Recent Change Interaction with LASS AR feature.

SEC. 4A314: 5E ACCEPTANCE OF 1A WINK NPD AND ANI FOR 911 ROUTED CALLS

1. BACKGROUND

Prior to this feature, when a 1A ESS office that accepts 911 hand-off from another 1A ESS office is replaced by a 5ESS office, 911 calls could not be handed off to the new 5ESS office. This is due to the 1A ESS office using PSAP (Public Safety Answering Point) signaling for hand-off and the 5ESS office using CAMA (Centralized Automatic Message Accounting)/TSPS (Traffic Service Position System) signaling.

Some 1A ESS offices have a non-standard signaling between them to hand-off 911 calls between 1A ESS offices. In the office where the 911 call originates, a terminating trunk is translated as a PSAP; however, this trunk is connected to another 1A ESS office. When seized, this second 1A ESS office sends a wink, expects KP-I-ANI-ST, and delivers the call to a 911 PSAP within the second 1A ESS office. When a 5ESS office replaces one of these second 1A ESS offices, the closest signaling to what the first 1A ESS office expects is an E911 (Enhanced 911) TYPE DIRANI. This type expects a seizure, sends off-hook, expects KP-I-ANI-ST, and delivers the call to a 911 PSAP.

2. FEATURE DESCRIPTION

Available as a 5E12 Software Update and in the Beginning Managed Introduction of the 5E13 Software Release, the 5E Acceptance of 1A Wink NPD (Numbering Plan Digit) and ANI (Automatic Numbering Identification) for 911 Routed Calls feature is a Secured Feature using SFID (Secured Feature ID) 314. The feature number for this feature is 99-5E-4657.

This feature provides the 5ESS-2000 Switch use of PSAP signaling for 911 calls. For this type of signaling, a wink instead of an off-hook is provided to the 1A ESS office, and the 5ESS office waits for a KP-NPD-ANI-ST sequence instead of a KP-I-ANI-ST sequence. The NPD digit also needs to be converted into an appropriate I-digit.

For example, starting with an idle trunk, this feature expects a seizure. The feature responds with a wink. (Normally DIRANI trunks respond with an off-hook.) This feature then expects KP-NPD-ANI-ST. The NPD is used in PSAP signaling to convey what the area code is and also whether or not the call was default routed to the PSAP. Up to four area codes can be delivered to a PSAP using the following area code and default routing encoding:

NPD		
Area Code	Normal E911 Routing	Default E911 Routing
1	0	4
2	1	5
3	2	6
4	3	7

Therefore, if the NPD digit is 0, then normal E911 routing was used, and the 7-digit ANI is in area code 1. If the NPD digit is 6, then default routing was used, and the ANI is in area code 3.

This feature supports NPD 0 and NPD 4. If the NPD is 0 or 4, then the call identifies with the area code stored on the trunk group, and the call is delivered to the E911 PSAP with ANI. However, if the NPD is anything else, the call is delivered to the E911 PSAP without ANI. This feature does not support multiple area codes over the same incoming trunk group.

Only ISDN (Integrated Services Digital Network) and ACD (Automatic Call Distributor) PSAPs always return answer supervision when the 911 system answers. A CAMA PSAP only returns answer supervision when the FREE ANS field on the TKGRP form (5202 Record) is set to "Y" and the value in the E911 TYPE field on the TKGRP form is "1ANPD".

In order to handle 911 calls incoming to a 5ESS office from a 1A ESS office, this feature adds a new value of "1ANPD" as an allowable value for the E911 TYPE field on the TKGRP form. The "1ANPD" value indicates the non-standard PSAP type of signaling from a 1A ESS office to a 5ESS office. When activated, this feature processes 911 calls in the same way as the DIRANI case, except for sending a wink when the trunk is seized and an off-hook only when 911 answers.

3. FEATURE ASSIGNMENT

For 5E12 and later, to enable this feature, the ACT fields for SFIDs 61 and 314 respectively on the SFSYS form (5713-1 Record) must both be set to "Y".

After both Secured Feature IDs (61 and 314) have been set, the existing value in the E911 TYPE field on the TKGRP form can be changed to "1ANPD". When the E911 TYPE field displays "1ANPD", this feature is active.

See Figure 1 for provisioning form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 61 and 314 respectively on the SFSYS form to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). Added new value of "1ANPD" for the E911 TYPE field on the TKGRP form.

SFSYS Record 5713-1 Div. 3, Sec. 5AR
SFID 61 ACT = "Y" SFID 314 ACT = "Y"

|

TKGRP Record 5202 Div. 3, Sec. 2A
E911 TYPE = "1ANPD"

Figure 1 FORM FLOW FOR 5E ACCEPTANCE OF 1A WINK NPD AND ANI FOR 911 ROUTED CALLS

SEC. 4A315: INCOMING/OUTGOING Trunk Group USAGE COUNTS

1. FEATURE DESCRIPTION

The Incoming/Outgoing Trunk Group Usage Counts feature is available as a 5E13 Software Update. This feature provides the capability to accumulate incoming and outgoing trunk group usage counts. This information will appear in Section 12 of the TRFC30 report.

The feature number for this feature is 99-5E-4520. This is a secured feature controlled by SFID 315. In order to enable this feature, it must be purchased and activated using the SFSYS form (5713-1 Record).

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features for an entire 5ESS Switch or for selected switching modules. The ACT field on this form for SFID 315 must be set to "Y" to enable this feature.

SEC. 4A317: PACKET PIPE ENGINEERING ENHANCEMENTS

1. FEATURE DESCRIPTION

The feature number for the PPEE (Packet Pipe Engineering Enhancements) feature is 99-5E-7854. This feature is controlled by SFID (Secured Feature ID) 317 and is being deployed for the Beginning Managed Introduction of the 5E16 Software Release.

This feature increases the number of call legs carried by a PP (Packet Pipe). The PPEE feature can be activated on an office-wide basis. Similar to the packet pipe optimization, service providers must examine their office engineering and make any necessary PP and PH4 (Protocol Handler Version 4) adjustments before activating this feature to avoid potential overloading of FRPH (Frame Relay Protocol Handler). For service providers who choose to gradually reengineer their PPs and FRPHs, a CTS settable ODBE (Office Data Base Editor) flag is provided to disable the PP RC (Recent Change) provisioning checks. It is, however, the service providers' responsibility to reengineer the PPs and FRPH to avoid overloading the FRPH. This feature is supported on the FRPH based on the PH4.

Service providers can deploy this feature in the following two ways:

- Study their current PPS and PH4s, and reengineer them before turning on this feature.

- Deploy this feature and reengineer PPs over a period of time.

The following guidelines provide information on when service providers are to reengineer.

When RC view 5.8 (Verify Pktpipe Channel Group) displays MAX CALLS ALLOWED (i.e., maximum number of CEs that can be carried by the PPs terminating on the PH4) and TOTAL PROVISIONED (i.e., total number of CEs currently supported by PH4). If TOTAL PROVISIONED exceeds MAX CALLS ALLOWED, service providers should consider moving PPs to other PH4s or grow more PH4s. RC view 5.5 (Trunk Member) is used to do the reengineering. Since TOTAL PROVISIONED is more than MAX CALLS ALLOWED, an error is encountered while updating RC view 5.5. To resolve this error situation, an ODBE flag GLCP2DUMMY (bit 0 is used for the Packet Pipe Engineering feature and bit 2 is used for the Packet Pipe Engineering Enhancements feature) is provided. When bit 1 is set to "1", the error that could be encountered on RC view 5.5 is temporarily suppressed. This is accomplished by referring to the PPEE tables that allow for fewer call legs to calculate the TOTAL PROVISIONED instead of the PPEE tables. Regardless of whether the bit is on or off, RC view 5.8 always displays call legs corresponding to the PPEE table when the PPEE feature is on. When reengineering is complete, the bit 1 of GLCP2DUMMY has to be set to "0".

When RC view 5.8 displays MAX CALLS ALLOWED and TOTAL PROVISIONED calls regardless of whether or not the PPEE is activated. The total number of provisioned call legs is derived by adding the maximum number of call legs that can be carried by each PP that is assigned to the FRPH. This capability allows service providers to quickly verify whether a given FRPH is provisioned to handle less or more than the maximum allowed traffic on a FRPH.

2. FEATURE ASSIGNMENT

To activate this feature:

- set the ACT field for SFID 317 on the SFSYS form (5713-1 Record) to "Y".

on the CDMAOPT form (5599 Record), set the KEY field to "0" and the PPEE ACT field to "Y". (The PPEE ACT field is used by this secured feature, therefore when it is set to "Y", the ACT field for SFID 317 on the SFSYS form must also be set to "Y".)

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CDMAOPT	5599	8	80	8.75
SFSYS	5713-1	3	5AR	8.22

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access). Added the PPEE ACT field and related data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 317 to "Y".

SEC. 4A318: ORIGINATING SWITCH CALLING NAME

1. BACKGROUND

Currently in the United States, the Calling Name features (Analog Calling Name, 99-5E-0834, Calling Name for BRI (Basic Rate Interface), 99-5E-2264, and Calling Name for PRI (Primary Rate Interface), 99-5E-2295) provide a calling party name through a CNAM (Calling Name) TCAP (Transaction Capabilities Application Protocol) query (TR-1188) from the terminating switch to the CNAM SCP (Service Control Point). However, in Canada, the calling party name is available at the originator's switch and is sent through the network (via ISUP7 signaling for interswitch calls) to the terminating party where it can be displayed (assuming that the terminating user subscribes to Calling Name).

2. FEATURE DESCRIPTION

The Originating Switch Calling Name feature (99-5E-4684) is a secured feature that modifies the existing Calling Name features to allow an originating 5ESS-2000 Switch to provide a calling party name for each call origination (for which a calling number is available) and deliver this name to the terminating party. The name is obtained either from the switch based data or through a Calling Name TCAP query to a calling name data base. If the call is interswitch, the name is sent in the Generic Name parameter of the IAM (Initial Address Message), along with an indication of whether the name is "presentation allowed" or "presentation restricted". A calling name can also be received in a SETUP message from an originating PRI.

At a terminating 5ESS-2000 switch, when the calling name is received (in the Generic Name parameter), it is delivered to the terminating party, assuming that the terminating party subscribes to Calling Name Delivery and the name is indicated as "presentation allowed".

When the Originating Switch Calling Name feature is active, the calling name is sent with each call origination. The 5ESS-2000 Switch Calling Name feature expects to receive the name delivered from the originator (both intraswitch and interswitch) and if the name is present in the Generic Name parameter, a query is not made when the call is being delivered to the terminating party.

If the Generic Name parameter is received without a calling name or no Generic Name parameter is received, the terminating switch could attempt to retrieve the calling name through a CNAM TCAP query, provided all the necessary conditions are met (e.g., provisioned to do CNAM TCAP queries, terminating party subscriber to Calling Name Delivery, not blocked because of "presentation restrictions").

When the Originating Switch Calling Name feature is inactive, the Calling Name features work as they currently do, (i.e., no query when the call originates and a CNAM TCAP query when the call is being delivered to the terminating party) if the terminating party subscribes to CNAM.

There is also an EDS (Electronic Directory Service) feature that supplies calling name information for calls between members of the same BCID (Business Customer ID) group. EDS sends a terminating query (using the Lucent Technologies Attached Processor Interface message set) to an Attached Processor database. Where the EDS applies (same BCID) any calling name stored on the switch will be discarded and no CNAM TCAP query will be attempted; instead an EDS query will be attempted. However, for PRI and SS7 ISUP originations where the calling number is determined to be in the same BCID as the EDS subscriber, the received calling name will be used.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CNAM	5986	6	28A	4.65
LASSOP	5945	5	5F	8.21
SFSYS	5713-1	3	5AR	8.22

CNAM form (5986 Record) -The CNAM form allows calling names (corresponding to calling numbers) to be provisioned on the 5ESS-2000 Switch.

For more information on CNAM Analog Calling Name Delivery translation requirements for TCAP queries see Division 2, Section 4A40.

LASSOP form (5945 Record) -The LASSOP form is an ODA (Office Data Administration) input form that is used to supply global office options and parameters for the LASS features. The CNAM SRC field which is added is used to indicate whether the source for obtaining the calling name is from the SCP or from ODD stored locally on the switch.

SFSYS form (5713-1 Record) -This form is used to enable secured features. The ACT field for SFID 318 must be set to "Y" to enable this feature.

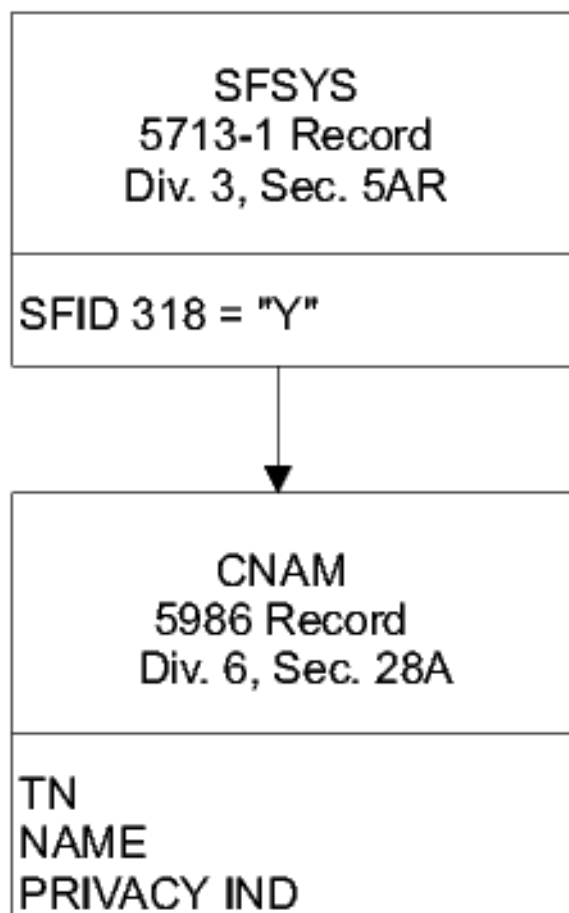


Figure 1 SCENARIO TO POPULATE ODD (OFFICE DEPENDENT DATA)

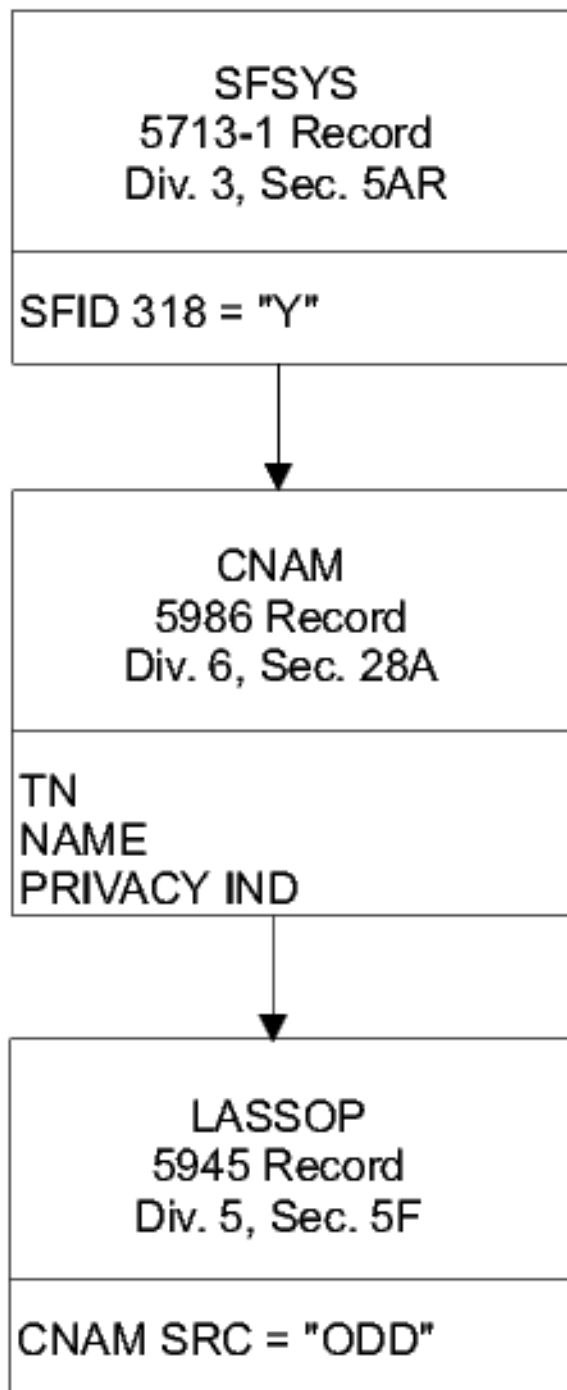


Figure 2 SCENARIO TO POPULATE ODD AND CHOOSE ODD FOR SOURCE OF DATA

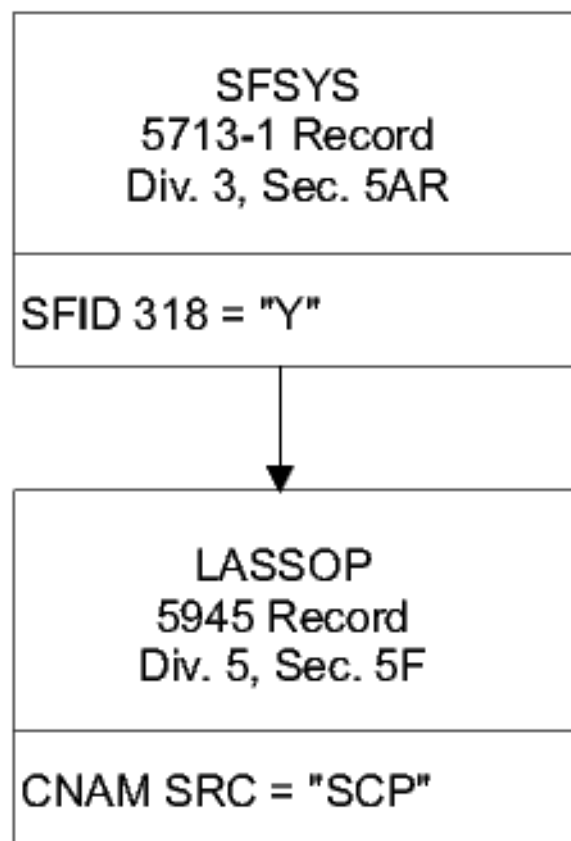


Figure 3 SCENARIO TO CHOOSE SCP FOR SOURCE OF DATA

SEC. 4A319: NP SERVICE PROVIDER PORTABILITY AMA ENHANCEMENTS II

1. BACKGROUND

The Illinois Number Portability Generic Requirements do not include the functionality to append an originating party LNP (Local Number Portability) module at a terminating network switch. For companies that record FG-D (Feature Group D Carrier Interconnect) terminating IXC (Inter Exchange Carrier) access records (Structure Code 615/Call Code 119), Connecting Network Access records (Structure Code 625/Call Code 720), or Cellular Mobile Carrier access records (Structure Code 625/Call Code 66 or 65), the ability to identify the originating network for the call, is critical to insure accurate and timely AMA (Automatic Message Accounting) record exchange between companies, for mutual compensation and to facilitate verification of meet-point billing, by the serving local provider. For non-portable numbers, the NPA-NXX (Numbering Plan Area-Office Code) of the calling party number can be used to derive this information. However, for ported originating numbers, the LRN (Location Routing Number) of the originating switch must be used for this identification.

Therefore, AMA access recordings made at a terminating network switch should include an originating party LNP module when the calling party number is ported. The originating LRN should be generated at the originating switch based on a line attribute and passed forward through SS7 (Signaling System 7) ISUP (ISDN (Integrated Services Digital Network) User Part) signaling via the JIP (Jurisdiction Information Parameter).

It should be noted that current Number Portability requirements call for the originating/forwarding switch's master LRN to be sent forward in an SS7 ISUP IAM (Initial Address Message) for all calls

originating/redirecting from an NP (Number Portability) capable switch and not just for calls from ported numbers. It is highly desirable that sending the originating switch's LRN in the JIP be cut back to only calls from actual ported originating lines or business groups.

2. FEATURE DESCRIPTION

The NP Service Provider Portability AMA Enhancements II feature is a Secured Feature (SFID 319) that is being made available as a Software Update to 5E11. The feature number for this feature is 99-CP-4388.A. This feature is applicable to the 5ESS-2000 Switch, 5ESS-2000 Switch CDX (Compact Digital Exchange), and 5ESS-2000 Switch VCDX (Very Compact Digital Exchange) in the LEC (Local Exchange Carrier) market.

The AMA function associated with this feature is the Originating Party LNP Module on Terminating Access Records. This function is aimed at terminating networks that need to perform settlements for mutual compensation with an interconnected network. In order to exchange AMA billing records for settlements, the identity of the serving originating network must be known. For a ported originating DN (Directory Number), the NPA-NXX of the originating number will not identify the true originating network.

When this function is active, attach an originating party LNP BAF (Bellcore AMA Format) module (MOD 720) to all terminating access records. For example:

- FG-B (Feature Group-B)
- FG-D (Feature Group-D)
- CNA (Connecting Network Access)
- CMC (Cellular Mobile Carrier) Type 2A or 2B

The LNP module should contain the LRN (at least the NPA-NXX digits) of the originating switch as received in the incoming SS7 JIP. If no JIP is received, then no LNP module will be generated for the originating party.

3. FEATURE ASSIGNMENT

To enable this feature, the ACT fields for SFID 199 and SFID 319 must be set to "Y" on the SFSYS form (5713-1 Record).

To turn on the generation of an originating LNP Module (720) for terminating access AMA records when a JIP is received in incoming signaling, the ACT field for OFID (Office Option ID) 724 must be set to "Y" on the FOSYS form (5713-2 Record).

4. TRANSLATION REQUIREMENTS

No new fields or data rules added for this feature.

5. GLOSSARY

AMA - Automatic Message Accounting
ASP - Advanced Services Platform
BAF - Bellcore AMA Format
CAMA - Centralized Automatic Message Accounting
CDX - Compact Digital Exchange
CMC - Cellular Mobile Carrier

CNA - Connecting Network Access
DN - Directory Number
FG-B - Feature Group-B Carrier Interconnect
FG-D - Feature Group-D Carrier Interconnect
IAM - Initial Address Message
ICC - Overseas International Control Central Operators
ISDN - Integrated Services Digital Network
ISUP - ISDN User Part
IXC - Inter Exchange Carrier
JIP - Jurisdiction Information Parameter
LEC - Local Exchange Carrier
LNP - Local Number Portability
LRN - Location Routing Number
MF - Multi-Frequency
MLHG - Multi-line Hunt Group
NLBF - National LNP Billing Forum
NP - Number Portability
NPA-NXX - Numbering Plan Area Office Code
OFID - Office Option Identification
PBX - Private Branch Exchange
PF - Private Facility
SM - Switching Module
SS7 - Signaling System 7
VCDX - Very Compact Digital Exchange

SEC. 4A320: FEATURE DEPLOYMENT VIA THE DATA SERVICES MODULE

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-145 OneLink Manager (TM) ASM User's Guide*.

SEC. 4A321: AMA RECORDING FOR RESALE AND UNBUNDLING

1. FEATURE DESCRIPTION

The AMA (Automatic Message Accounting) Recording for Resale and Unbundling feature is a secured feature (SFID 321) that is being deployed as a 5E12 and 5E13 Software Update and for 5E14 in the BMI (Beginning Managed Introduction) Software Release. The feature number for this feature is 99-5E-4482.

This feature provides additional billing information for resale and unbundled lines. The additional billing information includes records or modules for all originations and terminations to an RU (Resale or Unbundled) line. (Note: Resale lines are separate and distinct from Unbundled lines and only combined for simplicity. Where the treatment for each type is different, these differences will be noted.) Each line will be identified by a line attribute (resale, unbundled, or native) and office parameters will control the originating and terminating recording of AMA for each type of line.

It should be noted that the feature is not only applicable to analog lines, but to ISDN (Integrated Services Digital Network) lines, trunk groups, multiline hunt groups, and terminal groups as well.

1.1 Definitions

Context ID	an attribute on any facility that is marked native, resale, or unbundled.
Native	any line that has service provided by the Switch Owner and does not fall under the Resale or Unbundled category.
Resale	any line that is leased by another local service provider under the terms specified by a switch owner.
Unbundled	any line that is purchased by another local service provider under the terms specified by a switch owner. Unbundled is very similar to Resale. However, the two can have different billing arrangements between entities.
Service Group	the service groups defined in this feature are a group of facilities that have the same service such as a terminal (CENTREX (Centralized Telephone Communications Exchange Service)) group, multiline hunt group, PRI (Private Rate Interface), PBX (Public Branch Exchange), service groups, and multi-party lines.

The following table lists the new or existing call type codes or module codes used by this feature.

Call Type Codes and Modules			
Number	Type	Title	Description
125	Module	Timing	New Timing Module appended
126	Call Type	Originating	New Originating Call Type created when office option is set and no other AMA recording is otherwise created.
128	Call Type	Terminating	New Terminating Call Type created when office option is set and no other AMA recording is otherwise created.
338	Module	Service Provider	New Service Provider Information Module that for this feature will only contain information on the resale or unbundled status of the line.

The following table lists the office options associated with this feature. These options affect calls to/from RU lines that do NOT generate AMA call records based on the Charge Index. Any call or any activity involving an RU line that generates an AMA record should have the appropriate modules appended.

OFFICE OPTIONS		
IDENTIFIER	VALUES	DESCRIPTION
UO (Unbundled Originating)	YES/No	YES=Create Call Type Code 126 and append module NO=No Record Created (default)
UT (Unbundled Terminating)	YES/No	YES=Create Call Type Code 128 and append module NO=No Record Created (default)
RO (Resale Originating)	YES/No	YES=Create Call Type Code 126 and append module NO=No Record Created (default)
RT (Resale Terminating)	YES/No	YES=Create Call Type Code 128 and

		append module NO=No Record Created (default)
RUSC (Resale and Unbundled Structure Code Option)	YES/No	LONG(YES)=Use Structure Code 0001 SHORT(NO)=Use Structure Code 0500 (default)

The following table summarizes the operation of this feature when an AMA call record is normally generated or the office option is set to generate an AMA call record.

CONTEXT ID AND MODULES					
Call Type	Context ID	New Record*	Timing Module 125	LSPI Module 338 ***	Comments
Originating	Native**	No	No	No	No new recording done for native lines.
Originating	Unbundled	126	Yes	Yes	LSPI and Timing Modules.
Originating	Resale	126	No	Yes	No timing Module is required for Resale.
Terminating	Native**	No	No	No	No new recording done for native lines.
Terminating	Unbundled	128	Yes	Yes	LSPI and Timing Modules.
Terminating	Resale	128	No	Yes	No Timing Module is required for Resale.

*New Record is only created when no other AMA record is created for the call.

** An Intra-Switch call between a Native line and a Unbundled or Resale line will have records created and modules appended based on the Unbundled or Resale side of the call.

*** Any call or any activity from RU or to RU lines such as feature activation or deactivation should have the LSPI module appended.

2. FEATURE ASSIGNMENT

For 5E12 and later, to provision this feature:

- Set the ACT field for SFID 321 on the SFSYS form (5713-1 Record) to "Y".
- Activate Recording Options on the OFCOPT form (5509 Record) (RC/V (Recent Change and Verify) 8.1):
 - RO (Resale Origination) Recording option - Turn on the generation of AMA recording and appending of the EBAF (Extended Bellcore AMA Format) module for a call or activity from a resold line via ORIG RESOLD field.
 - UO (Unbundle Origination) Recording option - Turn on the generation of AMA recording and appending of the EBAF module for a call or activity from an unbundled service group member via ORIG UNBUNDLED field.
 - RT (Resale Termination) Recording option - Turn on the generation of AMA recording and appending of the EBAF module for a call or activity to a resold service group member via TERM RESOLD field.

- UT (Unbundle Termination) Recording option - Turn on the generation of AMA recording and appending of the EBAF for a call or activity from an unbundled line via the TERM UNBUNDLED field.
 - Activate long structure code RUSC (Resold/Unbundled Structure Code) option - Set RUSC to long via the UNBLD/RESLD SC field. The structure code 001 will be used with a forced AMA recording. The default structure code is 500.
- The resold or unbundled context identifiers can be assigned to any DN (Directory Number) associated with:
 - an Analog line via the LINE form (5109 Record) or MLHLN form (5111 Record) (RC/V 1.6 and 1.8)
 - ISDN BRI (Basic Rate Interface) user via the SHTN form (5902 Record) (for secondary only) (RC/V 23.20), or the DSLUSR form (5908 Record) (RC/V 23.2 and 23.8)
 - Terminal Groups via the TGATTD form (5611 Record) (RC/V 4.4), and Trunk Groups via the TKGRP form (5202 Record) (RC/V 5.1).
 - Multiline Hunt Group via the MLHG form (5110 Record) (RC/V 3.5).
 - All the party lines that share the same port should have the same value for context identifier, however, this rule will not be enforced by RC or ODA (Office Data Administration System).
 - This feature does not support Packet or On Demand B Channel TNs (Telephone Numbers).
 - For Lines assigned the 1TN-LTSB (1TN - Line Time Slot Bridging) feature, all ports (both non-lead and lead) must have the same context identifier value. This also is not being enforced by RC or ODA.

The following table gives the call processing precedence of CONTEXT IDs which are not "N" (5E12 and 5E13), or "NATIVE" (5E14).

CONTEXT ID not N/NATIVE	Overrides
Group	Members
Terminal Group	MLHG

There are variations in the CONTEXT ID based upon generics:

Valid CONTEXT ID Entries	
5E12 and 5E13	5E14
N	NATIVE
R	RESOLD
U	UNBUNDLED

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2
LINE	5109	3	1I	1.6
MLHG	5110	3	1J	3.5
MLHLN	5111	3	1K	1.8
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22
SHTN	5902	5	1C	23.20
TGATTD	5611	4	12A	4.4

TKGRP	5202	3	2A	5.1

DSLUSR form (5908 Record) - The DSLUSR form defines the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form. Added the CONTEXT ID field.

LINE form (5109 Record) - The LINE form defines the office Equipment Number and features for each telephone number in a 5ESS Switch. Added the CONTEXT ID field.

MLHG form (5110 Record) - This form is used to define a Multi-Line Hunt Group. Added the CONTEXT ID field.

MLHLN form (5111 Record) - The MLHLN form defines the individual Terminal Numbers assigned to a particular Multi-Line Hunt Group. Added the CONTEXT ID field.

OFCOPT form (5509 Record) - The OFCOPT form supplies various miscellaneous office options and parameters. Added the ORIG UNBUNDLED, ORIG RESOLD, TERM UNBUNDLED, TERM RESOLD, and UNBLD/RESLD SC field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the AMA Recording for Resale and Unbundling feature, the ACT field for SFID 321 must be set to "Y".

SHTN form (5902 Record) - The SHTN form assigns a Primary or Secondary TN or MLHG/TERM to ISDN Terminals. A telephone number which appears on more than one terminal is called a Shared TN or MLHG/TERM. Shared TNs or MLHG/TERMs are divided into Primary and Secondary TNs or MLHG/TERMs. Added the CONTEXT ID field.

TGATTD form (5611 Record) - This form is used to define information (such as attendant DN, Source Billing, and SDN DAS) on a Terminal Group basis. Added the CONTEXT ID field.

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form. Added the CONTEXT ID field.

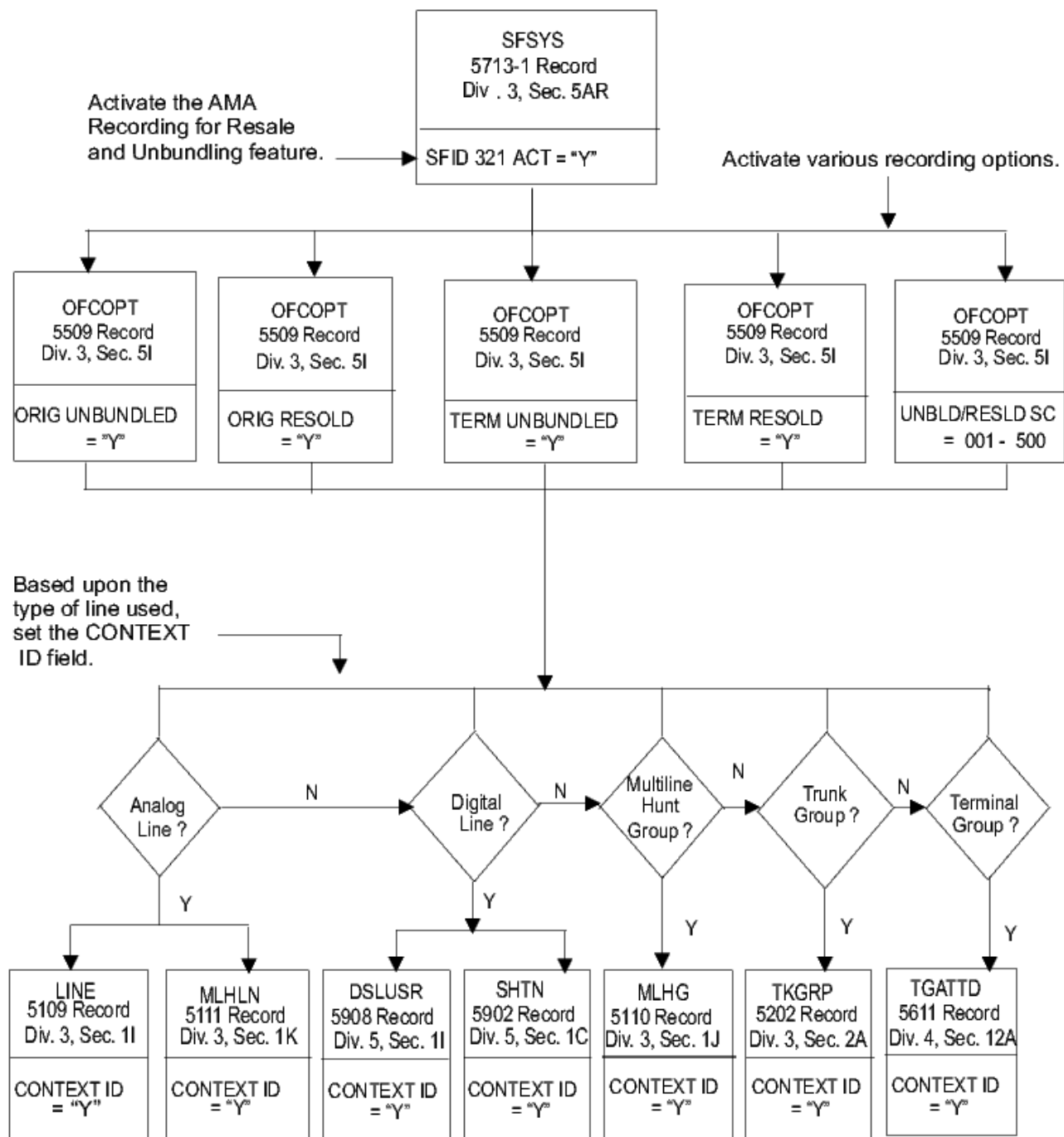


Figure 1 FORM FLOW FOR AMA RECORDING FOR RESALE AND UNBUNDLING

SEC. 4A322: Recent Change Front End to the ASM (Administration Services Module)

1. FEATURE DESCRIPTION

Available with 5E13 and later Software Releases, the RC (Recent Change) Front End to ASM feature (99-5E-4095) enables processing for the following RC applications on the ASM:

RC text interface (APPTXT)

RC menu interface (APPRC)

RCOS interface (RCmacctl)

This provides increased RC throughput and faster response time for users executing these applications on an ASM.

This feature is secured with SFID (Secured Feature ID) 322. The ASM Base feature is required in order to apply this feature. The ASM Base feature is secured by SFID 297. Information regarding the ASM Base feature, SFID 297, can be found in Division 2, Section 4A297.

2. FEATURE ASSIGNMENT

This feature cannot be assigned using ODA. Assignment can only be done by setting ACT to "Y" for SFIDs 322 and 297 using Recent Change.

3. TRANSLATION REQUIREMENTS

There are no ODA translation requirements for this feature.

SEC. 4A324: LISTING SERVICES - INTERNATIONAL DA

1. FEATURE DESCRIPTION

The LS (Listing Services) - International DA (Directory Assistance) feature is a secured feature (SFID 324) using feature number 98-5E-4562. This feature is being deployed on the 5ESS Switch in a 5E12 Software Update.

This feature expands the existing LSCC (Listing Services Call Completion) with SS7 (Signaling System 7) Redirection features to allow the international listed number to be handled properly by the OSPS-TA (Operator Services Position System-Toll and Assistance) and the OSPS-LS (OSPS-Listing Services) for IDA (International Directory Assistance) and IDACC (International Directory Assistance Call Completion) calls. Changes are made to the handling of these calls in both OSPS-TA and OSPS-LS environments.

1.1 Call Processing Impact

There is no impact on Call Processing until the Listing Services - International DA feature is activated.

1.2 LS International DA Feature Treatment - OSPS-TA Office

This section describes the LS International DA feature treatment provided to IDA and IDACC calls handled in an OSPS - TA office.

1.2.1 Feature Activation

OSPS provides an activation parameter to control the application of LS International DA feature treatment within an OSPS-TA office. In addition, three new parameters are added to the DACCTRT form (6412 Record) to support this feature (see the TRANSLATION REQUIREMENTS section).

NOTE: The National DA 00 - LSCC with SS7 Redirection feature must be active before this feature

can be activated.

1.2.2 Call Completion to an International Number

On an OSPS originated call in which the caller has accepted the call completion offer provided in the OSPS-LS office, call completion takes place at the OSPS-TA office. The international listed number to which call completion takes place is passed from OSPS-LS to OSPS-TA in a Release Message with instructions for Re-route to New Destination (i.e., call completion). The NATURE OF ADDRESS field is set to differentiate NANP (North American Numbering Plan) from international destination numbers.

OSPS-TA extracts the listed number from the message, considering the number to be the forward number for the call completion call. When OSPS-TA receives a Release Message with instructions for Re-route to New Destination, validation of the call to the listed number is performed using automated sequence call handling treatment.

When a forward number or billing number error is encountered on an IDACC call, OSPS-TA routes the call to the operator. This ensures that the caller has access to the listed number in the event that the listed number was not saved by the caller because the call completion offer was accepted.

1.3 LS International DA Feature Treatment - OSPS-LS Office

This section describes the LS International DA feature treatment provided to IDA and IDACC calls handled in an OSPS - LS office.

1.3.1 Feature Activation

OSPS provides an activation parameter to control the application of LS International DA feature treatment within an OSPS-LS office.

1.3.2 Receipt of an LAC or Normal Transfer Request CPDL Message

This feature allows the OSPS-LS to accept international listed numbers via an LAC (Listing Access Complete) or a transfer request CPDL (Call Processing Data Link) message. These numbers are differentiated from NANP listed numbers by a leading zero prepended to the listed/referral number.

1.3.3 Receipt of a Foreign DA Operator Transfer Request CPDL Message

This feature allows the OSPS-LS to accept a new foreign DA operator transfer request CPDL message. A new Ring/No Answer timer module 821 is appended to the normal transfer request CPDL message to allow for the OSPS-LS MECH (More Efficient Call Handling) IDA capability.

The OSPS-LS MECH IDA capability builds upon the existing OSPS-TA MECH capability to provide a means of saving IDA operator work time on IDA calls that require a foreign DA operator to be accessed to retrieve listing services.

This capability is required for those listing searches requiring that a foreign DA operator be accessed. This capability releases the DA operator until OSPS receives an answer, a busy signal via SS7, or encounters a routing problem for which the OSPS receives an explicit indication (i.e., not network announcements) or until the Ring/No Answer timer expires (assuming the timer had been requested with a non-zero value in the Ring/No Answer timer module).

NOTE: It is strongly recommended that the Ring/No Answer timer module 821 in the foreign DA operator transfer request CPDL message contain a non-zero Ring/No Answer timer value. In the

presence of certain features in other network elements, it becomes possible that no other network element may be monitoring the duration of an unanswered call. If the OSPS's monitoring is not enabled by receiving a non-zero value for the Ring/No Answer timer, then the call could be allowed to continue indefinitely without ever completing.

1.4 Announcements

There are five new announcements associated with this feature. They are:

Announcement 384 - The OSPS-TA plays this announcement to reprompt the caller for a card number if the PL card is not allowed for the dialed DA destination number.

Announcement 385 - The OSPS-TA plays this termination announcement and disconnects the call on the last attempt if the PL card is not allowed for the dialed DA destination number.

Announcement 386 - The OSPS-LS plays this announcement after receiving a foreign DA operator transfer request CPDL message to inform the caller to hold for a foreign DA operator.

Announcement 387 - The OSPS-LS plays this announcement if there is no available MECH IDA conference operator(s) after the foreign DA operator answers the call.

Announcement 388 - The OSPS-LS plays this announcement to inform the foreign DA operator to hang up if the back party goes on-hook before a MECH IDA conference operator is available and the foreign DA operator still remains off-hook.

2. FEATURE ASSIGNMENT

For 5E12 and later, to activate this feature, the ACT field for SFID 324 on the SFSYS form (5713-1 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DACCTRT	6412	3	4DK	27.88
FTPARM	6424	3	4DY	8.41
SFSYS	5713-1	3	5AR	8.22

DACCTRT form (6412 Record) - This form is used for specifying data for CICADA call completion. For 5E12 and later, the DIOR DACC ALLOW field and related data rule, and the PL CARD ALLOW and RTRS INTL IND fields were added to support this feature.

FTPARM (6424 Record) - This form is used for specifying, updating and/or verifying OSPS options. For 5E12 and later, the INTL DA TA ACT and INTL DA LS ACT fields and related data rules were added to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 324 to "Y".

4. GLOSSARY

CPDL Call Processing Data Link

DA Directory Assistance

IDA	International Directory Assistance
IDACC	International Directory Assistance Call Completion
LAC	Listing Access Complete
LS	Listing Services
LSCC	Listing Services Call Completion
MECH	More Efficient Call Handling
NANP	North American Numbering Plan
OSPS	Operator Services Position System
SS7	Signaling System 7
TA	Toll and Assistance

SEC. 4A325: CITY CODE ROUTING ON INTERNATIONAL CALLS

1. BACKGROUND

The providers for the City Code Routing on International Calls feature are long distance providers who pass off international calls to other carriers. These providers currently have the ability to route international calls to other carriers based on the country code. These providers are tied to a single carrier for the whole country, even though other carriers offer more compatible rates on a city basis.

Long distance service providers need the ability to route international calls not only based on the country code but also on the city code. The long distance provider passes international calls to other carriers. The 5ESS Switch, therefore, must provide the capability to route to a different trunk group or gateway based on the country code and city code combination.

2. FEATURE DESCRIPTION

Feature 99-5E-4727, City Codes Routing on International Calls, was developed to address the above needs and was issued to the service providers in 5E12 and 5E13 Software Release. That feature provided the functionality that the service providers desired. In order to allow provisioning of international calls, the LDIT form was modified as a temporary implementation.

The IDDD City Code Routing Enhancement feature (99-5E-7285) introduced an easier implementation for the country code/city code routing needs. It provides the same functionality as the original City Code Routing feature (99-5E-4727), but provisioning is done on the IDDD form (5307 Record) rather than the LDIT form. The IDDD form has always had the country code key, and for the City Code Routing Enhancement feature the new city code key was added.

There are three major advantages to using the new feature:

- The provider can use the IDDD form as they are used to doing for international provisioning.

- The provisioning is simplified; one IDDD form instance replaces the need to enter multiple Conflict List

entries on the LDIT form.

The IDDD keys explicitly show the prefix (01 or 011), country code, city code, whereas on the LDIT form these fields are provisioned as one long digit string. For example, to provision a prefix of 011, a country code of 345, and a city code of 6789 on the LDIT form, the digit string key entered on the LDIT form is 0113456789. The LDIT office record likewise will print 0113456789. There is nothing on the office record to distinguish which digits are the prefix, which digits are the country code and which digits are the city code digits. However, the IDDD form and the office record have separate fields for the prefix, country code and city code.

2.1 City Code Routing on International Calls

The City Code Routing on International Calls feature is deployed on the 5ESS Switch in a Software Update for the 5E12 Software Release and in the Beginning Managed Introduction of 5E13 Software Release. The feature number for this feature is 99-5E-4727. This feature is controlled by SFID (Secured Feature ID) 325.

This feature allows the long distance providers to route international calls based on the city code, in addition to the country code. The service providers are able to select the lowest cost carrier to the specific city within the country.

The functionality provided by this feature is transparent to the end users, business or residential customers. The end users utilize international dialing plans currently provided by their long distance carriers.

The long distance provider uses the LDIT (Local Digit Interpreter Table) form (5300-3 Record) to build IDDD (International Direct Distance Dialing) conflict entries to provide the ability to translate on both country code and city code. The IDDD form (5307 Record) is used for IDDD translations, but prior to feature 99-5E-7285 is restricted to country codes only. The LDIT form (5300-3 Record) is enhanced by adding IDDD translations without removing any existing functionality.

Note that the IDDD form (5307 Record) is still used for setting up data for countries not requiring further city code delineation.

2.2 IDDD City Code Routing Enhancement

The IDDD City Code Routing Enhancement feature is deployed on the 5ESS Switch in 5E14FR3 (Feature Release 3) Software Release and in the Beginning Managed Introduction of 5E15 Software Release. The feature number for this feature is 99-5E-7285. This feature is controlled by SFID (Secured Feature ID) 325. Both the base feature 99-5E-4727 and the enhancement feature 99-5E-7285 share the same SFID 325. If the service providers have already purchased the base feature (99-5E-4727), which shares the same SFID 325, they are allowed to provision the IDDD City Codes Enhancement. If the special provisioning is not done, turning SFID 325 ON results in the routing of international calls either as provisioned for the City Codes Routing feature (99-5E-4727) or as provisioned on the IDDD form, with just the country code. Using the same SFID ensures that both features (99-5E-7285 and 99-5E-4727) are compatible and can coexist. The original feature uses LDIT form Conflict Tables to provision the City Codes.

The City Codes Routing Enhancement feature adds a fourth, optional key field to the IDDD form (5307 Record). The CITY CODE key field gives the service provider the capability of creating routing translations with a finer degree of granularity than the Country Access Code provides today. By extending the translated digits strings beyond the Country Access Code, different routes can be provisioned for different cities within a country. This feature provides the capability to allow service providers to provision and route international calls based on the country and city code via the IDDD form.

Service providers who entered City Code translations using the LDIT form Conflict Entries are not able to read or update those translations using the IDDD form with this feature. Likewise, City Code translations entered from IDDD form with this feature are not readable or cannot be updated from the LDIT form. However, both types of translations can coexist in an office, and call processing is able to route calls using data inserted from either form.

Because of the previously stated advantages of the IDDD form, the provider is encouraged to provision City Code translations via feature 99-5E-7285.

3. FEATURE ASSIGNMENT

3.1 For City Code Routing for International Calls Feature:

1. The ACT fields for SFIDs (Secured Feature ID) 325 and 223 on the SFSYS form (5713-1 Record) must be set to "Y".
2. At least three IDDD conflict rows via the LDIT form (5300-3 Record) must be populated in the following manner:

On Screen 1

LDIT must be set to any LDIT used for IDDD.

INCOMING DIGITS must be set to 01/011 + country code/city code. The string must contain 01 or 011 and at least the country code. To utilize per city based routing, the city code must be included here as well. For example, when the country code is 89 and the city code is 204 INCOMING DIGITS must be 01189204.

CALL TYPE must be set to "CONFLCT".

NBR OF DIGITS must be blank.

PREFIX must be blank.

The rest of the fields on Screen 1 should not be populated.

On Screen 3-10

NBR DIG can be 1 - 18 if feature IDDD15 (SFID 223) is active in the office, otherwise it must be 1 - 15. Conflict rows must be entered with consecutive number of digits, allowing no gaps.

CALL TYPE must be set to "IDDDSTS".

RDIT must be blank.

CI TYPE must be set to "IDDD".

CDI, DESEP, RTI are set to office specific data.

All data in the conflict rows, except for the NBR DIG, must be the same.

3.2 For IDDD City Code Routing Enhancement Feature:

1. The ACT field for SFID (Secured Feature ID) 325 on the SFSYS form (5713-1 Record) must be set to "Y".
2. The following restrictions exist for this feature:

If the CITY CODE is entered, there must also be another IDDD form having the same keys LDIT, IDDD PREFIX, and COUNTRY ACCESS CODE, but blank for CITY CODE. Note, that when the COUNTRY ACCESS CODE without the CITY CODE is inserted first, the COUNTRY ACCESS CODE only translation acts as the default route for all calls to the country which are not destined to one of the specified CITY CODE routes.

The CALL TYPE must be "IDDDSTS" or "IDDDTSP" when CITY CODE is entered.

The TYPE CI CALL must be "IDDD" when CITY CODE is entered.

4. TRANSLATION REQUIREMENTS

4.1 For City Code Routing for International Calls Feature:

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
LDIT	5300-3	3	3C	9.3
SFSYS	5713-1	3	5AR	8.22

LDIT form (5300 Record) - The 5300-3 and 5300-5 Records are used to define all area, office and service codes (NPA, NXX, X11) in a 5ESS Switch. Any code from one to fifteen digits in length may be defined. The LDIT serves as both a "local" and "foreign" area translator.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 325 and 223 to "Y".

4.2 For IDDD City Code Routing Enhancement Feature:

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
IDDD	5307	3	3T	9.6
SFSYS	5713-1	3	5AR	8.22

IDDD form (5307 Record) - The 5307 Record is used for IDDD (International Direct Distance Dialing) Country Access Codes. IDDD provides the capability for Direct Distance Dialing points outside the North American Network by the customer without the assistance of an operator. For 5E14 and later, the CITY CODE field was added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 325 to "Y".

SEC. 4A326: NUMBER PORTABILITY - OFFICEWIDE RESERVED MARKETING

1. FEATURE DESCRIPTION

The feature number for the Number Portability - Officewide Reserved Marketing feature, formerly called the

Number Portability - Cause Code 26 Error Suppression feature is 99-CP-4826. This is a secured feature (SFID 326) which is deployed as a Software Update for 5E12 and 5E13 Software Releases and for the BMI (Beginning Managed Introduction) of the 5E14 Software Release.

This feature is dependent on the NP (Number Portability) - Basic LRN (Location Routing Number) feature (99-CP-3169).

This feature provides an optional capability for inhibiting a call failure treatment for an ISUP (ISDN User Part) ANSI (American National Standards Institute) Cause Code 26 set code when a call with a Home LRN is routed to an unallocated number. Cause Code 26 is a set code in an ISUP REL (Release) message when a call is directed to a switch through its LRN; however, the DN (Directory Number) in the GAP (Generic Address Parameter) of the IAM (Initial Address Message) does not exist on the switch. This is part of the SS7 (Signaling System 7) release procedure to notify the network that a database mismatch has occurred. With this capability, a call receives unallocated number treatment, and the switch does not send an ANSI Cause Code 26 set code. In the number-pooling environment, the suppression of Cause Code 26 may be used to allow the local exchange carrier to correctly process a disconnected DN.

The default treatment for this option is to follow the treatment prior to the Number Portability feature. Previously, with the initial offering of the Number Portability - Basic LRN feature, SFID 174, 99-CP-3169A, the switch sends a Release message with an ANSI Cause Code 26 set code when an LRN-routed call routes to a directory number that is unallocated. The use of LRN routing to provide a solution to the number-pooling issue causes provisioning complexities not normally experienced when number pooling is not in use in the network. As an example, in the number-pooling environment, the NPA-NXX owner (code holder) may only be allowed to allocate a set of numbers in a specified range (for example, 5000 through 5999). This range is called the "block", and the service provider is called the "block holder".

The remaining portion of the NPA-NXX's 10,000 numbers may be allocated by other service providers. The provisioning difficulty comes when non-native NPA-NXXs are allocated to a block holder. All calls to non-ported numbers in the block are routed via the LRN to the block holder. If the number is truly unallocated, the switch should give the caller an unallocated number treatment. The switch can provide this function through the DN or Hundreds Group assignment of a RI (Route Index) to an unallocated number route.

The other portion of the NPA-NXX that is not part of the block is expected to receive the REL ANSI Cause Code 26 treatment, and those numbers are routed to Blank Number. Even though the switch can support what the subscriber needs, the provisioning process is a significant change to the current SOP (Service Order Process). To make matters more complex, when a subscriber within the block parts from the block holder, this subscriber should receive unallocated number treatment. All of these options make the service order flow very complex.

Number Portability calls that result in a ISUP Release Cause Code 26 can now be routed to a fixed route PFXREQD (5E11 SU), or a new fixed route MISRLRN (5E13), in an originating 5ESS Switch or intermediate 5ESS Switch. If the PFXREQD fixed route is not populated, then the call is routed to a fixed route REORDER. The fixed route PFXREQD, is an unused fixed route type in the 5E11 Software Release; it has been renamed MISRLRN in the 5E13 Software Release. In order to provide a specific announcement for Cause Code 26, FIXRT form (RC/V View 10.1) is used to populate an RTI (announcement route index) to be associated with Cause Code 26 and misrouted calls to ported numbers.

2. FEATURE ASSIGNMENT

To provision this feature:

- Since this feature is dependent upon the feature (SFID 174), it must first be activated by setting the ACT fields for SFID 174 and SFID 326 on the SFSYS form (5713-1 Record) to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FIXRT	5301-1	3	3G	10.1
SFSYS	5713-1	3	5AR	8.22

FIXRT form (5301-1 Record) - This form is used to define Routing and Charging treatment of Fixed Route Types.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for both SFID 174 and SFID 326 to "Y", respectively.

SEC. 4A327: ADSI ACKNOWLEDGMENT TIMER OPTIONAL VALUE

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions*.

SEC. 4A328: Support for AMADNS Billing Interface Phase 1

1. FEATURE DESCRIPTION

The feature number for the Support for AMADNS (Automatic Message Accounting Data Networking System) Billing Interface Phase 1 feature is 99-5E-4757. This is a secured feature (SFID 328) that is being deployed as a Software Update for 5E12 and 5E13 Software Releases and for the BMI (Beginning Managed Introduction) of the 5E14 Software Release.

This feature is dependent on the ASM features, 99-5E-4327 and 99-5E-4728 being installed and active on the switch. These features provide an adjunct processor, the ASM (Administrative Service Module) that communicates with the 5ESS-2000 Switch AM (Administrative Module) over a high-speed Dual Serial Computer Interface. This feature requires the ASM. The ASM requires that the 5ESS-2000 Switch AM to be a 3B21 processor.

In order for this feature to be activated, the ASM Base feature (99-5E-4327) (SFID 297) must also be active on the switch.

This feature (99-5E-4757) provides high speed transfer of billing records from the AM to the ASM and support for the AMADNS data server application on the ASM. This feature provides shorter polling times and supports sender-initiated (switch-initiated) as well as receiver-initiated (host collector-initiated) polling.

This feature utilizes a new data link for AMA (Automatic Message Accounting). The new data link, downloads the data much faster using increased bandwidth and a more efficient protocol. The data link is a 10 Mb Ethernet link located on the ASM. Once this feature is activated, the billing data will no longer be available in AMATPS (AMA Teleprocessing System) format from the datalink on the AM. The billing data will be available in AMADNS file format from the TCP/IP (Transmission Control Protocol/Internet Protocol) ethernet link on the ASM. Once AMADNS is turned on, all primary billing data is sent to the ASM and stored in files using the AMADNS file formats on ASM disk. All host collectors must switch over to the AMADNS file transfer protocol as per Telcordia AMADNS Standard GR-1343-CORE, to receive billing data. BAF (Telcordia Technologies AMA Format) is supported for the formatting of individual AMA records regardless of AMADNS or AMATPS.

When AMADNS billing is active, AMA records are sent by the SMs to the AM as soon as the calls terminate and the records are created. The reliability of AMA data will not be compromised. Therefore, AMA data from creation in the SMs to storage on disk in the AM does not change. The AMA records are then stored in the AMA partitions on the AM disk. The AMA data is continuously polled from the AM by the ASM and transferred over the DCI (Dual Serial Channel Computer Interconnect) link. Upon receiving AMA data from the AM, the ASM sends an acknowledgement to the AM indicating that the data was successfully transferred to the ASM. Then the data is changed from primary to secondary on the AM disks. On the ASM, the data is stored as primary data in the AMADNS files.

AMADNS Data Server/Data Processing and Management System DDI (Data Server/Data Processing Management System Interface) protocol is used to transmit the files off the ASM. The files are considered primary until successfully transferred off the switch. After a successful transfer, they are marked as secondary on the ASM. If the customer is using receiver-initiated transfer, the AMADNS files remain as primary data in the ASM until requested by the Host Collector (also known as Data Manager). The AMADNS generic terminology for a Host Collector is a Data Processing Management System. For sender-initiated, the AMADNS files are created and transmitted to the downstream Host Collector as soon as the AMADNS file is triggered by a user settable parameter (for time or size). With the sender-initiated option AMADNS billing files can be sent to the Host Collector in less than 5 minutes after the call gets terminated. The files are sent over the Ethernet link using DDI over FTP (File Transfer Protocol) over TCP/IP. From the Host Collector, the data can be directed to the Billing Center. Repolling is supported for sender and receiver-initiated, but only on data marked secondary.

The throughput of the DCI link between the AM and the ASM is at least 150 kilobytes per second. This throughput is a tremendous improvement over the actual 5-6 kilobytes per second throughput on the 56 kilobit (7 Kbyte) link. Polling sessions can be reduced from hours to minutes. If the Ethernet link is down, the customers can copy the AMADNS files from the ASM disks to DAT tape (tapes cannot be written from the AM) or wait until the link is back in service. If the ASM is down, records continue to be stored on the AM disks until the DCI link to the ASM is reestablished. Once the link is back up the collected billing data is immediately transmitted to the ASM. In no case will AMA data be lost. As the AM disk storage does not change, engineering rules and capacities of the AM disks do not change. The ASM disks are partitioned to store a minimum of 2.5 GBs of data, primary and secondary.

The user defined data link from the Host Collector to the Ethernet hub attached to the ASM can be dial-up.

Sender-initiated transfer of data requires a link to the Host Collector that is always available. Therefore, service providers wishing to activate this option must have Ethernet connection from the ASM to the Host Collector.

2. FEATURE ASSIGNMENT

To provision this feature:

- Since this feature is dependent upon the ASM Base feature (SFID 297), it must first be activated by setting the ACT field for SFID 297 on the SFSYS form (5713-1 Record) to "Y".
- The Support for AMADNS Billing Interface-Phase 1 feature can only then be activated by setting the ACT field for SFID 328 to "Y".
- On the OFCOPT form:
 - Set the AMADNS ACTIVE field to "Y" .
 - Set the AMA METHOD field to "AMATPS" or "AMATPS1".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5i	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to define miscellaneous office options and parameters. For 5E12 and later added a new field, AMADNS ACTIVE.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for both SFID 297 and SFID 328 to "Y", respectively.

SEC. 4A330: TANDEM TO TANDEM E911

1. FEATURE DESCRIPTION

The Tandem to Tandem E911 feature is a secured feature introduced as a Software Update in 5E12 and requires that SFID 330 ACT field on the SFSYS form (5713-1 Record) be set to "Y" to activate this feature on the switch. The feature number for this feature is 99-5E-4732.

The Tandem to Tandem E911 feature provides the ability to support the transmission of information that is pertinent to an E911 (emergency) or a direct dialed PSAP call from the originating E911 tandem switch to the terminating E911 tandem switch via SS7 (ISUP7) signaling. The types of calls that require transmitting this information include:

- Emergency (911 dialed) calls that originated in a wireline network,
- Direct dialed (anonymous) calls (caller dials PSAP DN (Directory Number)) that originated in a wireline network,
- Emergency calls that originated in a wireless network,
- Direct dialed calls that originated in a wireless network.

There are no changes to the way the Tandem to Tandem E911 feature will handle origination or routing of the call. This feature covers what happens when:

the call is transferred by a PSAP to a PSAP served by another E911 tandem switch,

the call is forwarded by means of Call Forwarding to another E911 tandem switch,

or, through means of default routing, alternate routing, certain cases of selective routing or transfer, the call is routed to another E911 tandem switch.

For all cases, the information which was received by the originating E911 tandem switch should be preserved so that it can be passed on to the terminating E911 tandem switch.

This feature assumes there is a direct connection between the 5ESS E911 tandem switches. The signaling used over the trunk group is SS7. The outgoing SS7 trunk group on the Originating E911 tandem switch

should have a class of service of either LTOLLCON or TTOLLCON. This feature applies only for non-carrier calls which are defined to be calls which do not contain a TNS (Transit Network Selection) (carrier code).

The incoming SS7 trunk group at the terminating E911 Tandem will have a class of service of LTOLLCONN or TTOLLCONN, and will be defined as a new type of dedicated E911 trunk group.

For an E911 call, when the terminating E911 tandem queries the ESA and the ESN is returned, the DN carried in the CdPN IAM parameter will be used as the Primary PSAP DN, instead of the DN associated with the ESN, to route the call. This will prevent the E911 call from routing back to the first PSAP on the originating E911 tandem. All other information retrieved as part of the data associated with the ESN will be used as is currently done.

There are no changes on how to send a query to the ESA. If the Wireless E911 feature (99-CP-4543) is active in the office and the call is a wireless origination, then the MDN (Mobile Directory Number) and pANI (pseudo ANI) will be used as part of the query. The pANI provides information on the geographic location of the wireless caller. This feature does not alter how the interface to the ESA works.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for Tandem to Tandem E911 feature.

2.1 Activation of the Feature

Since Tandem to Tandem E911 feature depends on the Enhanced E911 feature (SFID 61), (for more information on this feature see Division 2, Section 1BD) SFID 61 must first be activated. The Tandem to Tandem E911 feature is enabled by setting the ACT field for SFID 330 on the SFSYS form (Record 5713-1) to "Y".

To implement the Tandem to Tandem E911 functionality at the terminating E911 tandem switch, the E911 TYPE field on the TKGRP form (Record 5202) must be set to "TNDM_TNDM".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to enable secured features. Since the Tandem to Tandem E911 feature depends on the Enhanced 911 feature, SFID 61 must first be activated. The Tandem to Tandem E911 feature can then be enabled by setting the ACT field for SFID 330 to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group on the 5ESS-2000 Switch. The enumeration "TNDM_TNDM" was added for the E911 TYPE field.

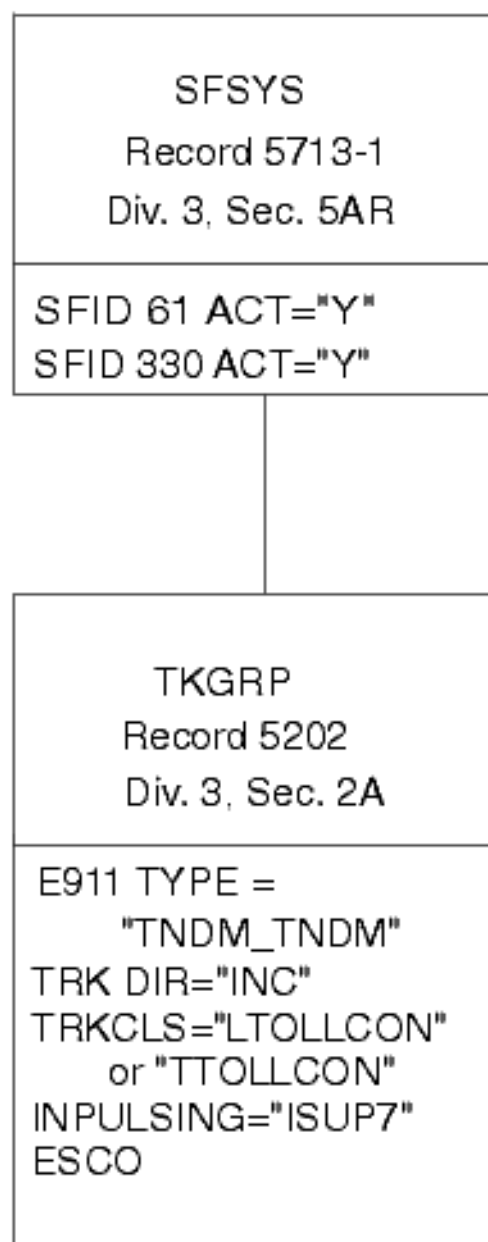


Figure 1 TANDEM TO TANDEM FORM FLOW

SEC. 4A331: TALKING CALL WAITING

1. FEATURE DESCRIPTION

The Talking Call Waiting feature is a secured feature (SFID (Secured Feature ID)331) that is being deployed as a 5E12 and 5E13 Software Update as well as a 5E14 BMI (Beginning Managed Introduction). The feature number for this feature is 99-5E-4605. Talking Call Waiting can be used on all 5ESS-2000 Switches including CDX, VCDX, and SM-2000.

This feature provides the subscriber with a Call Waiting tone followed by the spoken name of the caller when

the subscriber is busy on a stable call and a second call comes in. The spoken name is provided by an external IP (Intelligent Peripheral). Interactions with CIDCW (Caller ID on Call Waiting) and CWD (Call Waiting Deluxe) features are supported.

The Talking Call Waiting feature does not support all configurations of the ASI (Advanced Services Interface) feature. When the ASI feature is provisioned with attribute MEA (Modified Extended Access) on the ASIGP form (5630-4 Record) set to "Y", the Talking Call Waiting feature will not be provided. Standard call waiting tone will be provided without the spoken name of the call waiting party.

2. FEATURE ASSIGNMENT

For 5E12 and later, to provision this feature:

Activate secured feature by setting the ACT field for SFID 331 on the SFSYS form (5713-1 Record) to "Y".

Set appropriate TCW parameters on the OFCOPT form (5509 Record).

Create a CWT (Call Waiting Terminating) feature on the CWTFD form (5603-1 Record) with INVOCATION set to "TERM", if feature doesn't already exist.

Create a BFG (BRCS (Business and Residential Custom Services) Feature Group) with TCW set to "Y" on the BFG form (5625 Record), if BFG is to be used to assign TCW to a line.

Assign either a CWT feature or a BFG (with a CWT feature) to the line on the LINEFA form (5112 Record), if the line does not have a CWT feature assigned yet.

Set TCW to "Y" on the CWTLPA form (5603-2 Record), if not done before.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625-1	4	26A	12.9
CWTFD	5603-1	4	4A	12.15
CWTLPA	5603-2	4	4B	1.24
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

BFG form (5625-1 Record) - The 5625 Record contains information for the BRCS (Business and Residential Custom Services) Feature Grouping. The TCW field was added.

CWTFD form (5603-1 Record) - This form is used to define a number of separate features by selecting various feature options for Call Waiting. Added data rules and the TCW field.

CWTLPA form (5603-2) - The 5603-2 Record contains non-mlhg line parameters to construct a Call Waiting feature. The TCW field was added.

OFCOPT form (5509) - The 5509 Record provides the office option global parameters residing in the Central Processor. Added data rules and the ANS TIMER, DISC TIMER, DN1, DN2, TCW DAS, and TCW SCR fields.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 331 must be set to "Y" on this form in order to enable this feature.

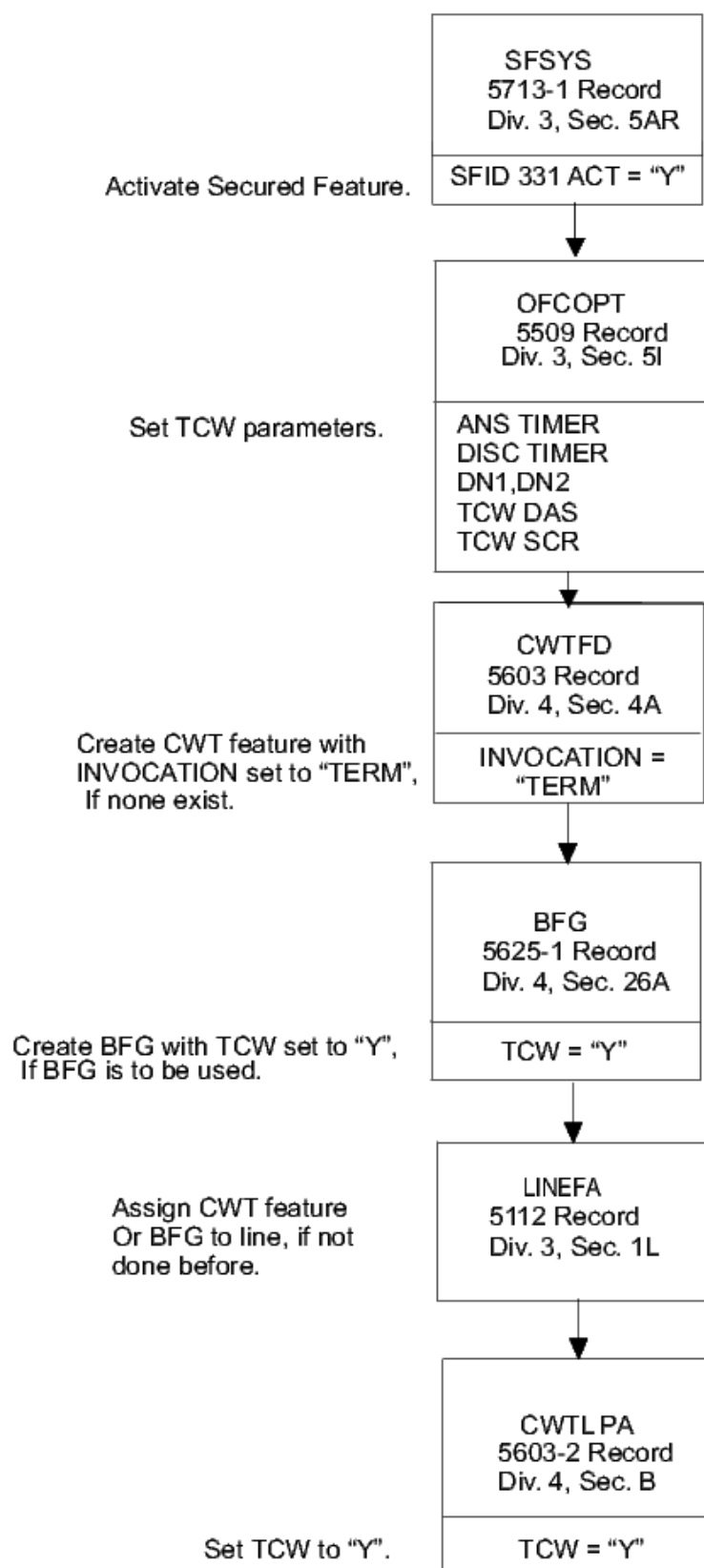


Figure 1 FORM FLOW FOR TALKING CALL WAITING**SEC. 4A332: PAY PHONE COMPENSATION FOR TOLLFREE CALLS****1. BACKGROUND**

ANI (Automatic Number Identification) causes the local switch to outpulse the identity of the originating station to CAMA (Centralized Automatic Message Accounting), TSPS (Traffic Service Position System), E911, OS (Operator Service), Access Tandem, IC (Inter-LATA carrier), or INC (International Carrier). ANI information digits are 1 or 2-digit codes that precede the 7 or 10 digit DN (Directory Number) of the calling party. One digit ANI information (ANI I) is used when a call is routed to CAMA, E911, or TSPS. Two digit ANI information (also called ANI II, II digits, or ANI pairs) are used for equal access use, when routing a call to a carrier, or to an OS system. The purpose of the ANI information digits is to provide information about the calling party DN, which is then used for billing and/or routing purposes.

All 1-digit ANI codes are hardcoded. 2-digit ANI codes can be hardcoded or assigned through Recent Change using Flexible ANI Information Digits Assignment (SFID 38) or "Flexible ANI Enhancement" (SFID 142) features. The SFID 38 feature allows the switch owner to assign ANI II DIGITS based on the RTIDX form (5303 Record), MC ROUTE INDEX field on the MCRTIDX form (5304 Record), and Class of Service of a line. The SFID 142 feature allows the switch owner to assign ANI II DIGITS based on a line's Screen Index with an associated per carrier send/no-send parameter SEND ANI II on the ICF form (5305-1/2 Record). If Flexible ANI II DIGITS are assigned in multiple forms and if they are hard-coded ANI II DIGITS, II digits are selected according to the following precedence rules (from highest to lowest):

1. Inter-LATA Restricted ANI pairs (08, 68, 78).
2. Hard-coded feature ANI pairs (e.g., SSP800).
3. Service-associated Flexible ANI pairs associated with simulated facilities (e.g., OUTWATS, SDN).
4. Service-associated Flexible ANI pairs associated with dedicated access facilities (e.g., dedicated access OUTWATS).
5. Screen Index-associated Flexible ANI pairs.
6. Class-of-service Flexible ANI pairs.
7. Hard-coded class-of-service ANI pairs, or ANI6 or ANI7 (e.g., multiparty, coin).

2. FEATURE DESCRIPTION

Available with 5E11 and later Software Releases, feature 99-5E-4868 "Pay Phone Compensation for Tollfree Calls" and feature 99-CP-4847 "Tollfree Calling Enhancement for Flexible ANI II" are combined together in this feature and can be locked and unlocked using SFID 332.

2.1 Feature Definition for 99-5E-4868

The Pay Phone Compensation for Tollfree Calls feature provides the capability to identify tollfree calls, as well as the type of pay phone originating the call, when the tollfree number is translated to a POTS number (see Figure 1). The identification of the pay phones originating a Tollfree call is achieved by associating a unique Tollfree II digits for each type of pay phone. For Tollfree calls after performing an SCP query for which the SCP has returned a POTS number (translated number) and a carrier, the switch maps the Original II digits to

Tollfree II digits and signal the Tollfree II digits to the carrier, if the Tollfree II Subscription is set to "Y" for that carrier.

- NOTE:** Currently, Tollfree calls translated to a POTS number are sent to the carrier with II digits of 24 overriding the Original II digits, for calls originated from all types of phones, thus the carrier cannot determine the identity of the originating phone. The Tollfree II digits provides the identity of the originating phone to the carrier for Tollfree calls. If Tollfree II Subscription is set to "N" for the carrier, II digits of 24 are sent to the carrier. The Original II to Tollfree II mapping table may look like the following:

Original II	Tollfree II*	Type of Phone
27	XD (e.g., 25)	Network Controlled (dumb) Payphone
70	XE (e.g., 25)	COCOT (Smart Payphone)
29	XF (e.g., 25)	Inmate Phone
etc.	etc.	etc.
* Industry Assigned		

The industry has agreed that an II value of 25 should be signaled for tollfree calls that originate from a paystation and route to a carrier with a translated number.

XD, XE, and XF are II digits chosen from unused II digits 00 through 99. The switch owners need to standardize the values for XD, XE, and XF, etc., so that these II digits become uniform across the entire network. The mapping table will have any set of digits, 00 through 99 as valid entries or it may be left blank. If the valid entry is blank, no change or modifications to the number will be made based on the mapping table. The Original II to Default II mapping will be done once.

- NOTE:** The switch owner identifies a network controlled phone with II of 27, a COCOT phone with II of 70, and an inmate phone with II of 29. With this feature, XD=25 means a Tollfree call from any payphone.

This feature applies to a 5ESS Switch serving as an Access Tandem or EO. In the case of an Access Tandem (Access Tandem does the SCP query), the Original II digits will be the II digits received in the signaling message from the EO where the call has originated. In the case of EO (the EO does the SCP query), the Original II digits will be the digits as determined by call processing.

This feature applies only when the Tollfree number is translated to a POTS number by the SCP. This feature applies to SSP800 (IN) Tollfree calls only. This feature does not apply to AIN (ASP) Tollfree calls.

2.2 Feature Definition for 99-CP-4847

The Tollfree Calling Enhancement for Flexible ANI II feature provides the mechanism to restrict or allow forwarding of Original II digits subsequent to SCP (Service Control Point) queries on a per carrier basis for non-translated Tollfree calls (see Figure 2). The 5ESS Switch Tandem/EO (End Office) would provide a Default II Subscription indication with a "Y" or "N" (default) value on a per carrier basis. After performing an SCP query for which the SCP has returned a carrier ID and a Tollfree number (non-translated Tollfree number), the switch checks the carrier Default II Subscription. If "N", the Original II digits are forwarded as received from the EO. If "Y", the Original II digits received from the EO are checked to determine which Default II values to forward. The Original II to Default II mapping would be recent changeable. For example, the Original II to Default II mapping table may look like the following table:

Original II	Default II*	Type of Phone
27	XA (e.g., 27)	Network Controlled (dumb) Pay phone
70	XB (e.g., 07)	COCOT (Smart Pay phone)
29	XC (e.g., 07)	Inmate Phone
etc.	etc.	etc.
* Industry Assigned		

XA, XB, and XC represent customer assignable II digits. The switch owners need to standardize the values for XA, XB, and, XC etc., so that these II digits become uniform across the entire network. The mapping table will have any II digits 00 through 99 as valid entries or left blank. If the valid entry is blank, no change or modifications to the number will be made based on the mapping table. The Original II to Default II mapping will be done once.

This feature applies to 5ESS Switch serving as an Access Tandem or EO. In the case of an Access Tandem (Access Tandem does the SCP query), the Original II digits will be the II digits received in the signaling message from the EO where the call has originated. In the case of EO (the EO does the SCP query), the Original II digits will be the digits as determined by call processing.

This feature applies only when the Tollfree number is not translated to a POTS number by the SCP. This feature applies to SSP800 (IN) Tollfree calls only. This feature does not apply to AIN (Advanced Intelligent Networks) (ASP) Tollfree calls.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ICF	5305-1/2	3	3R	10.3
SFSYS	5713-1	3	5AR	8.22
TFANI	5578	3	5BS	8.74

ICF form (5305-1/2 Record) - This form is used to define the characteristics of Inter-LATA (Local Access Transport Area) and Intra-LATA carriers.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 332 to "Y".

TFANI form (5578 Record) - This form is used to map Original II digits to Default II digits and Tollfree II digits.

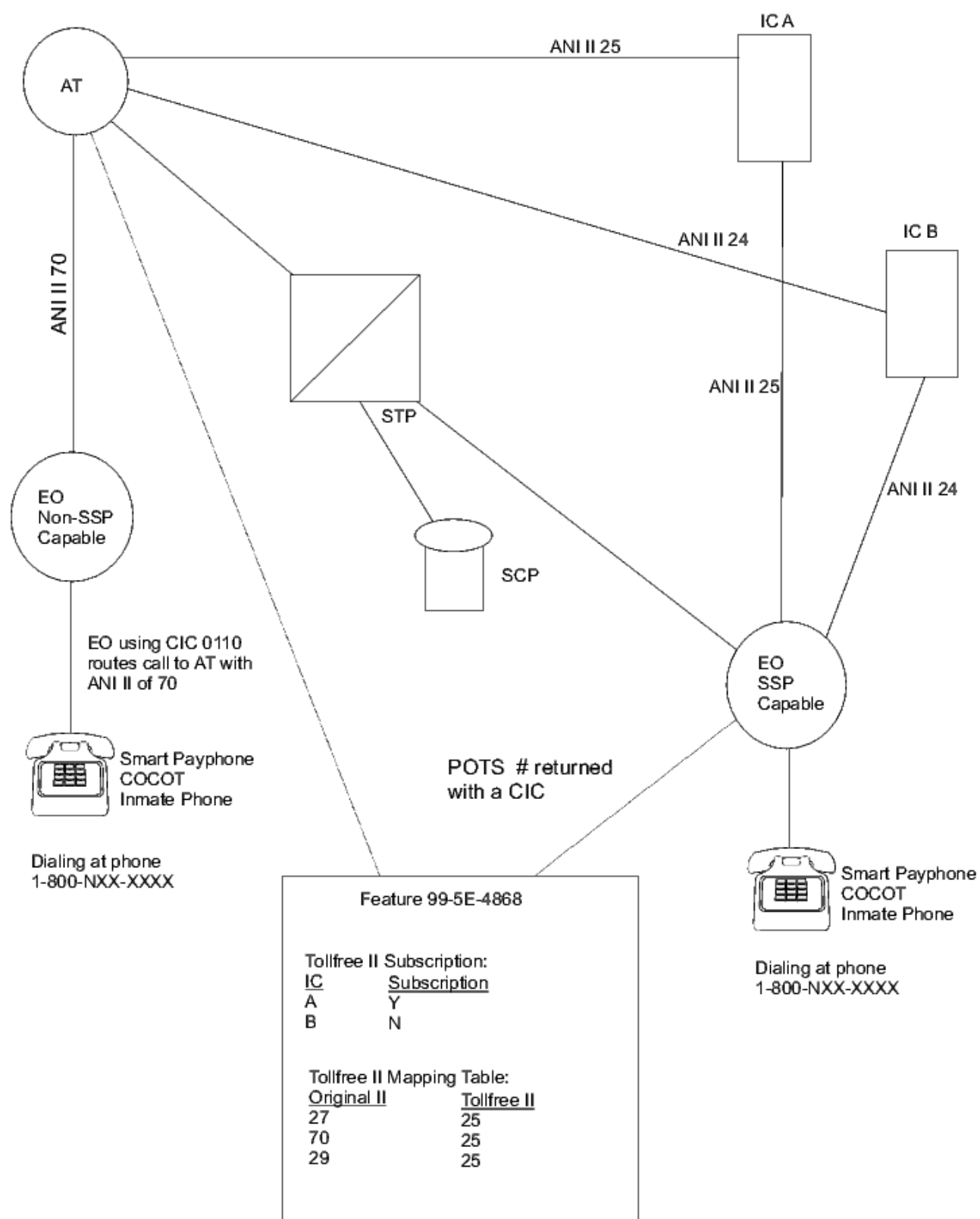


Figure 1 FEATURE 99-CP-4868, FLEXIBLE ANI 800 APPLICATION FOR CONVERTED POTS NUMBER

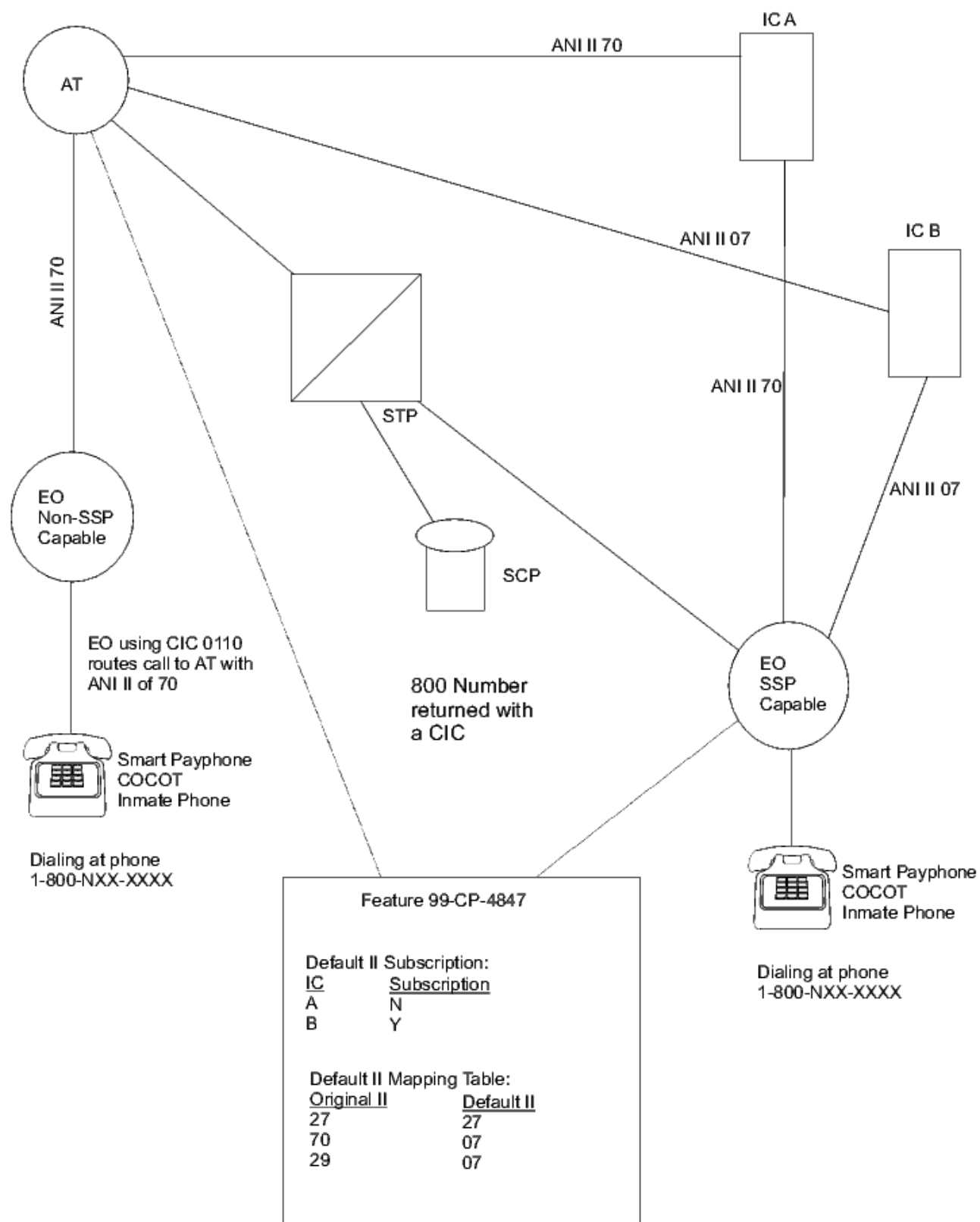


**Figure 2 FEATURE 99-CP-4847, FLEXIBLE ANI 800 APPLICATION FOR NON-CONVERTED POTS
NUMBER**

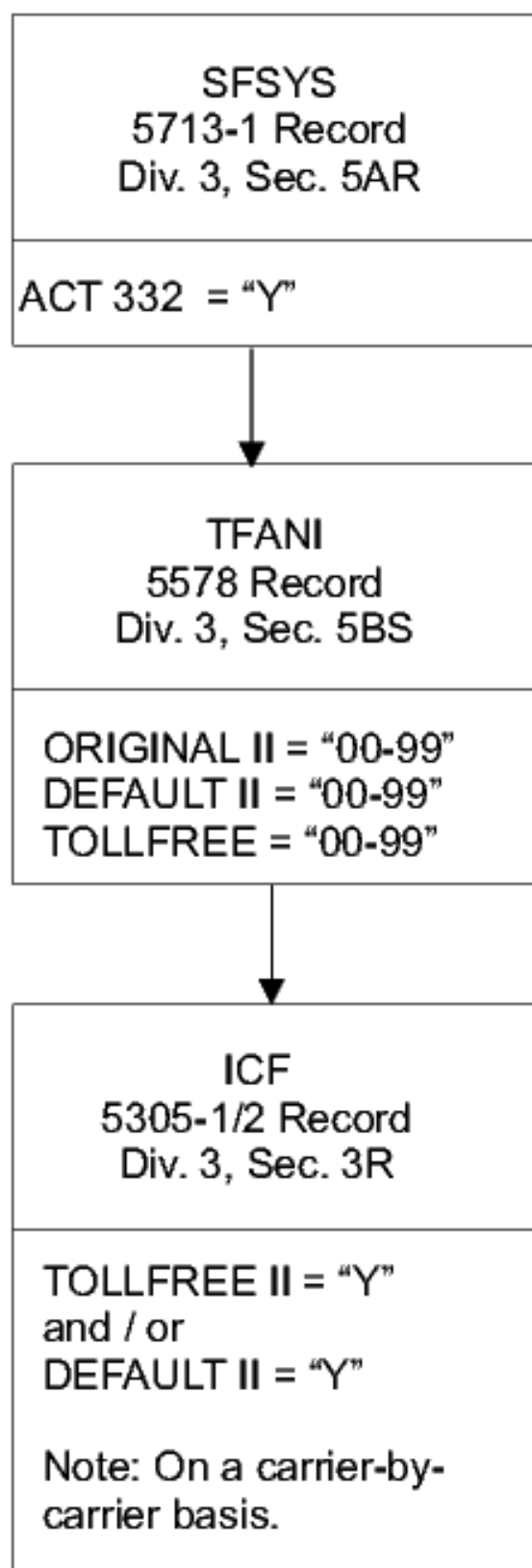


Figure 3 FORM FLOW FOR PAY PHONE COMPENSATION FOR TOLL FREE CALLS

SEC. 4A333: ASP STOR INTERWORKING WITH ORIG BUSY LINE/NO ANSWER WITH EXTENDED RINGING

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4A335: CALL FORWARD DON'T ANSWER - RING CONTROL

1. FEATURE DESCRIPTION

Available as a 5E12 Software Update and later and in the Beginning Managed Introduction of the 5E14 Software Release, the CFDARC (Call Forward Don't Answer - Ring Control) feature is a secured feature using SFID (Secured Feature ID) 335. The feature number for this feature is 99-5E-7121.

The CFDARC feature changes the end-user interface for the CFDA (Call Forward Don't Answer) feature, so the end-user can prompt to specify the number of rings before a call is forwarded to voice mail or other locations. Currently, the end-user is prompted to enter the total number of seconds before the call is forwarded. The new Ring Control provides a new end-user interface to convert the number of rings to a CFDA TIMEOUT value in seconds.

This feature only approximates the number of rings offered to the CFDA user before forwarding the call by assuming the average ring cycle time is six seconds. The CFDARC feature is not required to keep a count of the actual number of rings offered to the CFDA user before forwarding the call.

2. FEATURE ASSIGNMENT

To activate this feature, set the ACT field for SFID 335 on the SFSYS form (5713-1 Record) to "Y".

On the following forms, respectively, set the CFDARC field to "Y":

CFWFD form (5614-1/2 Record)

CFWLPA form (5614-3 Record)

CFWMPA form (5614-4 Record)

See Figure 1 for provisioning form flow.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFWFD	5614-1/2	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22
CFWMPA	5614-4	4	15C	1.22
SFSYS	5713-1	3	5AR	8.22

CFWFD form (5614-1/2 Record) - This form is used to define the Call Forwarding feature. For 5E12 and later, added data rules for the FWD CONDITION field and the new CFDARC field and its associated data rules.

CWLPA form (5614-3 Record) - This form is used to define the specific parameters assigned to a line associated with specific Call Forwarding features. For 5E12 and later, added the CFDARC field and its associated data rules.

CFWMPA form (5614-4 Record) - This form is used to define specific parameters assigned to a Multi-Line Hunt Line associated with specific Call forwarding features. For 5E12 and later, added the CFDARC field and its associated data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate this feature, the ACT field for SFID 335 must be set to "Y".

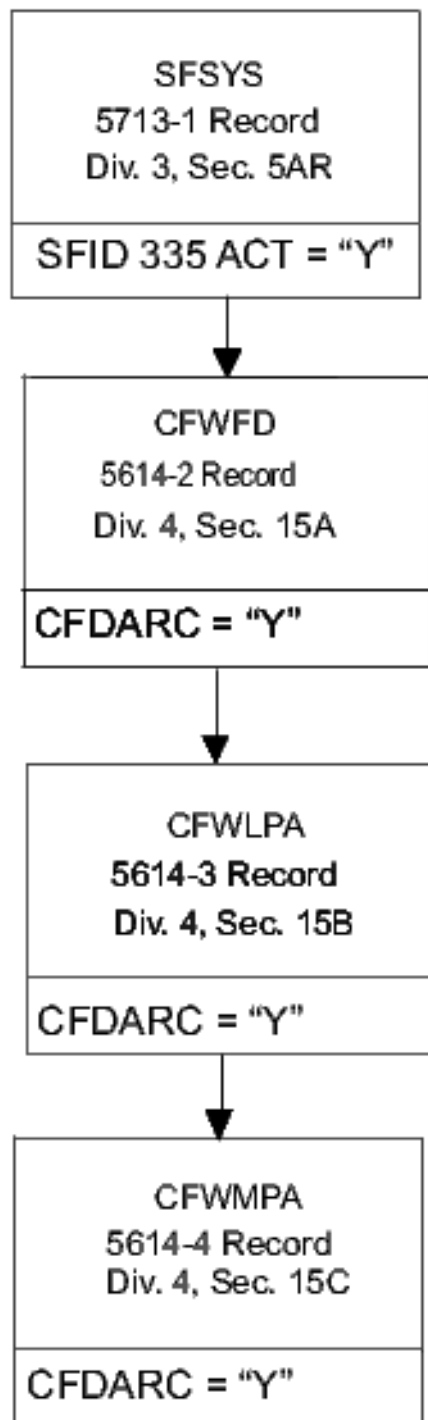


Figure 1 FORM FLOW FOR CALL FORWARD DON'T ANSWER - RING CONTROL

SEC. 4A340: TOLL-FREE TREATMENT FOR NPA 866 - 822

1. FEATURE DESCRIPTION

Available with 5E12 and later, the Toll-Free Treatment for NPA (Numbering Plan Area) 866 - 822 feature is a secured feature using SFID 340, has feature number 99-5E-7002 and must be purchased before being activated. This feature is also dependent on the Toll Treatment for NPA 888 - Phase 1 (99-CP-3042, SFID 158).

Available with 5E12 and later, this feature provides the LEC (Local Exchange Carrier) network with an additional set of toll-free DN (Directory Number) by expanding 800 toll-free service to include five more NPAs (Numbering Plan Areas): 866 855, 844, 833, and 822, besides 800, 888 and 877.

This feature is built on the existing SSP800 (Service Switching Point 800) NS (Number Service) Feature platform. As a result, all current aspects of SSP800 functionality on the 5ESS Switch apply to this feature. This includes the querying process, billing, measurements, network management, test query message, send notification, event trapping, etc.

Consistent with SSP800 requiring an interface to an SCP (Service Control Point) database, the new 866 - 822 NPA DNs also need to query the database to obtain actual routing information for a call. The interface to the SCP database is handled by CCS7 TCAP (Common Channel Signaling System 7 - Transaction Capabilities Application Protocol) either in the AM (Administrative Module) or a DLN (Direct Link Node).

The querying process occurs at the SSP (Service Switching Point) office. The SSP office may be the same office where the call originates, such as an EO (End Office), or an intermediate office, such as an AT (Access Tandem), where the call must route over trunks in order to perform the querying process. The calls may be directed to intermediate, SSP offices from End Offices that are designated as:

- EA (Equal Access) EO
- non-conforming EO using traditional signaling or
- non-conforming EO using CAMA (Centralized Automatic Message Accounting) signaling.

The only signaling difference between SSP800 and this feature is that this feature does not support 00Y translation of an 866 - 822 NPA DN as the called DN, when signaled from a non-conforming EO using traditional signaling. The AT would be unable to interpret the 00Y code as an 866 - 822 NPA DN on the receiving end as well.

Office data in intermediate and end offices must be provisioned similar to the current handling of 800 NPA DNs, except for 00Y translation, in order to recognize 866 - 822 NPA DNs as Toll-Free service calls when dialed, signaled, or received in an office. Other switching equipment interfacing with the 5ESS must be modified to support the new 866 - 822 NPA DNs. For example, the STP (Signaling Transfer Point) should add additional global title table entries to support 866 - 822 NPAs as part of valid global title digits, or the SCP database should increase its number of database entries to accept and respond to 866 - 822 NPA DN queries.

The AMA (Automatic Message Accounting) record for access charge billing is made at the SSP office, once the carrier information is provided, which is consistent with Number Services. This feature reuses the existing Number Services structure codes used for SSP800.

The existing counts for 800 Number Services on the 30-minute traffic report and the 5-minute surveillance network management report are pegged for 866 - 822 NPA DN calls. Although the count headings in these reports are unchanged, the count totals include the new 866 - 822 NPA DN calls.

The existing ACG (Automatic Call Gap) and MCG (Manual Call Gap) control installation, removal, and application procedures apply to 866 - 822 NPA DNs. This feature neither increases the maximum number of controls nor does it modify the control tables in any way.

The SSP test query input message, TST:NS800, will accept 866 - 822 NPA DN input values and send the TCAP test queries. Using the existing test query functionality, the queries for 866 - 822 NPA DNs are sent to the SCP database and the results are displayed in output messages.

2. FEATURE ASSIGNMENT

No new provisioning is provided by this feature but the service provider must ensure that other nodes in the network will accept the new SAC code (that is, STPs (Signaling Transfer Points), SCPs (Service Control Points), switches, etc.).

When a number using the new toll free SAC is assigned, the switch will collect the digits, recognize the new SAC, use the new SAC to generate a SCP database query, recognize the responses (may include the new SAC), and route the call. In addition, the SAC may be outputted from a switch that is not a Service Switching Point (SSP). The SAC must be recognized and screened regardless of whether the subscriber dials the new SAC, the new SAC is returned from a database query, or the new SAC is inputted.

This feature is activated for the office by setting the ACT field for SFID 340 to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

This feature is a secured feature and is activated by setting the ACT field for SFID 340 to "Y" on the SFSYS form (5713-1 Record).

4. GLOSSARY

AM	Administrative Module
AMA	Automatic Message Accounting
ACG	Automatic Call Gap
AT	Access Tandem
CCS7	Common Channel Signaling System 7
CAMA	Centralized Automatic Message Accounting
DLN	Direct Link Node
DN	Directory Number
EA	Equal Access
EO	End Office
LEC	Local Exchange Carrier
MCG	Manual Call Gap
NPA	Numbering Plan Areas

NS	Number Services
SCP	Service Control Point
SSP	Service Switching Point
STP	Signaling Transfer Point
TCAP	Transaction Capabilities Application Protocol

SEC. 4A341: DISTINCTIVE CALL FORWARDING ALERT

1. FEATURE DESCRIPTION

The Distinctive Call Forwarding Alert feature (99-5E-7090) is a secured feature (SFID 341) that is being deployed on the 5ESS Switch in a Software Update for 5E12 and 5E13, and in the BMI (Beginning Managed Introduction) of the 5E14 Software Release.

This feature provides a "recall dial tone" indication to an analog or ISDN (Integrated Services Digital Network) subscriber line that has a CFV (Call Forwarding Variable) type feature activated. This would be any Call Forwarding feature with the FWDCOND attribute set to "BOTH". The "recall dial tone" indication consists of three bursts of 100 milliseconds on and 100 milliseconds off, followed by a steady dial tone.

This indication reduces the number of subscriber activation attempts when the CFV type feature is already active. Similarly, this feature reduces the number of deactivation attempts when the feature is already inactive. Subscribers will feel they have better call management control and knowledge of their CFV service.

2. FEATURE ASSIGNMENT

For 5E12 and later, to provision this feature, the ACT field for SFID 341 on the SFSYS form (5713-1 Record) must be set to "Y" and depending upon whether the application is for a feature on lines, or DSLs (Digital Subscriber Line), the following forms must be populated accordingly:

Set the CFV ALERT field on the CFWFD form (5614-1/2 Record) to "Y" when the Call Forwarding Variable Alert should be active for a particular feature. Also, when this field is set to "Y" the user receives a recall dial tone upon going off-hook and when this field is set to "N" the switch provides normal dial tone when going off-hook.

Set the CFV ALERT field on the CFWLPA form (5614-3 Record) to "Y" when the Call Forwarding Variable Alert should be active for a particular line or DSL.

Set the CFV ALERT field on the CFWMPA form (5614-4 Record) to "Y" when the Call Forwarding Variable Alert should be active for a particular line or DSL.

NOTE: The CFV ALERT attribute on the CFWFD form (RC View 12.12) does not invoke Distinctive Alerting for the USCF (Usage Sensitive Call Forwarding) feature. For more information on the Usage Sensitive Call Forwarding (99-5E-7082) feature, see Division 2, Section 4A544.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CFWFD	5614-1/2	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22
CFWMPA	5614-4	4	15C	1.22
SFSYS	5713-1	3	5AR	8.22

CFWFD form (5614-1/2 Record) - This form is used to define the CFPF feature which is to be assigned to the TNs or MLHGs which are forwarding calls over private facilities. The preconstructed feature /CFPF or a constructed feature with CFPF ALW set to "Y" may be used to indicate calls will be forwarded over private facilities. Added the CFV ALERT field.

CFWLPA form (5614-3 Record) - This form is used to assign a specific FORWARD TO DN and ACCT CODE or ATH CODE to a non-multiline hunt line with this call forwarding feature. Added the CFV ALERT field.

CFWMPA form (5614-4 Record) - This form is used to assign a specific FORWARD TO DN and ACCT CODE or ATH CODE to a multiline hunt line with this call forwarding feature. Added the CFV ALERT field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 518 to "Y".

SEC. 4A342: MODULE 55803 ENHANCEMENT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-110 Long Distance Platform*.

SEC. 4A343: ASP MID CALL EVENT DETECTION

1. FEATURE DESCRIPTION

The ASP (Advanced Services Platform) Mid Call Event Detection feature is being deployed as a 5E13 and 5E14 Software Update and for the BMI (Beginning Managed Introduction) of the 5E15 Software Release. This feature is associated with two independent SFIDs (Secured Feature IDs):

SFID 343 - O_Disconnect_Called (99-5E-7115)

SFID 345 - O_DTMF_Entered (99-5E-7115.A)

These two secured features have a dependency upon the basic ASP feature (SFID 126). For further information on this feature, see Division 2, Section 4A126.

The capabilities provided by this feature include two new events which may be specified in a NEL (Next Event List) which is included in one of the following SCP (Service Control Point) response messages:

Analyze_Route

Forward_Call

Continue

The OBLNA (Originating Busy/NoAnswer Subsequent Event Detection feature (99-5E-1576A) defines the use of Next Event Lists in conjunction with Analyze_Route and Forward_Call routing responses. The Mid Call Event Detection feature builds upon the functionality provided by the OBLNA feature (although this feature is not dependent any way upon the OBLNA feature). Support for NELs in the Continue messages from the SCP is a new capability provided by the Mid Call Event Detection feature, that is used subsequent to reporting a Mid Call Event during a stable call, to re-arm Mid Call Event Detection while continuing the stable call to the current called party.

The two new events defined by this feature are as follows:

O_Disconnect_Called

O_DTMF_Entered

1.1 O_Disconnect_Called

The O_Disconnect_Called event is an event that the switch can detect in the OCM (Originating Call Model) upon instructions from the SCP. The SCP uses a NEL (Next Event List), which was implemented on the 5ESS Switch for the OCM with the OBLNA feature. The SCP uses the O_Disconnect_Called event to request the switch to monitor the call when the called party hangs up. Upon the called party hanging up (going on hook), the switch reports back to the SCP (using the O_Disconnect_Called event) that the called party hung up. The SCP may then instruct the switch to play an announcement, or play an announcement and collect digits, or to route the call to another destination. The choices that the SCP makes were made available with the BLNA (Busy Line/No Answer) feature.

1.2 O_DTMF_Entered

The O_DTMF_Entered event is an event that the switch can detect (in the OCM) upon instructions from the SCP. As with the other originating events, the SCP may use a NEL containing the new O_DTMF_Entered parameter to instruct the switch to monitor for DTMF (Dual Tone Multi-Frequency) input from the calling party. The SCP may request either a specific digit string (1-4 digits in length) or "Any Digit String" of a specified (1-4 digits) length (e.g., any 2 digits, any 3 digits, ...). The use of "any single digit" is highly susceptible to "talk-off", the case when human speech is mistakenly interpreted as DTMF tones, therefore it is not recommended.

2. FEATURE ASSIGNMENT

For 5E13 and later, to provision this feature:

Set the ACT fields for SFID 126, SFID 343, and SFID 345 on the SFSYS form (5713-1 Record) to "Y".

To assign the inter-digit timing interval for O_DTMF_Entered Event digits collection:

- Set the ODTMF INTERDIG TIM field to the desired number of seconds on the ASPOPT form (5670 Record).

To specify the maximum number of universal tone decoders for the Mid Call Event feature as a percentage:

- Set the ODTMF UTD LIMIT field to the desired percentage number on the IMINFO form (5510 Record).

For 5E15 and later, to increase the SRE (Software Resource Engineering) the Mid Call Event feature:

- Set the MID CALL EVENT ON field to "Y" on the ASPOPT form.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPOPT	5670	4	31G	8.49
IMINFO	5510	3	5J	8.27
SFSYS	5713-1	3	5AR	8.22

ASPOPT form (5670 Record) - This form is used to define ASP (Advanced Services Platform) office parameters for a switch. Added the ODTMF INTERDIG TIM field and related data rules.

IMINFO form (5510 Record) - This form is used to gather and build miscellaneous data related to a given SM. Added the ODTMF UTD LIMIT field and related data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the ASP Mid Call Event Detection feature, the ACT fields for SFID 126, SFID 343, and SFID 345 must be set to "Y".

SEC. 4A344: RAW FORMATTED OUTPUT FOR OFFICE RECORDS

1. FEATURE DESCRIPTION

Raw Formatted Output for Office Records feature is a secure feature having feature number 99-5E-0013 and is available as a Software Update for 5E13 and BMI for the 5E14 Software Release and later. This feature is controlled by SFID 344 and is supported by RC (Recent Change) office records. It is used to create office records in a raw format. Each row of output in a "RAW" formatted office record is an instance of the Recent Change view associated with the form type being processed. Each row contains tab separated values associated with the fields defined for the particular Recent Change view. When using this format the output is machine readable and can be post processed more easily than the default formatting of office records.

Office records that are to be raw formatted are scheduled in either of the two following ways:

OP:OFR:CAT=XXXX,FORMAT=RAW
OP:OFR:FORM=XXXX,FORMAT=RAW

2. FEATURE ASSIGNMENT

This feature is activated by setting the ACT field for SFID 344 to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the Raw Formatted Output for Office Records feature, the ACT field for SFID 344 must be set to "Y".

SEC. 4A345: ASP MID CALL EVENT DETECTION O_DTMF_Entered

1. FEATURE DESCRIPTION

The ASP (Advanced Services Platform) Mid Call Event Detection O_DTMF_Entered feature (99-5E-7115.A) is a secured feature (SFID 345) that is being deployed as a 5E13 and 5E14 Software Update and a BMI (Beginning Managed Introduction) for 5E15. It is being documented along with the O_Disconnect_Called feature (99-5E-7115) (SFID 343). Please see Division 2, Section 4A343 for more information on these two features.

SEC. 4A346: NP (NUMBER PORTABILITY) - APPEND BAF MODULE 164 WITH CHARGEABLE ACCOUNT NUMBER TO THE CNA (CONNECTING NETWORK ACCESS)

1. FEATURE DESCRIPTION

The NP - Append BAF Module 164 with CNA (Chargeable Account Number) is a secured feature (SFID 346) that is available with 5E13 and later. The feature number for this feature is 99-5E-7304.

This feature, 99-5E-7304, is being introduced in two separate phases. Phase 1 was introduced in 5E12 via a customer technical support CRAFT BWM in June of 1999. This phase 1 version is controlled by Secured Office Option (SFID 346), and places either the CHG number, CPN, or Trunk Group Billing Number in tables 13 and 14 of the base CNA AMA Structure Code. There is no type of number indication available for this table. In Phase 2 the EBAF MOD 164 will replace use of table 13 and 14 for capturing the CHG, Forwarding Party Number, or CPN when, and only when, both the SFID 346 and a new per-trunk group option are active.

2. FEATURE ASSIGNMENT

In phase 1 when the SFID 346 is enabled, all CNA BAF AMA CC720 base records will populate Table 13 and 14 of Structure Code 0625 utilizing:

the CNA Trunk Group BN if OFID 719 is also active in the office or SM.

the SS7 CHG or MF ANI if received.

the SS7 CPN if CPN is received and if SS7 CHG is unavailable.

the CNA Trunk Group BN if neither ANI/SS7 CHG nor CPN is received.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the NP - Append BAF Module 164 with Chargeable Account Number to the CNA feature, the ACT field for SFID 346 must be set to "Y".

TKGRP form (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk

information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form. For this feature, we added the CNA MOD 164 field.

SEC. 4A347: ANNOUNCEMENT ON DETECTION OF NPA SPLIT

1. BACKGROUND

Prior to this feature, customers dialing the old Numbering Plan Area Nxx-xxxx (or Nxx-xxxx) sequence were not informed by an announcement of future changes.

2. FEATURE DESCRIPTION

The Announcement on Detection of NPA (Numbering Plan Area) Split feature is a secured feature being deployed on the 5ESS Switch in a Software Update for the 5E13 Feature Release 4, 5E14 Feature Release 3, and in the BMI (Beginning Managed Introduction) of the 5E15 Software Release. This feature is controlled by SFID (Secured Feature ID) 347. The feature number is 99-5E-7247.

This feature provides additional information (i.e., announcement) to the customer during the permissive dialing sequence. It allows an announcement to be played to a caller who dials a designated digit string. The announcement informs the caller that the digit string dialed by the caller is part of NPA Split and requires that the call be dialed differently at some future date. The new NPA information is also part of the announcement heard by the caller.

For an office undergoing an NPA Split, there is a three to six-month permissive dialing period for the NPA Split. During this NPA Split permissive period, a called party can be dialed using the old DN (Directory Number) or the new DN. If the calling party uses the old DN, then the caller is routed to a message that reminds the caller that as of some given date, the old DN will not be accepted. After hearing this message, the caller is connected to the called party. At the end of the permissive dialing period, use of the old DN results in a connection to an announcement informing the caller that the new area code is required for completing the call. The call is terminated and the caller must hang up and redial DN to make the call.

3. FEATURE ASSIGNMENT

For 5E13 and later, to activate this feature:

set the ACT field for SFID (Secured Feature ID) 347 on the SFSYS form (5713-1 Record) to "Y".

set the FIXED ROUTE TYPE field to "NPA_SP" on the FIXRT form (5303-1 Record).

activate the Announcement Digit Inflection Scheme by setting the APPLICATION field to "NPA_SP" on the following forms: (The new announcement can be provisioned by the customer using these forms.)

1. ANNAPL form (5529 Record).
2. ANNDG form (5532 Record).
3. PHRASE form (5534 Record)
4. ANNHD form (5531 Record).

➤ **NOTE:** The HEADER ID field on this form must be "1".

set the NPA SPLIT ANNC field to "Y" on the LDIT form (5300-3B/5B Record) and RDIT form (5300-7B/8B

Record) to indicate that an NPA Split announcement is to be given.

▪ **NOTE:** The RDIT form is optional to provision this feature.

On the NPANXX form (5580 Record), enter the 3-digit old NPA that is being split.

See Figure 1 for provisioning form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNAPL	5529	3	5AC	8.64
ANNDG	5532	3	5AF	8.60
ANNHD	5531	3	5AE	8.61
FIXRT	5301-1	3	3G	10.1
LDIT	5300-3B/5B	3	3C	9.3
NPANXX	5580	3	5BU	8.33
PHRASE	5534	3	5AH	8.63
RDIT	5300-7B/8B	3	3H	9.9
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

ANNAPL form (5529 Record) - This form is used to enter the SMs on which the DSU2-RAFs (Digital Service Unit Model 2-Recorded Announcement Frames) reside and the type of application announcements supported by that RAF. For 5E13 and later, a data rule was modified for the APPLICATION field to add "NPA_SP" valid entry, valid entry table for the APPLICATION field was modified to add "NPA_SP" valid entry, and data rules for the APPLICATION field were added.

ANNDG form (5532 Record) - This form contains a list of inflection commands and phrases used to convert a digit string into a set of phrase identifications. For 5E13 and later, the "NPA_SP" valid entry was added to the valid entries table for the APPLICATION field.

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. For 5E13 and later, the "NPA_SP" valid entry was added to the valid entry table for the APPLICATION field and a data rule associated with the "NPA_SP" valid entry for the APPLICATION field was added.

FIXRT form (5301-1 Record) - This form is used to define Routing and Charging treatment of Fixed Route Types. For 5E13 and later, the "NPA_SP" valid entry was added to the valid entries table for the FIXED ROUTE TYPE field, and data rules were added to the FIXED ROUTE TYPE field.

LDIT (5300 Record-3B/5B) - This form is used to define all area, office, and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. For 5E13 and later, the NPA SPLIT ANNC field and CONFLICT RESOLUTION ENTRIES NPA SPLIT ANNC field and related data rules were added, and a data rule was added to the CALL TYPE field.

NPANXX (5580 Record) - This form is used to map an old NPA NXX to a new NPA. This is a new form to support this feature.

PHRASE form (5534 Record) - This form defines and describes phrase IDs which are provided on the DSU2-RAF. For 5E13 and later, the "NPA_SP" valid entry was added to the valid entries table for the APPLICATION field.

RDIT form (5300-7B/8B Record) - The RDIT form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request. For 5E13 and later, the NPA SPLIT ANNC field and the CONFLICT RESOLUTION ENTRIES NPA SPLIT ANNC field were added with associated data rules, and a data rule for the CALL TYPE field was added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 347 to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. For 5E13 and later, a data rule was added to the TGN field.

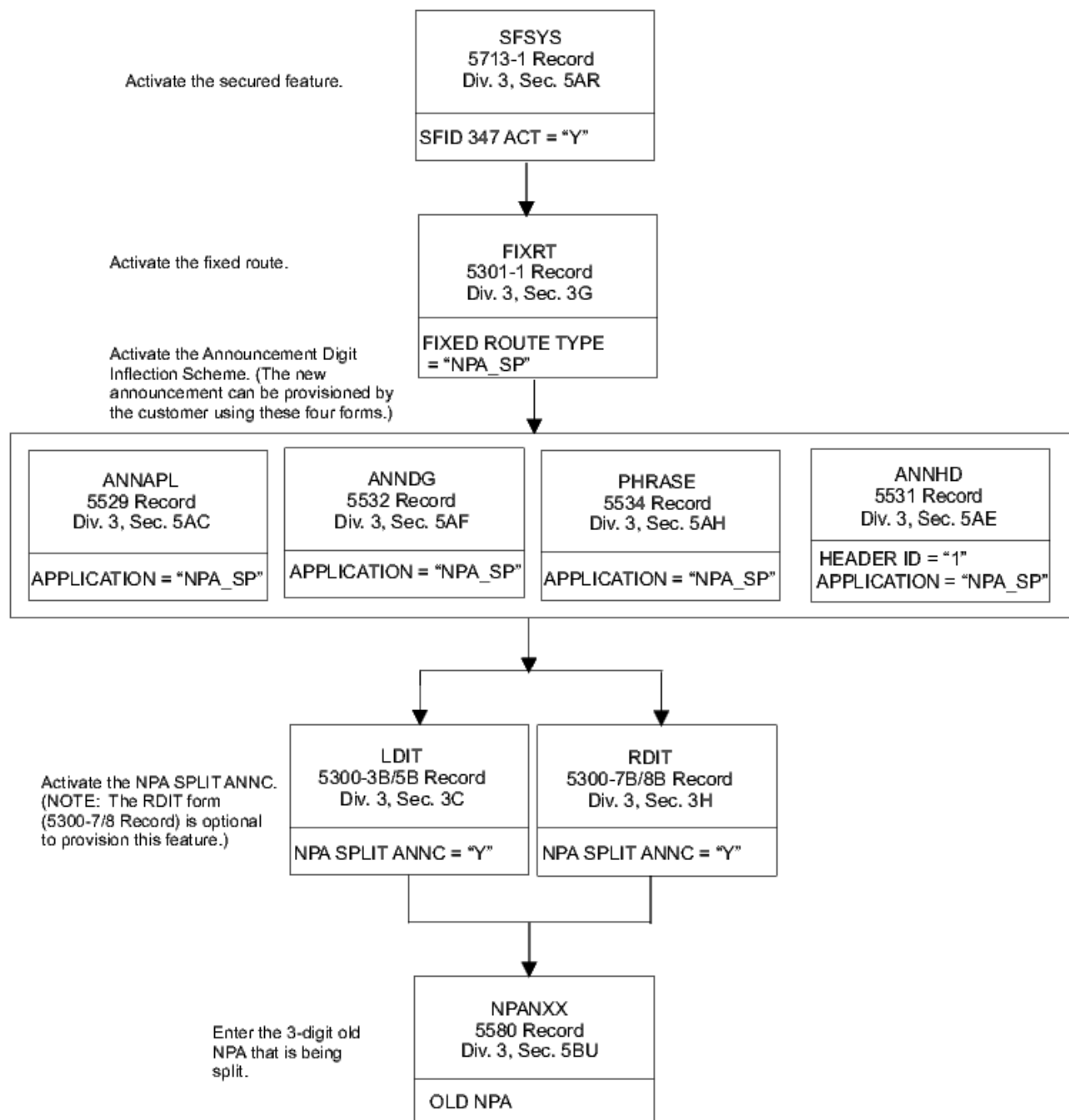


Figure 1 ANNOUNCEMENT ON DETECTION OF NPA SPLIT FORM FLOW

SEC. 4A348: LDP AMA CORRELATION MODULE

1. BACKGROUND

Prior to this feature, the 5ESS LDP (Long Distance Platform) Switch AMA (Automatic Message Accounting) Enhancement feature (99-5E-3675) provided additional AMA billing and routing information, which is appended to the AMA billing record. This information allows service providers to perform reconciliation of usage charges

more easily.

The following fields have been added to the AMA recordings:

- Terminating Trunk Group
- II/OLI (Originating Line Information) digits
 - II digits for EAMF (Equal Access Multi-Frequency)
 - OLI digits for SS7

For more information on this feature, see Division 2, Section 4A165.

2. FEATURE DESCRIPTION

The AMA Correlation Module feature is a secure feature (SFID 348) and is available as a 5E13 Software Update and generally available in 5E14 BMI (Beginning Managed Introduction). This feature introduces one new module that can be appended to the AMA records on the LDP:

AMA Correlation Module - 960

Any call on the LDP that generates an access AMA record and one or more SCP (Service Control Point) related AMA records at the same switch forces the AMA Correlation Module to be appended to the records when this feature is activated by setting the ACT field for SFID 348 to "Y" on the SFSYS form (5713-1 Record). If SFID 348 is activated, and if an LDP call generates both an LDP access AMA record and one or more ASP-related AMA records, then AMA module 960 will be appended to each record generated. For example, the absence of this module from a 710 record indicates that record can be used for both end-user billing and for access validation. The presence of this module on an 710 record suggests that the network provider ought to use the ASP-related record for end-user billing instead, reserving the 710 record for access validation purposes. The contents of the module also provide a simplified mechanism for allowing a network provider to aggregate all AMA records for that call.

Module 960 can be appended to structure code 0625 for several types of terminating access call records (call codes 710, 713, 714, 119, and 066) and to structure code 0220 (for which the call code depends on the charge index). It does not affect structure code 0625 call code 711. All of these AMA records produced at the same switch for a single call will append Module 960 containing identical information. The information in the AMA Correlation Module is as follows:

Field	Length	Value
Module Code	4 BCD char	960C
Reason Code	2 BCD char	00 (no further information)
	2 BCD char	01 (Module appended to access leg and to SCP leg records)
	2 BCD char	0C
Correlation Parameter	3 BCD char	LDP Office ID
	5 BCD char	AMA Index
	3 BCD char	Uniqueness ID
	3 BCD char	SM Number
	2 BCD char	0C

As long as Secured Feature ID 348 is not enabled, the AMA records on the LDP remains completely unchanged. All OSSs (Operational Support Systems) downstream must be upgraded to process the new modules before Secured Feature ID 348 is enabled.

3. FEATURE ASSIGNMENT

For 5E13 and later, to activate this feature:

Set the ACT field for SFID (Secured Feature ID) 165 on the SFSYS form (5713-1 Record) to "Y" to activate the LDP base feature. For more information on this feature, see Division 2, Section 4A165.

Set the ACT field for SFID (Secured Feature ID) 348 on the SFSYS form (5713-1 Record) to "Y".

The AMA Enhancement feature is available when the LDP Basic Call Processing feature is activated. Set the TERMBILL field on the TKGRP form (5202 Record RC/V 5.1) to "Y" to activate the terminating LDP AMA record.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 348 to "Y". The base LDP feature must first be activated by setting the ACT field for SFID 165 to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Set the TERMBILL field to "Y".

SEC. 4A349: TSI NAIL-UP OF CONSECUTIVE DSOs FOR DNU-S

1. FEATURE DESCRIPTION

The TSI (Time Slot Interchange) Nail-up of Consecutive DSOs (Digital Signal Level 0) for DNU-S (Digital Networking Unit - Synchronous Optical Network) feature is available as two 5E13 and later Software Updates (Feature Release 1 and 2). The feature number is 99-5E-7395. It is a secured feature with SFID 349. It is for SM-2000 only.

The purpose of this feature is to provide Intra- and Inter-SM Dual-DDS (Digital Data Service) nail-ups between:

- a TR-303 on DNU-S line and a DNU-S trunk
- a TR-303 on DNU-S line and a DLTU trunk

This feature is deployed in two phases:

- Phase 1: Intra-SM Nail-up functionality, delivered via 5E13 FR1
- Phase 2: Intra-SM and Inter-SM Nail-up functionalities, delivered via 5E13 FR2

Dual-DDS nail-ups are nail-ups in which 2 time-slots (DSOs) are used per end of the nail-up. One of the timeslots is designated as the primary and the other timeslot is designated as the secondary. The primary timeslot carries data while the secondary timeslot carries error correction information.

A Dual-DDS nail-up can be established via the LINE form (5109 Record) and the NAILUP form (5207 Record). One end of the nail-up has to be specified as a controlling OE, while the other end has to be a non-controlling OE. The customer must decide whether a TR-303 on DNU-S line or a DNU-S/DLTU trunk is a controlling one.

To accommodate this feature, the NAILUP form supports new OE combinations of:

A (INEN: TR-303 on DNU-S line) and **N** (NEN: DNU-S trunk)

A (INEN: TR-303 on DNU-S line) and **D** (NEN: DNU-S trunk)

NOTE: Each OE can be a Controlling or Non-Controlling OE. The OE numbers for port 1 and port 3 on the DNU-S/DLTU trunk side have to be consecutive and in the same DS1 (Digital Signal Level 1)/DFI (Digital Facility Interface).

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.6
NAILUP	5207	3	2F	7.11
SFSYS	5713-1	3	5AR	8.22

LINE form (5109 Record) - This form is used to define telephone line parameters. For this feature, the TR303 NAILUP field must be "Y" and OE TYPE must be "A".

NAILUP form (5207 Record) - This form is used to directly link ("nail-up") two data ports. The Controlling Port is the port requesting the nailup connection; the Non-Controlling port is the port receiving the nailup connection. For this feature, the following conditions must exist:

C OE must be (the controlling "OE number")
 N OE must be (the non-controlling "OE number")
 SIGMODE must be "NOSIG"
 HAIRPIN must be "N"
 DDS must be "Y"
 PATH NUM must be "2"

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features. To activate this feature, SFID ACT 349 must be "Y".

SEC. 4A361: OSPS INTERFLOW FOR OPERATOR CONFERENCES

1. BACKGROUND

The AABS-AP (Automated Alternate Billing Services - Automated Position) feature provided for the automated position. AABS-AP allowed customers to request operator assistance and provided for accessing operators when specific problem conditions arose. However, this feature did not allow Interflowing a call with a back party, forward party, and the APS (Automated Position System) connected. Because of Interflow restrictions, it was necessary to disconnect a forward party whenever the serving APS determined that it must conference an operator via Interflow to complete the handling of the call.

2. FEATURE DESCRIPTION

For 5E9(1) and later, the OSPS Interflow for Operator Conferences feature gives the ability to Interflow a conference connection from a Toll and Assist position (either an APS, a CST (Combined Services Terminal), or a VDT (Video Display Terminal)), including when a back party and a forward party are connected to the position. The feature number for this capability is 98-5E-2222.

This feature allows the Interflow of conference connections and the hand off with both back party and forward party connections without breaking the forward connection, for both operator positions and APS.

3. FEATURE ASSIGNMENT

In common with other Interflow features, both OSPSs of an Interflow pair must be on Software Releases that support the Interflow feature. This feature requires the OSPSs to be on 5E9(1) or later Software Releases.

This feature is a Secured Feature that must be purchased by the office before it can be activated on the switch, therefore the ACT field on the SFSYS form (5713-1 Record) for SFID (Secured Feature ID) 361 must be set to "Y". In addition, to activate or deactivate the feature once it has been purchased, the ACT field for OFS (Optioned Feature System) ID 570 must be set to "Y". on the FOSYS form (5713-2 Record).

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer the TFOS (Transparency Feature Optioning System) bits for Special and Transparency features. The ACT field for OFS ID 570 must be set to "Y" to activate this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 361 must be set to "Y" to enable this feature.

5. GLOSSARY

AABS-AP	Automated Alternate Billing Services - Automated
APS	Automated Position System
CST	Combined Services Terminal
OFS	Optioned Feature System
SFID	Secured Feature ID
TFOS	Transparency Feature Optioning System
VDT	Video Display Terminal

SEC. 4A365: OSPS CARD BASED SPEED DIALING (Phase 1)

1. FEATURE DESCRIPTION

The feature number for this capability is 98-5E-2250. Phase 2 of Card-based Speed Dialing is a secured feature and must be activated by setting SFID 365 ACT field to "Y" on the SFSYS form.

For 5E8 and later, CBSD (Card Based Speed Dialing) enables holders of CAS/NCP stored calling cards to use their own personal speed-dial codes to make card-billed calls more conveniently. The caller uses an abbreviated speed-dial code, instead of a full forward number, to specify the destination of a call. Calling card subscribers can specify as many as 20 SDCs (Speed Dial Codes) to refer to domestic or international numbers of their choice. Each code is 1- to 3-digits.

The speed-dialing data is maintained in the card validation database. When a caller makes a Speed Dial Call via an OSPS that has activated CBSD, the OSPS includes the SDC in the card validation query. Assuming that the card is valid and that the SDC is known to the card database, the card database returns the SDFN (Speed Dial Forward Number) in the "ALLOW" reply. The OSPS then uses this translated forward number to route the call.

Speed dial codes are allowed only when the OSPS performs forward number collection; therefore the feature only applies to automated sequence calls or initial calls that are originated as USA Direct or 800 calls, e.g., AATOS.

1.1 Phase 1

This feature will be implemented in two phases. Phase 1 provides the basic speed-dialing functionality for automated card billed calls. However, in Phase 1, OHC (Operator Handled Calls) and SDAP (Speed Dial Autoprovisioning) are not supported. In Phase 1, if the reply is "SPEED DIALING NOT ALLOWED" or "INVALID SPEED CODE", the call is given an announcement informing the caller that the call cannot be completed and to hold for an operator, or to hang up now. For all other replies from the CAS/NCP database, digit analysis is performed on the forward number; and existing treatment is given to the call if the forward number is not valid, e.g. the caller will be given a termination announcement indicating that the call could not be completed as dialed and to hang up and try again. If digit analysis passes, the call is given existing treatment for any of the possible replies from the CAS/NCP database. These include "ALLOW"—just route the call, "CALLED NUMBER RESTRICTIONS"—give caller error message to press 0 for an operator or to hang up and arrange other billing, etc.

1.2 Phase 2

Phase 2 of this feature adds new functionality to allow the caller to re-enter another forward number after the card query for automated calls. For example: in Phase 2, if the reply is "SPEED IDAL NOT ALLOWED" or "INVALID SPEED CODE", the call is given an announcement informing the caller to re-enter another forward number. After the caller re-enters another forward number, if the reply is "SPEED DIAL NOT ALLOWED" or "INVALID SPEED CODE" again, the call is given an announcement informing the caller that the call cannot be completed and to hold for an operator or the hang up now.

2. FEATURE ASSIGNMENT

The following data is required for this feature.

The header IDs 192 -195 were added for Card Based Speed Dialing feature Phase 1. Announcement header IDs 196 - 199 were added for Phase 2.

The CAS (Customer Account Services) Release 3 feature must be activated on the OSPSOPT form (5424 Record). The CSD Access Code and CSD Phase 1 parameters on the OSPSOPT form must also be set.

The CAS/NCP must be able to accept AT&T CCS7 TCAP card validation queries that contain a Speed Code in place of a forward number, and the CAS/NCP must be able to map the Speed Code to a regular forward number and return the forward number to the OSPS in an AT&T CCS7 TCAP reply.

3. SCENARIOS

Phase 1:

Caller initiates an automated 800 access call.

After hearing a prompt for a forward number, the caller enters the speed dial SAC (Service Access Code) followed by an SDC (Speed-Dial Code) that has been defined by the caller for his/her AT&T calling card number (e.g., the digits *723 indicate a SAC of "*7" plus SDC of "23").

After the bong tone, the caller enters a CAS card number.

An AT&T CCS7 query is sent to the CAS/NCP with the SAC and SDC (*723 in the example) in place of a forward number.

The CAS/NCP validates the card and maps the SDC into the forward number defined by the customer. The SDFN (Speed-Dial Forward Number) is returned in the reply to the OSPS.

The OSPS performs digit analysis on the SDFN. If the number is acceptable, the call is routed when all TCS (Terminating Code Screening), TPR (Terminating Point Restrictions), and CPS (Country Paired Screening) checks are passed.

Phase 2:

In Phase 2, a caller can initiate Speed Dialing as follows:

- by Dialing 0- or 102880- or 1+800 alternate access number, or via DIOR access to an AT&T owned OSPS and make an operator-handled, card-billed speed-dial call.
- by using the methods introduced in Phase 1.

Once the call is at an operator position the operator may enter the SD SAC and SDC using numeric or alphabetic characters. Thus, for example, the operator can enter an SDC of "DAD", which would be translated (based on the telephone keypad) to a value of "323" for use in the card validation query. This allows the caller to associate mnemonics with their SDC. The letters "Q" and "Z" would be translated as "7" and "9" respectively.

For automated calls, if a call bails out to an operator, the SD SAC and SDC are displayed at the position. (They were not displayed in Phase 1).

Phase 2 of Card-based Speed Dialing is a secured feature and must be activated by setting the SFID 365 ACT field to "Y" on the SFSYS form.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61

OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. Default input data for Announcement Header IDs 192 - 199 was added for Card Based Speed Dialing.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. Card Based Speed Dialing must be activated on a per switch basis via the CSD (Card Speed Dialing) PHASE 1 and PHASE 2 fields. Also, the access code for Card Based Speed Dialing must be entered in the CSD ACCESS CODE field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. No secured feature activation is required for Phase 1 of Card Based Speed Dialing. However for Phase 2, the secured feature ID field SFID 365 ACT should be set to "Y".

SEC. 4A373: FEATURE GROUP D INCOMING SIGNALING FOR SPECIAL APPLICATIONS - RELEASE 2

1. FEATURE DESCRIPTION

The Feature Group D Incoming Signaling for Special Applications - Release 2 feature provides the following:

- general FGD signaling access to OSPS Toll and Assistance features without the special handling for 500, 700, 800, and 900 traffic.
- activation of the Wireless Special Applications capability is now independent of the original wireless capability activation and removes the blocking and special handling for the Wireless Special Applications.
- increased screening capabilities including the determination of a service code based on the received ANI (Automatic Number Identification) or a Billing Directory Number.
- trunk data for the identification of the access as direct or switched.
- additional data which is supplied and written to the AMA records to allow enhanced rating and billing.

This feature is available with 5E9(1) and later. The feature number for this capability is 98-5E-2552. This is a secured feature with an SFID 373.

1.1 Access Provider

This feature provides the ability to assign an API (Access Provider Identifier) code to the incoming trunk group. The assigned API codes must be valid CIC (Carrier Identification Codes). The API is included in a new module in the RTRS (Real Time Rating System) query for real time rating, and recorded in AMA Module 931, Table 57 - Carrier Identification Code. A Mode of Access Indicator also is provided in the incoming trunk group data. It has two values, "direct" and "switched", with the default value being "switched". The Mode of Access is recorded in Table 83 along with the trunk group number in a new AMA module (303) whenever the value is "direct".

1.2 Line Screening

A new field is added to the OLS (Originating Line Screening) data for entry of an SC (Service Code). The entry of an SC for a line number requires the entry of a non-zero screen code for the same number. The Service Code (if one exists) for a call is determined from the Billing DN or received ANI using OLS. The

Service Code determination depends on the OLS "double dip" capability below. Also, the incoming trunk groups should always be marked as ASRCH. When a Service Code is present on a call, it will be included in the RTRS query for real time rating in the same module as the API, and recorded in another new AMA module (131) in a new table (609). The AMA module will be appended to the AMA record only when a non-zero Service Code is present. The RTRS module is included in the RTRS query only when either an API, or SC, or both are present on the call.

An AILS (Automated Inward Line Screening) Application Indicator is added to the trunk group data. When the value is "yes" and the received ANI is not one that is served by the receiving OSPS, OLS is applied using the AILS capability. When the value is "no", the ANI does not receive OLS treatment.

The OLS "double dip" capability provides the ability to apply screening to two different numbers on a call when ANI is received.

- If an OSPS call is received on an incoming trunk group that has an assigned BILLING DN, then OLS is performed on the Billing DN first.
- If the Billing DN has an associated non-zero screen code and an SC, OLS is not performed on the ANI.
- If the Billing DN has a value of zero (0) for the screen code, and thus no SC assigned to it, or has a non-zero screen code but no SC; OLS may be performed on the received ANI.
- If the received ANI is contained in NPAMAP form (5414 Record) which is used to determine if the billing number is served by the receiving OSPS, then OLS treatment is performed on it.
- If the ANI is not contained in the NPAMAP form, which is used to determine if the billing number is served by the receiving OSPS (i.e., it is a "foreign" ANI), an assert is not generated and the application of OLS depends on the value of the AILS Application Indicator. If the value is "yes", OLS treatment is applied using AILS. If the value is "no", OLS treatment is not applied. When OLS is applied to the ANI and the Billing DN has a non-zero screen code, the screen code assigned to the ANI, if one exists, is ignored.

1.3 Wireless and Wireline Traffic

The need to have both the WIRELESS and WIRELESS SPECIAL APPLICATIONS fields set in the OPRTK form (5417 Record) for non-Air-to-Ground, i.e. Wireless Direct incoming trunk groups, is eliminated. This feature also removes the special handling of 500, 700, 800, and 900 calls for non-Air-to-Ground traffic. In addition, it provides general direct FGD incoming signaling access to OSPS Toll and Assist functionality for wireline traffic. Two new Originating/Terminating Indicator values for wireline FGD Origination and wireline FGD Termination are defined. The Non-Wireless FGD Origination Indicator is recorded in AMA Module 931, Table 388 for all OSPS calls received on wireline FGD trunks.

1.4 Interactions with Other Features

A hard coded dialing restriction to disallow 7-digit dialing on sequence calls is not part of this feature. Sequence calls that are dialed on a 7-digit basis receive INPA treatment.

This feature continues to reject calls received on FGD trunks with signaled ANI II digits 27 indicating that the call is from a coin station.

This feature interacts with the "Feature Group D Incoming Signaling For Special Applications - Release 1" feature (see Division 2, Section 4A83), the "ACCS for 0+800 Calls From Wireless Service Providers" feature (see Division 2, Section 4A79) and the "AMA Recording of Calls From Wireless Service Providers" feature

(Division 2, Section 4A104).

If TRS (Telecommunications Relay Service) traffic is combined with other traffic on a FGD trunk group and is routed to VRCP (Voice Recognition Call Processing) terminals for handling, the VRCP terminals recognize the TRS calls and transfer them to operator positions.

This feature can use the AILS feature capability.

1.5 Other Feature Group D Features

To reference other Feature Group D features see the following:

- FGD (Feature Group D) Incoming Signaling for Special Applications, Release 1: Division 2, Section 4A83.
- FGD Identification Code Expansion: Division 2, Section 3E.
- 0- Transfer Over FGD: Division 2, Section 4A102
- 800 Access Using FGD: Division 2, Section 4A288
- Specialized Handling of ANIF/ONI Calls on FGD Trunks: Division 2, Section 4A383
- FGD Direct Connect Incoming Signaling: Division 2, Section 4A379.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for this feature.

For each FGD incoming trunk group, the Service Provider must define the following information. This data may be set before the feature is turned on.

2.1 Secured Feature

The Feature Group D Incoming Signaling For Special Applications - Release 2 is a secured feature which is enabled by setting the ACT field for SFID 373 to "Y" on the SFSYS form (5713-1 Record RC View 8.22), and then by activating optioned feature IDs 605 and 610 on the FOSYS form (5713-2 Record RC View 8.31).

2.2 Mode of Access

Mode of Access Indicator (switched or direct) on the TKGRP form (5202 Record RC View 5.1) indicates whether the trunk group is direct connected to the traffic originator or is connected to a switched network. Also, the Access Provider Identifier (4-digit CIC (Carrier Identification Code)) identifies the source carrier for the call. It must be a valid Carrier Identification Code.

2.3 Wireline

Identify whether or not the FGD trunks accept wireline and non-TRS Toll and Assist calls on OPRTK form (5417 Record View 26.26).

The AILS Application Indicator on this form indicates whether or not to launch an AILS query when a "foreign" ANI is received. AILS should be set to "N" until the AILS feature is activated.

2.4 Line Screening

The Service Code on the LINESCRN form (5416 Record RC View 26.2) is a four digit field added to Originating Line Screening data. It may be used to identify specific services or billing arrangements based on the back number. The Service Provider also must associate the Service Code with the Access Provider Billing DN or the received ANI, as appropriate, in Originating Line Screening data. Each Service Code also must be defined in the rating and billing systems.

No external interfaces are required before this part of this feature can be used.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS		3	5AS	8.22
LINESCRN	5416	3	4Q	26.2
OPRTK	5417	3	4R	26.26
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

FOSYS form (5713-2 Record) - This form is used to administer the FOSYS (Feature Optioning SYStem) form for Special and Transparency Features. For 5E9(1) and later, these TFOS IDs (Transparency Feature IDs) are called OFS IDs (Optioned Feature System IDs). The ACT field for OFS IDs 605 and 610 must be set to "Y" to active this feature.

LINESCRN form (5416 Record) - This form is used to assign a screen code and routing flag to a line or range of lines. It supplies the SM (Switching Module) that contains a specific Numbering Plan Area/NXX's line screening data. The SERVICE CODE field was added to support this feature.

OPRTK form (5417 Record) - This form is used to define the common information and type of traffic over each trunk group that can access an OSPS operator. An OPRTK form must be completed for each incoming trunk group in the office that can access the OSPS operator. The WIRELINE field indicates if wireline and non-TRS are accepted by the incoming FGD trunk group.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 373 must be set to "Y" to activate this feature.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. The mode of access is defined by the MAI field. The API CODE field assigns the Access Provider Identifier (4-digit CIC (Carrier Identification Code)) which identifies the source carrier for the call.

4. GLOSSARY

AILS Automated Inward Line Screening

API Access Provider Identifier

CIC Carrier Identification Codes

OFS - Optioned Feature System

OLS Originating Line Screening

OSPS Operator Services Position System

RTRS	Real Time Rating System
SC	Service Code
SM	Switching Module
TFOS	Transparency Feature Optioning System
TRS	Telecommunications Relay Service
VRCP	Voice Recognition Call Processing

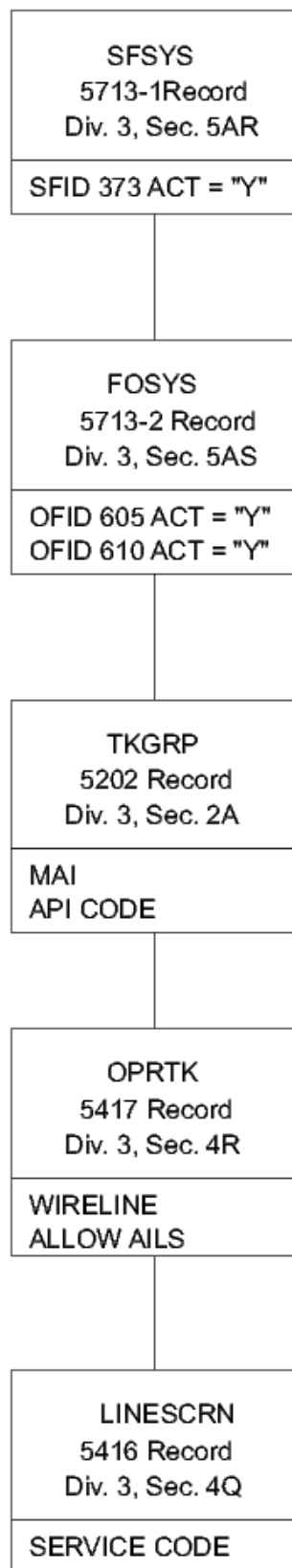


Figure 1 FORM FLOW FOR FEATURE GROUP D INCOMING SIGNALING FOR SPECIAL APPLICATIONS - R2

SEC. 4A377: 800 ACCESS USING FEATURE GROUP D SIGNALING

1. FEATURE DESCRIPTION

This feature allows access to OSPS using Alternate Access call flows via incoming Feature Group D signaling for the following calls:

- AATLSOS (Alternate Access to Language Specific Operator Services)
- AATOS (Alternate Access to Operator Services)
- FTS/NRA (Federal Telecommunications/Number Remote Access)
- SDN/NRA (Software Defined Network/Number Remote Access)

The feature number for this secured feature is (98-5E-2667). This feature is available for 5E9(1) and later.

The purpose of the 800 Access Using Feature Group D Signaling feature is to provide the ability for an OSPS Toll and Assistance office to accept and process 800 Access calls routed to the OSPS directly from a LEC (Local Exchange Carrier) end office or access tandem office. 800 Access calls, for this feature, are defined as calls on which the caller dials an 800 number to access functionality provided by the OSPS. This feature provides the ability to accept these calls when they are signaled using MF (Multifrequency) direct connect Feature Group D signaling.

1.1 Background

Prior to this feature, 800 Access calls could be processed by the OSPS when the appropriate 800 Access features were provisioned, but only if the calls were received with Alternate Access signaling. The 800 Access features include AATOS, AATLSOS, SDN/NRA, and FTS/NRA.

With the AATOS feature the OSPS can handle calls initiated by callers who dial a 1+800 number to place alternate-billed calls. This 1+800 method of access allows callers to reach a carrier's operator system regardless of the carrier presubscription of the originating station and regardless of the availability of 10XXX or 101XXXX carrier access code dialing.

1.2 AATLSOS

The AATLSOS feature expands AATOS by providing the capability to direct incoming 1+800 calls to designated operator queues and to display a recent changeable label at position seizure. An expected application of this feature is to provide multilingual operator services by routing calls dialed to language-specific 1+800 numbers to teams of language-specific operators. Another application is the 800 Automated Collect Service feature, which routes calls dialed to a collect-specific 1+800 number to an automated position team that provides collect service.

1.3 SDN/NRA

With the SDN NRA feature, the OSPS can handle SDN initial and sequence calls. SDN callers can access the OSPS from a location not on their SDN network by dialing 1 plus a unique SDN 800 number or by the usual methods of accessing operator services, including 0+, 0, or an AATOS 800 number. To access their

private software-defined network, the caller bills the call to a special SDN calling card associated with their network. The AT&T card validation database returns the routing number for accessing that network in the card validation reply. The OSPS then uses that routing number to access the network.

1.4 FTS/NRA

The FTS NRA feature allows FTS-2000 network users to access the FTS-2000 network through the OSPS. This allows FTS callers to complete card-billed domestic and international calls through the FTS network. Similar to the SDN NRA feature, FTS callers can access the OSPS from a location not on their FTS-2000 network by dialing 1 plus a unique FTS 800 number or by the usual methods of accessing operator services, including 0+, 0-, or an AATOS 800 number. In addition, callers can access the OSPS by dialing an FTS 700 number. To access the FTS-2000 network, the caller bills the call to a special FTS calling card associated with that network, known as a "Federal Card." The AT&T card validation database returns the routing number for accessing that network in the card validation reply. The OSPS then uses that routing number to access the network. FTS callers can also place calls to domestic and international locations not on the FTS network.

1.5 Toll and Assist

The "Feature Group D Incoming Signaling for Special Applications" feature provides FGD signaling access to OSPS Toll and Assist features for Wireless and TRS (Telephone Relay Service) applications. It provides identification of wireless calls based on trunk group data and provides screening and additions to the AMA records for billing purposes. The 800 Access Using FGD Signaling feature builds on the basic FGD signaling functionality provided by the FGD Incoming Signaling for Special Applications feature. It does not require, however, that the FGD Incoming Signaling for Special Applications feature be activated.

1.6 Traffic Measurements

For 5E9(2) and later, traffic measurements changes were added to this feature. The measurement array is defined by the Measurement Label Data. Each entry in the Measurement Label Data will contain a label assigned to an index, the number of call Attempts for 800 access calls assigned to that index in the 1+800 Service designation Table, and the number of messages (billable calls) for 800 access calls assigned to that index in the 1+800 Service Designation Table.

These measurements appear in Section 196 of the Traffic 30 report. The measurement report will be a fully-printed variable-length section with a maximum length of 100 entries. An entry is printed for each index defined in the Measurement Label Data whether or not one or both of the counts for that reporting period are zero.

For each 800 access call the OSPS pegs the following counts for the measurement index value assigned in the 1+800 Designation Table to the signaled number for the call (SSC-WXY-Z or 800-NXX-XXXX).

- the number of call attempts
- the number of messages (billable calls)

These measurements are pegged for 800 access calls received with FGD signaling and with Alternate Access signaling.

This feature allows the service provider to specify, for each entry in the array:

- the label to appear with the entry
- the uniquely-signaled 800 access numbers associated with that entry

2. FEATURE ASSIGNMENT

To activate this feature, the ACT field for SFID 377 (or 288) must be set to "Y" on the SFSYS form (5713-1 Record). In addition the option feature ID, OFID 613, on FOSYS form (5713-2 must be set to "Y".

Provision additional FGD trunks as required for the additional traffic.

Designate 800 access numbers. Add data for the 800 Access numbers to SRVDESIG form (5474 Record).

Designate the 800 Access numbers in the incoming trunk LDIT with a call type of "INWATS", "OSOINWATS", or "NS800".

For 5E9(2) and later, traffic measurements changes added to this feature introduce the MEASDSIG form (5499 Record) that allows the operating company personnel to populate indexes and labels for the Measurement Array Data. Indexes must be assigned in sequential order from 1 to 100.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
MEASDSIG	5499	3	4CY	27.71
SFSYS	5713-1	3	5AR	8.22
SRVDESIG	5474	3	4BZ	27.70

FOSYS form (5713-2 Record) - This form is used to administer OFIDs (Optioned Feature System IDs for Special and Transparency Features. The ACT field for OFID 613 must be set to "Y".

MEASDSIG form (5499 Record) - This form specifies information for measurement indexes and their corresponding labels. This is a new form to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 377 must be set to "Y".

SRVDESIG form (5474 Record) - This form is used to determine the expected service type for 1+800 calls arriving on AATOS and SDN/NRA MF trunks. The ACCESS NUMBER 800 field was added to support this feature. It is a new alternate key for entry of the last 7 digits of the 10 digit access number (The NPA is not entered).

4. GLOSSARY

AATLSOS	Alternate Access to Language Specific Operator Services)
AATOS	Alternate Access to Operator Services
FTS/NRA	Federal Telecommunications/Number Remote Access
LEC	Local Exchange Carrier
MF	Multifrequency
SDN/NRA	Software Defined Network/Number Remote Access
TRS	Telephone Relay Service

SEC. 4A380: OSPS NETWORK ACCESS INTERRUPT

1. FEATURE DESCRIPTION

The OSPA (Operator Services Position System) NAI (Network Access Interrupt) feature is a secured feature (SFID 380) that is being deployed as a 5E9.1 Software Update. The feature number is 98-5E-2604.

The NAI capability provides a long distance carrier with a means to restrict long distance service from their subscribers through interactions with a remote database. With NAI, the long distance carrier will be able to establish a restrictive criteria such as the terminating point (i.e., calls to international locations), calling location (i.e., cellular phone MIN(Mobile Identification Number), and expenditure thresholds in conjunction with traditional "non-payment" and "credit" reasons that can be used as the trigger points to prohibit service.

To accomplish this, the NAI capability will provide a transition from the 1LSA (1 Line Services Application) on a 1NCP (1 Network Control Point) database platform to the 2NCP database, through the 2LAC (2 Line Applications for Consumers) applications. The transition from the 1LSA to the 2LAC also includes a signaling infrastructure change that encapsulates an ANSI (American National Standards Institute) CCS7 (Common Channel Signaling 7) TCAP (Transaction Capabilities Application Part) query inside of a CCS7 TCAP query. The new signal will be used to send NAI, Card, BNS (Billed Number Screening), and combined NAI/Card and NAI/BNS queries.

Effectively, a query to a LEC LIDB (Line Information DataBase) is transported to the LIDB by way of the 2LAC. The 2LAC interrogates the query, apply any processing as applicable, and then if the request is not denied, pass the query to the LIDB in an ANSI query for validation. In the future, the creation of a new query with an encapsulated response will position the switch owner with the ability to provide services from the 2LAC application more easily.

2. FEATURE ASSIGNMENT

For 5E9.1 and later, to provision this feature the following must be done:

Set the ACT field for SFID 380 on the SFSYS form (5713-1 Record) to "Y".

Select the desired announcement on the ANNHD form (5531 Record).

Specify the signaling type on the DSAPP form (5537 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
DSAPP	5537	3	5AK	8.17
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. Six new announcements (75, 2, 27, 9, 24, 7, 5, 17, 27, 1, 1, 1, and 17) were added to the PHRASE IDs that correspond to the HEADER IDs (224 - 229).

DSAPP form (5537 Record) - The DSAPP form specifies the Direct Signaling Application Type, Transaction

Type and the Subsystem Number used by the direct signaling trunks which use the CCS7 signaling protocols. Added a new enumeration (ONAI) to the APPLICATION field.

OSPSOPT form (5424 Record) - The OPSOPT form defines the global parameters for the office. New parameters for interLATA intercept call completion, and for initial treatment type for intercept call originations with signaling irregularities or invalid intercept classes was added for Intercept Services. Added the TRANS TYPE, INDET RPLY, NAI MIN QRY, SUCC QRY, NAI CARRID, NAI TIMEOUT, NAI, CARD NAI, and the BNS NAI fields.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 380 to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The trunk information that is entered on this record, is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). Modified the DESCRIPTION section and removed a data rules for the NCD SCREENING field.

4. GLOSSARY

1LSA - The 1LSA is an application on the 1NCP data base that performs fraud checks on BNS and Card queries destined for LEC LIDBs. The 1LSA can apply controls that result in a denial response to the OSPS without initiating a query to the LEC network, or the 1LSA can reformat the request into a new query and transmit it to the LEC network. In response to a query, the 1LSA can receive a response from the LEC network and in turn will generate a reply to the OSPS that originated the query. The 1LSA only receives and generates ANSI CCS7 TCAP messages.

2LAC - The 2LAC is an application on the 2NCP that performs the same functions as a 1LSA but with NAI and CCS7 signaling enhancements. The 2LAC receives CCS7 TCAP messages from the OSPS and ANSI CCS7 TCAP messages from the LEC network. The 2LAC generates CCS7 TCAP messages to the OSPS and ANSI CCS7 TCAP messages to the LEC network. Future enhancements for TLN (Telephone Line Number) based services may also be provided from the 2NCP platform.

LEC Billing Numbers - For NAI checks to be applied on a call, the carrier must match the new NAI carrier variable and the billing must be provided by the LEC. Telecommunication cards issued by the LECs in the TLN or Revenue Accounting Office (RAO) format is one category of LEC billing. Other TLN-based forms of billing are, the called number (collect) or a different number (third number). Any card that is not found in the card recognition table process that is 14 digits in length [10-digit account number plus a 4-digit Personal Identification Number (PIN)], qualifies as LEC-billed.

0+SAB (Sub-Account Billing) is class-charged as a DDD (Direct Distance Dialed) call that qualifies for NAI when AT&T is the carrier of the call. The caller dials 0+ the number and enters a 2-digit SAC (Service Access Code) plus a 2 to 4 digit Sub-Account Number at the ACCS (Automated Calling Card Services) prompt. Other than an Originating Line Number check to determine if the calling station is eligible for SAB, NAI checks are made on the attempt.

SEC. 4A384: OSPS AUTOMATED SERVICE ACCESS PROMPTING, RELEASE 2

1. FEATURE DESCRIPTION

The OSPS ASAP R2 (Automated Service Access Prompting, Release 2) feature introduces AMA (Automated Message Accounting) and RTRS (Real Time Rating System) billing upgrades to support the initial ASAP Release 1 feature which provided the APS (Automated Position System) 0-/00- call processing functionality. The ASAP R2 feature is available for 5E9(1) and later. The feature number for this capability is 98-5E-2711

1.1 ASAP Release 1

The ASAP Release 1 feature supplied initial service functionality for 0-/00- automation and was developed exclusively on the APS. It did not require any new OSPS switch functionality. A significant aspect of the ASAP Release 1 feature is that it enabled the APS on a 0-/00- origination to provide callers with a FEM (Front End Menu), which included a prompt for call completion or transfer to an operator. If the caller requested an operator, the call was then transferred to an operator for further handling. If a caller chose call completion, then the APS attempted to collect a forward number from the caller. After the forward number had been collected, the APS then prompted the caller for a COC (Class Of Charge) to complete the call.

ASAP Release 1 service functionality did not contain the ability to allow external billing or call rating systems to differentiate between 0-/00- calls receiving ASAP treatment when the caller has entered the forward number, and those when the caller has not. For the service provider to be able to differentiate the charge associated with a call receiving ASAP FEM treatment and with the caller entering the forward number from those in which the caller did not, the switch needs to record additional information into the AMA record associated with the call. To be able to provide Rate Quotation Service accurately on a call, the OSPS permits operators to provide Rate Quotes with this new level of 0-/00- automation specified. To accomplish this, the interface to the RTRS (Real Time Rating System) must be modified to identify this additional level of automation. Similarly, for calls that require Rating System interaction, the RTRS interface needs to identify when this new level of automation is present.

1.2 ASAP Release 2

The ASAP R2 feature provides the OSPS with the ability, on a 0-/00- originated call, to identify ASAP (Automated Service Access Prompting) automation to the RTRS for Time and Charges, Coin, Hotel/Motel, and Purchase Limit calls. This feature also provides the OSPS with the ability, on a 0-/00- originated call, to identify in the AMA record when the customer has been offered ASAP automation via the APS, and specifies whether the customer or the operator has entered the forward number (or if no forward number was entered at all).

To accomplish the transmission of information to AMA, a new module (343) will be appended to the AMA record for all 00- calls that receive APS treatment and will indicate the Forward Number Entry.

To accomplish the transmission of information to the RTRS, a new module will be appended to the RTRS query message for all 0-/00- calls and will indicate the Automation Level and Forward Number Entry.

2. FEATURE ASSIGNMENT

The ASAP R2 is a secured feature with SFID 384 or 288, which must be activated on the SFSYS form (5713-1 Record).

In addition, two new fields are added to the OSPSOPT form (5424 Record) to support this feature. To activate the AMA option of this feature, the ASAP AMA field must be set to "Y". To activate the RTRS option, the ASAP RTRS field must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The two options for this feature, the AMA option and the RTRS option are activated on this form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 384 or 288 must be set to "Y".

4. GLOSSARY

OSPS	Operator Services Position System
AMA	Automated Message Accounting
APS	Automated Position System
ASAP R2	Automated Service Access Prompting Release 2
COC	Class Of Charge
FEM	Front End Menu
RTRS	Real Time Rating System

SEC. 4A385: OSPS INMATE CALLING SERVICES

1. FEATURE DESCRIPTION

The Inmate Calling Services feature is available for 5E9(2) and later Software Releases. The ICS (Inmate Calling Services) feature provides an interface between OSPS and an EIS (External Information System) for the automated handling of calls which originate from inmate lines. The feature number for Inmate Calling Services is 98-5E-2712.

An originating line is identified as an inmate line based on the Originating Line Screen code. The 5ESS Switch OSPS establishes communication with the EIS after call arrival and, based on messages received from the EIS system, provides services such as the following:

- routing the caller to a voice trunk to the EIS,
- sending a data base query based on the number the inmate wants to call, and then forwarding the response to the EIS,
- starting to accrue billing time when the EIS indicates that it should be started and
- making an AMA record at the end of the call.

Inmate Calling Services calls are fully automated, with no operator bail-out facility.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for ICS feature.

2.1 Required External Interfaces

External Interfaces required before the feature can be used are the following:

- the Call Processing Data Links and trunking between the 5ESS Switch and the Tele-Matic system must be installed prior to activation of this feature.
- the ARU (Audio Response Unit) trunks and the CPDLs (Call Processing Data Links) between the 5ESS Switch and Tele-Matic. Use the growth procedures defined in the maintenance and growth documentation to provision ARU.
- the EISDATA form assigns the values "TMC" for Tele-Matic and "MSG SET 5" to support ICS.

2.2 Provisioning ICS

The Inmate Calling Services is a Secured Feature (SFID 385 or 288). The ACT field for SFID 385 or 288 must be set to "Y".

To provision the destination data for Listing Services calls, the SERVDEST form, (RC/V 21.53) is needed for this application. The route types supported for inmate calls are: "RIXA", "R13A", "TERM", and "REORDER".

The SERVDATA form (RC/V 21.54) assigns the service ID data needed for this application. A new PRE OPER EIS is supported for Inmate Calling Services with the following:

- an OSPS SVC CODE value of "SRVC7"
- the expected INITIAL ACTION is "ASKEIS".
- the INT ANNC TYPE field is populated for inmate calls. This value is the Toll & Assistance header ID ("OSPSTA 237") that is used to provide a turn-back announcement in case of a call failure before setting up to the EIS system.
- the BILLING NUMBER used for pre-paid inmate calls and associated with the Tele-Matic EIS must also be populated.

The new inmate turn-back announcement ("OSPSTA 237") and the INT ANNC TYPE HDR (on the SERVDATA form, RC/V 21.54) must be defined on the ANNHD form, RC/V 8.61. The recommended wording for OSPSTA announcement 237 is "We're sorry, the service you have requested is not available. (1/2 second pause). Please hang up". This consists of phrases 156, 157, 27, 64 which need to be assigned to ANNHD ID: "OSPSTA 237". (Note that default data has been provided for "OSPSTA 237", which consists of 156, 157, and 74.) The INT ANNC TYPE announcement is played to indicate to the Caller that the call should be attempted later.

OLS screen codes on the SCRNCODE form (RC/V 26.3) identify a line as an inmate line for domestic and/or for international forward numbers.

Use the ACDCTP form (RC/V 26.9) to define the service ID for inmate calls. A new CALL ORIGIN is introduced for inmate calls so they can be uniquely identified and assigned a service ID. For inmate calls, the

OSPS ACD CALL TYPE data actually defines a service ID.

Use the OSPSOPT form view (RC/V 8.9) to activate the Inmate Calling Services feature and to define the timer values used when handling an inmate call as follows:

- the ICS EIS TIME value defines how long the OSPS waits for a message from the Tele-Matic system after receiving an off-hook on the External ARU trunk. Either a forward number check and data base query request message or a transfer request message (to end the call) is expected in this interval.
- the ICS BILL TIME value defines how long the OSPS waits for a message from the Tele-Matic system after validating the data in a forward number check and data base query request message. This time should allow for Tele-Matic to route to the desired party and verify that the call (and perhaps billing) is accepted. Either a begin billing message or a transfer request message (to end the call) is expected in this interval.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412	3	4M	26.9
ANNHD	5531	3	5AE	8.61
EISDATA	5462-1	3	4BM	21.51
OSPSOPT	5424	3	4Y	8.9
SCRNCODE	5415	3	4P	26.3
SERVDATA	5466	3	4BS	21.54
SFSYS	5713-1	3	5AR	8.22

ACDCTP/ACDPOL form (5412 Record) - This form assigns call type information for ACD (Automatic Call Distribution). The following field supports ICS.

- CALL ORIGIN - A new Call Origin value, "ORIG3", is defined for ICS.

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. The following phrases need to be assigned to "OSPSTA 237": 156, 157, 27, and 64.

EISDATA form (5462-1 Record) - This form defines the operational parameters for a particular OSPS EIS (External Information System). The following fields support ICS:

- VENDOR - a new vendor value, "TMC", is defined for Tele-Matic.
- MSG SET - a new message set value, "SET5" is defined for Tele-Matic.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The following fields support ICS:

- ICS - activates the ICS feature.
- ICS EIS TIME - defines the length of time OSPS waits for a message after receiving an off-hook on the external ARU.
- ICS BILL TIME - defines the length of time OSPS waits for a Begin Billing or Transfer Request signaling end of call.

SCRNCODE form (5415 Record) - This record defines billing restrictions on the back number. The following fields support the ICS feature:

- ICS TREAT - identifies this OLS code as ICS
- ICS INTL - indicates whether ICS treatment should be provided for international calls.

SERVDATA form (5466 Record) - This form is used to define EIS (External Information Systems) service parameters. The following fields support the ICS feature:

- OSPS SVC CODE - a new Service Code value "SRVC7" is defined for Tele-Matic.
- BILLING NUMER - assigns a billing number for billing of Pre-paid Inmate calls.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 385 or 288 must be set to "Y".

4. GLOSSARY

ACD	Automatic Call Distribution
ARU	Audio Response Unit
CPDL	Call Processing Data Link
EIS	External Information System
ICS	Inmate Calling Services

Activate Feature

SFSYS 5713-1 Record Div. 3, Sec. 5AR
ACT for SFID 385 or 288 = "Y"

OSPSOPT 5424 Record Div. 3, Sec. 4Y
ICS = "Y" ICS EIS TIME ICS BILL TIME

Destination Data

SERVDEST 5467 Record Div. 3, Sec. 4BT
RTE TYPE = "RIXA", "R13A", "TERM", or "REORDER"

SERVDATA 5466 Record Div. 3, Sec. 4BS
PRE OPER EIS OSPS SVC CODE = "SRVC7" INTIALACTION = "ASKEIS" INT ANNC TYPE BILLING NUMBER

Assign EIS

EISSM 5462-3 Record Div. 3, Sec. 4BO

EISDATA 5462-1 Record Div. 3, Sec. 4BM
VENDOR = "TMC" MSG SET = SET5

Announcement
Header ID

ANNHD 5531 Record Div. 3, Sec. 5AE
"OSPSTA 385" = 156, 157, 27, 64

OLS Screen Code

SCRNCODE 5415 Record Div. 3, Sec. 4P
ICS TREAT = "Y" ICS INTL

Service ID

ACDCTP 5412 Record Div. 3, Sec. 4M
CALL ORIGIN = "ORIG3"

Figure 1 ICS FORM FLOW**SEC. 4A386: OSPS INTERNATIONAL BILLED NUMBER SCREENING****1. FEATURE DESCRIPTION**

Available with 5E9(2) and later, the IBNS (International Billed Number Screening) feature is a secured feature using Secured Feature ID 288 or 386 and Optioned Feature ID 620. The feature number for IBNS is 98-5E-2726. The IBNS feature alerts international operators to collect blocking on calls that are terminating to NANP (North American Numbering Plan) numbers.

When an IBNSR2 call comes to OSPS (Operator Services Position System) on AATOS (Alternate Access To Operator Services) trunks with a unique SSC WXY code, BNS (Billed Number Screening) query is performed on the called number. If the BNS results are allowed, the call is outpulsed.

If the BNS results are denied or public, either of two actions can occur. Based on the IBNSR2 CTI (Call Treatment Indicator), the call is routed to a "cuckoo tone" announcement or will request an OSPS operator be attached to the call.

If the IBNSR2 CTI indicates announcement, a "cuckoo tone" announcement is played to the international operator. If the international operator allows the "cuckoo tone" to complete, the call is automatically routed. If the operator goes to hook prior to the "cuckoo tone" completing, the call is terminated.

A non-revenue AMA (Automated Message Accounting) record is made for these calls if the BNS reply was deny or public and the called party answered. This record is also made when sampling is on regardless of the BNS reply results. A new value of 5 for IBNSR2 calls will appear in the Special Access Service Identifier Table of AMA module 170.

If the call is routed to an OSPS operator, the OSPS operator will be able to complete or reject the call. The operator is able to recognize these calls with the following position seizure displays. In the incoming call region, the call will be identified as 0+ and right below with a "BLOCK COLLECTION" display. The back number field will contain "Overseas Operator". The loop supervision area will contain a back "operator" icon, similar to an inward call. There will be an error message displayed - "Possible COLLECT CALL; COLLECT not allowed". In order to complete the call, the operator can first outpulse the call by entering "FWD#" - "SEND" or just "SEND" followed by POS REL, or outpulse after position release by entering POS REL. If it is determined that the call should not be completed, the operator may enter CANCEL CALL and POS REL. Most other keys are blocked. It is not possible to change the forward number or all the class of charge keys.

The office sending the call to the OSPS must send a 10-digit forwarding number (SSCWXYNPAZ) where SCCWXY and Z are a valid entry on the SRVDESIG form (5474 Record). This call must have a valid 7-digit ANI (Automatic Number Identification). The BNS query is performed on a 10-digit number formed from the NPA (Numbering Plan Area) number formed from the NPA in the SSCWXYNPAZ and the 7-digit ANI number. Calls with ANI failures or digit analysis failures are given reorder tone.

If IBNSR2 calls are received after data in the SRVDESIG form is entered, but before the feature is activated, a craft assert is generated. The assert will be 32942 - "ERROR: IBNS R@ SSC WXY = %D Z=%d signaled in when IBNSR2 feature not active" where D is the SSC WXY number and d is the Z number received.

SCENARIOS

The following are possible call scenarios.

Scenario 1:

1. IBNSR2 call is received at the OSPS.
2. A BNS query is sent and the reply analyzed.
3. If the BNS reply is allow, the call is outpulsed.
4. No AMA record is made on this call unless sampling is on.

Scenario 2:

1. IBNSR2 call is received at the OSPS.
2. A BNS query is sent and the reply analyzed.
3. If the BNS reply is deny, the IBNSR2 CTI is examined.
4. If the IBNSR2 CTI is set to announcement, the call is routed to a "cuckoo tone" announcement.
5. The international operator has two options. a) hang up and tear down the call or b) remain on the line through the "cuckoo tone". After the tone, the call is routed to the called party. If the call is answered, a non-revenue AMA record is made.

Scenario 3:

1. IBNSR2 call is received at the OSPS.
2. A BNS query is sent and the reply analyzed.
3. If the BNS reply is public, the IBNSR2 CTI is routed to an operator.
4. If the IBNSR2 CTI is set to operator, the call is routed to an operator.
5. The operator will recognize this call from the unique display.
6. The operator may complete the call by keying forward number send, position release or by keying position release.
7. If the call is answered, a non-revenue AMA record is made.

NOTE: The operator can prevent the call from completing by pressing CANCEL CALL or POSITION RELEASE.

2. FEATURE ASSIGNMENT

See Figure 1 for the feature assignment form flow for the IBNS feature.

ANNHD form - Add phrases for new "cuckoo tone" - announcement header ID 236. The application is OSPSTA. The recommended phrases are 14066, 124, 14066, 124.

SRVDESIG form - Add the SSC WXY code associated with IBNS Release 2 calls. The Z digit must be specified as a value from 0 to 9. The service indicator is IBNS. The destination index is used for call type determination and must be a value between 1 and 4095. All other fields do not apply and should use the

default values.

OSPSOPT form - The IBNS CTI (Call Treatment Indicator) field indicates whether or not an IBNSR2 call that received a DENY in response to a BNS query should go to an operator for further handling or to be routed to an announcement.

The default value is to route to an operator.

This field may be changed if it is desired to route "DENY" calls to an announcement.

FOSYS form - Activate optioned feature ID 620.

SFSYS form - The IBNS feature is a Secured Feature. The ACT field for SFID 288 or 386 must be set to "Y" to enable thi..

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
FOSYS	5713-2	3	5AS	8.31
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22
SRVDESIG	5474	3	4BZ	27.7

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header.

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features.

OSPSOPT form (5424 Record) - This form is used for specifying, updating, and/or verifying OSPS options. The IBNS CTI field was added with a default value of OPR.

SFSYS form (5713-1 Record) - This form is used to enable Secured Features.

SRVDESIG form (5474 Record) - This form is used to determine the expected Service type for 1+8XX calls arriving on AATS and SDN/NRA MF trunks. The SSC WXY field was added to accommodate IBNS Release 2 calls.

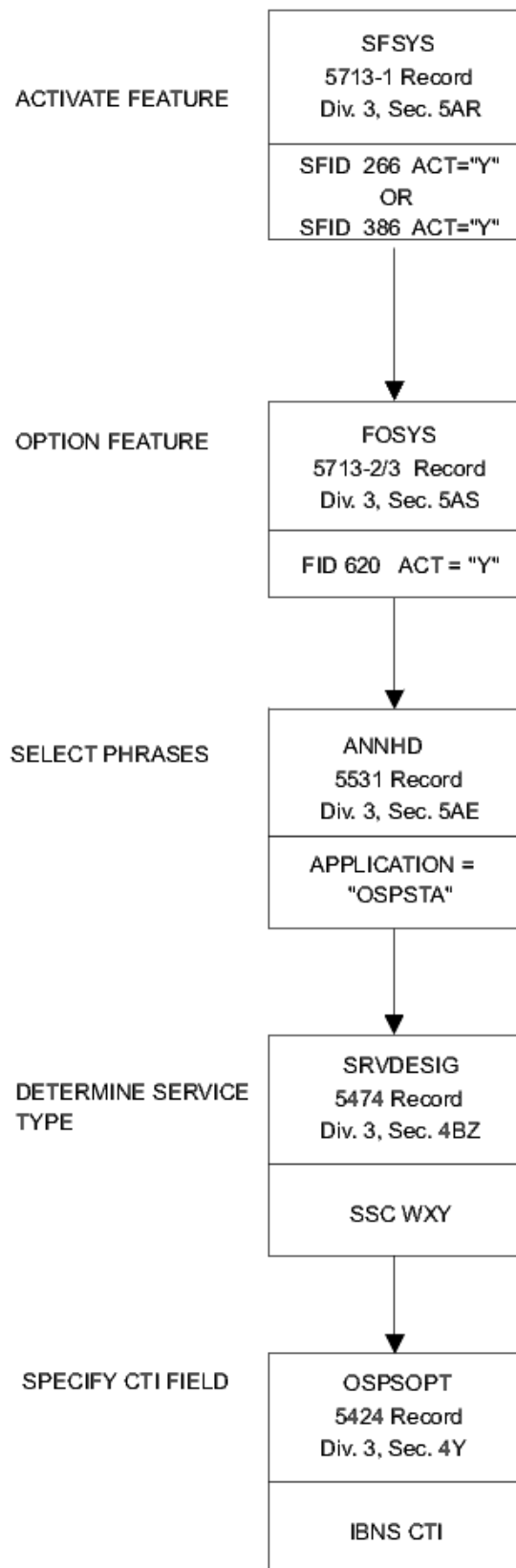


Figure 1 FORM FLOW FOR IBNS FEATURE**SEC. 4A394: INTERFLOW: EXPANDING THE NUMBER OF INCOMING TRUNK GROUPS****1. BACKGROUND**

The Interflow feature for 5E5 and later provided a mechanism for the immediate or scheduled close-down of all or individual operator serving teams at an OSPS. Interflow provides the operator service function at a receiving OSPS for all calls from a sending OSPS that belong to a specific operator serving team that has been closed at a sending OSPS. The operator service is provided at the receiving OSPS and not at the sending site; final routing, billing, and queries to data bases are still provided by the sending OSPS.

The Interflow feature prevents "double interflow", i.e., an interflow call that is being handled at a receiving OSPS is not allowed to be interflowed a second time to another receiving site. The 5E10 feature does not change this restriction.

The 5E5 Interflow feature allows for a maximum of 16 OSPS sites from which a site can receive interflow traffic and 16 OSPS sites to which a site can send interflow calls. This feature expands the number of sites from which a site can receive interflow traffic only.

2. FEATURE DESCRIPTION

The Interflow: Expanding the Number of Incoming Trunk Groups feature increases the number of incoming interflow connections from 16 to 100. For 5E10 and later, an OSPS receiving site can handle interflow traffic from up to 100 different OSPS sending sites. The number of outgoing interflow connections remains at 16.

The feature number for this capability is 98-5E-2858.

3. FEATURE ASSIGNMENT

This is a secured feature, therefore it must be activated on the SFSYS form (5713-1 Record) by setting the ACT field for SFID 394 or SFID 288 to "Y".

The additional OSPS sending sites are assigned on the INFLTAP form.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
INFLTAP	5451	3	4AZ	27.51
SFSYS	5713-1	3	5AR	8.22

INFLTAP form (5451 Record) - This form is used to define the incoming OSPS IDs and incoming trunk groups which are mapped to interflow serving teams at the receiving office. The OSPS LIST was increased from 16 to 100 to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 394 or SFID 288 must be set to "Y".

SEC. 4A395: CCS7 INCOMING SIGNALING FOR OSPS**1. FEATURE DESCRIPTION**

This feature provides the OSPS with the capability to accept and process the following call types when received with intranetwork SS7 (Signaling System #7) circuit-related signaling from an AT&T 4ESS Switch:

- 800 Access Calls

The 800 Access Calls included AATOS (Alternate Access to Operator Services), AATLSOS (Alternate Access to Language Specific Operator Services), SDN-NRA (Software Defined Network - Network Remote Access), FTS-NRA (Federal Telecommunication System - Network Remote Access), and SDAP (Speed Dialing Autoprovisioning).

- DIOR (Direct International Originations) Calls
- Inward Calls
- IBNS - R2 (International Billed Number Screening - Release 2) Calls

This feature is available for 5E10 and later. The AT&T feature number for this capability is 98-5E-2508.

Prior to this feature, these services were provided when the calls were received with MF (Multifrequency) signaling. This feature adds the capability to provide the services when the calls are received with AT&T's SS7 signaling.

This feature accomplishes the following for the above call types:

- Reduces call setup time for 800 access and IBNS-R2 calls
- Improves trunk utilization because:
 - the SS7 trunk groups between the 4ESS Switch and 5ESS-2000 Switch can be set up as 2-way trunks handling both incoming and outgoing calls
 - 800 Access, DIOR, Inward, and IBNS-R2 calls can share the same incoming trunk groups
 - trunk holding time is decreased because of the reduced setup time
- Provides the ability for OSPS to pass information from the incoming SS7 signaling to outgoing SS7 signaling
- Eliminates the need for dedicated outgoing trunks marked "satellite" for DIOR calls to Alaska and Hawaii
- Avoids double satellite hops for DIOR calls

2. FEATURE ASSIGNMENT

This feature does not affect the architecture of the AT&T STP network except that most MF trunks between the 4ESS Switches and OSPS Switches are expected to be changed to SS7 trunks. Additional signaling network traffic demands may be made on the AT&T signaling network because of additional ISDN-UP signaling messages for set up and control of 4ESS Switch to 5ESS-2000 Switch calls.

2.1 Feature Activation

This feature can be activated at a site prior to the deployment of the feature throughout the network. However, before it can be activated at any site, any additional A-links required must be deployed and the routing data in the AT&T 2STPs must be updated.

This is a secured feature, therefore, before it can be activated the ACT field for SFID 395 on SFSYS form (5713-1 Record) must be set to "Y". (Or the AT&T secured feature SFID288 must be activated.) In addition, the feature activation parameter, SS7 SIGNALING, on the OSPSOPT form (5424 Record) must be set to "Y" to activate this feature.

2.2 Provisioning

Based on traffic reports, traffic engineers should determine the need for

- additional A-links between the STPs and the 4ESS Switches,
- additional A-links between the OSPS Switches and the STPs, and
- possibly additional B-links (STP bridge backbone links) and C-links (mated STP cross links) between the AT&T STPs.

However, no additional A-links are expected to be necessary for this capability.

ISUP trunks carrying OSPS traffic should be provisioned as any other ISUP trunk group.

2-Way SS7 trunk groups may be specified between the 4ESS Switch and 5ESS-2000 Switch. These trunk groups may be tested in either direction. 2-Way SS7 trunk groups may be specified between the 4ESS Switch and 5ESS-2000 Switch.

Existing MF trunk groups between the 4ESS Switch and OSPS can be converted to SS7 trunks. This can be done by removing the trunks from service, updating the data appropriately using Recent Change, and then restoring them to service.

Like other SS7 trunks, data must be populated in the trunk group on the TKGRP form (5202 Record). The following table gives the trunk group data that is significant to this feature for SS7 trunks from a 4ESS Switch carrying 800 access, Inward, IBNS-R2, and DIOR calls.

Entries for SS7 Trunk Groups		
Field	Value	Meaning
BLK NO ANI	"N"	Block Calls Without ANI
CCS7 TYPE	"ATT"	CCS7 Office Type
CFN RSTRCT	"Y"	Confusion Message Restriction
CH SATELLITE	As appropriate	Change indicator for SATELLITE
CONTROL TYPE	As appropriate	ISUP7 Control Type
CPN DISC	"N"	Discard the Screened Calling Party Number?
CPN SCRIN	"N"	Allow Calling Party Number Screening?
DEST PT CODE	As appropriate	Destination Point Code
INPULSING	"ISUP7"	Incoming Address Signaling Type
ORIG PT CODE	As appropriate	Origination Point Code
OUTPULSING	"ISUP7" (if two way)	Outgoing Address Signaling Type
SATELLITE	As appropriate	Satellite Facilities Used
TGN	As appropriate	Trunk Group Number
TRK CLASS	As appropriate (Not IC or LATA)	Trunk Service Class
TRK DIR	"TWOWAY" or "INCOM"	Trunk Direction
UII	"Y"	Is User-to-User Information Allowed on this Trunk?

For trunks, the CLCI TRK ID must be populated on the TRUNK form (5204 Record).

All SS7 trunks carrying incoming OSPS calls must have data populated on the OPRTK form (5417 Record). The following table shows how the various fields in that form should be entered for SS7 trunks from a 4ESS carrying 800 access, Inward, IBNS-R2, and DIOR calls and which fields are ignored. Prior to this feature, this type of data did not have to be assigned to trunk groups carrying Inward traffic. But because this feature allows SS7 trunk groups carrying Inward traffic to also to carry 800 access, IBNS-R2, and DIOR traffic, this data is required on SS7 trunks even if they only carry Inward traffic at the time. This also limits the trunks that have to be examined for OSPS traffic.

Entries For OPRTK Form		
Field	Value	Meaning
AATOS SDN NRA	Not entered	Does This Trunk Group Carry AATOS/SDN Traffic Only?
ACQS SCRIN	As appropriate; ASRCH recommended	ACQS Traffic Type
AGGR ID	Ignored	Aggregator ID
AGGR INDEX	Ignored	Aggregator Index
AGGR IS CMC	Ignored	
AGGR NPA	Ignored	Aggregator NPA
AGGR NXX	Ignored	Aggregator NXX
ALLOW 7 DIGITS	As appropriate	Is 7-Digit Dialing Allowed on Automated Sequence Calls?
ALLOW AILS	As appropriate	Allow AILS queries?
ALLOW INTRA DA	"N"	Are IntraLATA Directory Assistance Calls Allowed?
ANI	Ignored	Is ANI expected on this Trunk Group?
ANSWER SUPV	Not entered	Is Returning Answer Supervision Supported?
APOS TREATMENT	As appropriate	Is Automated Position Treatment Provided on This Trunk Group?
AUTO COIN TRAF	"N"	Trunk Group Carry Automated Coin Toll Service?
CALL COMPL	"N"	Is Listing Services Call Completion Allowed?
CARR SELEC ENF	As appropriate	Is Carrier Selection Enforced?
COIN POST PAID	"N"	Trunk Group Carry Coin Postpaid Traffic?
COIN TYPE	not entered	Coin Type
COIN	"N"	Trunk Carry Coin Traffic?
DA AGGR TRK	"N"	Directory Assistance Aggregator Trunk?
EXCEPTION AREAS	"N"	Exception Area on Trunks with Calls Originating from Nonconforming End Offices?
FROM LOCAL OFC	"N"	Does This Trunk Come Directly from a Local Office?
FROM TA SYSTEM	"N"	Is Listing Services Traffic Coming From OSPS-T&A?
INTER CARR ID	AT&T	InterLATA Carrier ID
INTER FOR CC	"N"	May InterLATA Carrier be Used for Call Completion?
INTL CARR ID	AT&T	International Carrier ID
INTRA CARR ID	As appropriate	IntraLATA Carrier ID
LATA TYPE	As appropriate	Type of LATA Traffic
LSTG SVC TRAF	"N"	Is T&A Listing Services Traffic on This Trunk Group?
MECH	As appropriate	MECH Allowed for Incoming Trunk?
OL SCRIN	As appropriate; ASRCH recommended	Screened Traffic Type
ORIG NPA	Ignored	Numbering Plan Area Code
OS EA SIG	Ignored	Is OS EA Operator Signaling Used?
PROTECTED NXXS	"N"	Any Protected NXX's on this Trunk Group?
SCRIN INDEX	As appropriate	Screening Index
SELECTIVE OLS	"N"	Activate Selective Originating Line Screening for This Trunk?
SIG TYPE	Ignored	Signaling Type
START PULSE	Ignored	Start Pulse Type
TGN	As appropriate	Trunk Group Number
TRK TYPE	Ignored	Trunk Type
TRKCLS	Same as in TKGRP form	Trunk Class
WIRELESS SA	"N"	Activate Wireless Special Traffic for this Trunk?
WIRELESS	"N"	Do This Trunk Carry Wireless Traffic Only?
WIRELINE	Ignored	

2.3 DIOR Calls

When all DIOR calls are received from the 4ESS Switch with SS7 signaling, dedicated outgoing trunks

marked "satellite" are no longer required for DIOR calls to Alaska and Hawaii.

With MF signaling, DIOR calls could be routed to the OSPS with only 7-digits because the DIOR NPA could be derived from the trunk group. With SS7 signaling, it is no longer assumed that DIOR calls are the only calls on the trunk group and the DIOR NPA is always included in the IAM Called Party Number parameter by the 4ESS Switch.

If dedicated incoming DIOR Language trunks are not used, to route DIOR language calls to the appropriate operator team, DIOR OLS codes should be assigned based on language as well as any other existing criteria, and those OLS codes should be assigned an ACD pseudo trunk group number to be used for ACD routing. (If interflow is involved, the ACD pseudo trunk group number from the sending switch will be used on the receiving switch.) Appropriate ACD routing should then be set up based on the ACD pseudo trunk group number assigned.

If it is necessary to route DIOR 800 call completions to a unique 4ESS Switch, and dedicated incoming DIOR trunks are not used, the appropriate screening index should be assigned to the DIOR OLS codes in the SCROAR form (5481 Record). This screening index can then be used in the same manner as a screening index assigned to an MF DIOR trunk group.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OPRTK	5417	3	4R	26.26
OSPSOPT	5424	3	4Y	8.9
SCRNCODE	5415	3	4P	26.3
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

OPRTK form (5417 Record) - This form is used to define the common information and type of traffic over each trunk group that can access an OSPS operator. An OPRTK form must be completed for each incoming trunk group in the office that can access the OSPS operator. New data rules for the TRKCLS and LSTG SVC TRAF fields support this feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The Incoming SS7 Signaling fields, SS7 Signaling, ACM INTL TIMER, and ACM DOMESTIC TIME, support this feature.

SCRNCODE form (5415 Record) - This record defines billing restrictions on the back number. The ACD TRK NUMBER field supports this feature. It specifies the pseudo trunk number for ACD.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 395 must be set to "Y"

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). New data rules for the BILLING DN field support this feature.

4. GLOSSARY

AATOS Alternate Access to Operator Services

AATLSOS Alternate Access to Language Specific

DIOR	Direct International Originations
FTS	Federal Telecommunication System
IBNS - R2	International Billed Number Screening - Release
MF	Multifrequency signaling.
NRA	Network Remote Access
OSPS	Operator Services Position System
SDAP	Speed Dialing Autoprovisioning
SDN	Software Defined Network
SS7	Signaling System #7

SEC. 4A398: OSPS AUTOMATED SERVICE ACCESS PROMPTING FOR LANGUAGE SPECIFIC OPERATOR SERVICES USING 129 ROUTE NUMBER.

1. FEATURE DESCRIPTION

The OSPS ASAP LSOS (Automated Service Access Prompting for Language Specific Operator Services) Using 129 Route Number feature allows routing of calls to a centralized service on a distant OSPS via the Route Number key. This feature is available for 5E9(2) and later. The feature number for this capability is 98-5E-3095.

Present methods using the forward number field lead to non-traditional forward numbers in the LDIT and the potential for fraudulent behavior. Present methods also block access to centralized services when the call originates from incoming operator express trunks.

This feature provides the ability to enter 129 ROUTE # in the ROUTE # field on the CST/VDT (Combined Services Terminal / Video Display Terminal) or at an automated position and the subsequent position release during the wait for answer or after answer by the ROUTE # connection. The back number will be signaled to the destination. The back NPA must be embedded in the ROUTE # number field in the format

129-WXY-NPAZ

where the NPA is the NPA of the back number.

The 129 ROUTE # must be a ten digit number. There is no corresponding data. 129-XXX-XXXX is the only format that is allowed and the 129 identifying digits cannot be changed. Once this feature is implemented, 129-WXY-NPAZ will no longer be allowed as a forward number!

2. FEATURE ASSIGNMENT

ASAP LSOS Using 129 Routing is a secured feature, therefore SFID 398 or 288 must be activated. In addition, this feature is also controlled by an optioned feature ID 633. To turn the feature on, OFID 633 must be activated on FOSYS form (5713-2 Record).

2.1 Feature Implementation Plan

The 129 ROUTE # must be entered on the LDIT form (5300-3/5/9 Record) with a CALL TYPE of "OPINW" or "AUTINW". The existing methods for 129-WXY-NPAZ entry must be changed. A flash cut to this feature's new method is required.

2.2 Recent Change Provisioning Information

- ▲ **WARNING:** Before changing the LDIT for the 129 #s, any use of the 129 #s in the forward number field must be eliminated. This step will break the existing functionality of entering the 129 number in the forward number field.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFIDs (Optioned Feature System IDs) for Special and Transparency Features. The ACT field for OFID 633 must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 398 must be set to "Y"

4. GLOSSARY

ASAP	Automated Service Access Prompting
CST	Combined Services Terminal
LSOS	Language Specific Operator Services
OFIDs	Optioned Feature System IDs
VDT	Video Display Terminal

SEC. 4A400: OSPS PURCHASE LIMITS BALANCE QUOTATION BUSINESS/RESIDENCE PROMO CARD

1. FEATURE DESCRIPTION

The PLBQ Business/Residence Promotional Card feature enhances the PLBQ (Purchase Limits Balance Quotation) - Release 2 feature to add the following functionality for the handling of business and residence promotional cards:

- Customized announcements/displays for balance quotations and disconnect warnings,
- AMA enhancements to support partial billing.

This feature is a secured feature and is available for 5E9(2) and later and has a feature number of 98-5E-3061. For more information on PLBQ Release 1 and Release 2, see Division 2, Section 4A24.

PLBQ Business/Residence Promotional Card provides enhanced balance quotation to callers using cards with

Purchase Limits that are identified in the CAS (Customer Account Services) card validation query reply as being candidates for balance quotation. When the caller places an automated quotable Purchase Limit card call, and the card has a balance that is sufficient to pay for some or all of the call, the caller can hear an announcement that advises him/her of the following:

- the monetary balance available on the card,
- the length of time the call can last by applying that balance to the call, and
- a custom announcement whose content is defined by the switch owner.

These announcements are defined by the card product type which the CAS card validation database can identify to the OSPS. The call duration announcement is not included if the call is flat rated by the RTRS (Real Time Rating System). The custom announcement is selected based on the card product type; up to 30 new custom announcements may be defined. If the card does not have sufficient balance to pay for the call,

- no balance quotation announcement will be provided;
- the call will be allowed if the card has Non-Enforced Purchase Limits, or
- blocked if the card has Enforced With Disconnect or Enforced Without Disconnect Purchase Limits.

2. FEATURE ASSIGNMENT

2.1 Feature Activation

This feature is activated by setting the ACT field for SFID 400 to "Y" on the SFSYS form (5713-1 Record). In addition, the PLBQ PROMO CARD must be set to "Y" on the OSPSOPT form (5424 Record).

The Product Type number signaled from the CAS/NCP to the OSPS during the AT&T card validation is used to determine whether customized treatment will be given to the card call. The treatment is defined on the CHBCPT form (6406 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CHBCPT	6406	3	4DE	27.61
OSPSOPT	5424	3	4Y	8.9
SFSYS	5713-1	3	5AR	8.22

CHBCPT form (6406 Record) - The 6406 Record is used to populate the Card Product Type table for the PLBQ Business/Residential Card feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 400 must be set to "Y".

4. GLOSSARY

CAS Customer Account Services

NCP - Network Control Point

PLBQ Purchase Limits Balance Quotation

RTRS Real Time Rating System

SEC. 4A402: OSPS QUIET HEAR

1. FEATURE DESCRIPTION

The OSPS Quiet Hear Service is a secured feature, therefore to activate this feature, the ACT field for either SFID 288 or SFID 402 must be "Y". In addition, the OFSID 638 is used to activate the feature on the switch. The feature number for this capability is 98-5E-3166

Available in 5E9(2) and later, the OSPS Quiet Hear Service offers enhanced sound quality to callers who originate calls in noisy environments. In the initial release of this service, Quiet Hear functionality is provided to the calling party by a USEC (Universal Services Echo Canceler) equipped on a 4ESS Switch AATOS (OSPS Alternate Access to Operator Services) trunk.

The Quiet Hear USEC (Universal Services Echo Canceler) is physically controlled by the 4ESS Switch. Prior to routing an 800 Access Call to the OSPS, the 4ESS Switch performs a variety of logical control checks to determine if the call is eligible for Quiet Hear treatment. The 4ESS Switch sets the Quiet Hear USEC to "Echo Control Only" if the call is not eligible for Quiet Hear treatment and sets it to "Quiet Hear" if it is eligible for Quiet Hear treatment. When the Quiet Hear USEC is set to "Quiet Hear", the call's eligibility for Quiet Hear treatment is conveyed to the OSPS either through:

- a unique Routing Number or
- an 800 number (if Alternate Access or Feature Group D signaling is used) or through
- the FNSI (Forward Number Specific Information) parameter of the incoming AT&T CCS7 (Common Channel Signaling 7) ISUP IAM (Integrated Services User Part Initial Address Message) (if SS7 signaling is used).

During the processing of the call, the OSPS - and possibly the CAS NCP (Customer Account Services Network Control Point) - performs additional logical control checks with respect to the application of Quiet Hear treatment. The OSPS passes the Quiet Hear treatment eligibility information to a receiving 4ESS Switch during external routing. This enables the 4ESS Switch to allow the Quiet Hear USEC to remain set to "Quiet Hear" (if the call is eligible for Quiet Hear treatment) or to reset the Quiet Hear USEC to "Echo Control Only" (if the call is not eligible for Quiet Hear treatment).

The Quiet Hear USECs are positioned on the incoming AATOS trunks during the initial offering of the OSPS Quiet Hear Service. Because the Quiet Hear USECs are positioned on the incoming AATOS trunks, the OSPS Quiet Hear Service is only available to callers who place 800 Access Calls.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for the Quiet Hear Service feature.

To activate this feature one of the Secured Feature IDs (ID 288 or 402) and Optioned Feature ID 638 must be activated.

Assign Quiet Hear to the following:

- 800 Access Call Routing Number or 800 Access Number by setting the new fields QUIET HEAR TRMT and AUDIO LOGO BRAND on the SRVDESIG form (5474 Record RC/V 27.70).
- non-LEC Card's Issuer Identifier by setting the new field QUIET HEAR TRMT on the TCCID form (5454 Record RC/V 27.55.).
- domestic forward number by setting the QUIET HEAR TRMT field on the TPRNPA form (5465 Record RC/V 27.5).
- international forward number by setting the QUIET HEAR TRMT field on the TPRINTL (5464 Record RC/V 27.6).

Specify billing for the following:

- to a LEC calling card by setting the LEC CARD ALW field on the OSPSOPT form (5424 Record RC/V 8.9).
- with a Collect Class-of-Charge by setting the new field COLLECT COC ALW on the OSPSOPT form.
- with a Third Number Class-of-Charge by setting the new field THIRD NBR COC ALW on the OSPSOPT form.
- with the following Class-of- Charge designations: Paid, Hotel Room Number, DDD (Direct Distance Dialing), No Charge, and Auto Collect by setting the new field MISC COC ALW on the OSPSOPT form. This parameter is also used when external routing occurs without a Class-of-Charge.

Specify the following timing intervals:

- the time interval to apply to Timer QH-T1 which determines the length of time (in tenths of seconds) that OSPS will wait before starting to output a domestic forward number after a request is made to play the Quiet Hear audio logo announcement. Set the new field DOM TIMER on the OSPSOPT form. For Recent Change, the default for this field should be >80 and must be updated upon receipt of this feature.
- the time interval to apply to Timer QH-T2 which determines the length of time (in tenths of seconds) OSPS will wait before starting to output an international forward number after a request is made to play the Quiet Hear audio logo announcement. Set the new field INTL TIMER on RC/V 8.9. For Recent Change, the default for this field should be 80 and must be updated upon receipt of this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
FOSYS	5713-2/3	3	5AS	8.31
OSPSOPT	5424	3	4Y	8.9
SRVDESIG	5474	3	4BZ	27.70
SFSYS	5713-1	3	5AR	8.22

TCCID	5454	3	4BC	27.55
TPRINTL	5464	3	4BQ	27.6
TPRNPA	5465	3	4BR	27.5

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. The announcement header ID 148 was added to support the Quiet Hear Services feature.

FOSYS form (5713-2 Record) - For 5E9(1) and later, OFS IDs (Optioned Feature System IDs) can activate features on the switch and on a per SM basis. OFS ID 638 activates this feature.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The following fields assign the billing parameters for Quiet Hear:

LEC CARD ALW
COLLECT COC ALW
THIRD NBR COC ALW
MISC COC ALW.

The following fields specify the timers for the Quiet Hear feature: DOM TIMER and INTL TIMER.

SRVDESIG form (5474 Record) - This form is used to determine the expected service type for 1+800 calls arriving on AATOS and SDN/NRA MF trunks. The QUIET HEAR TRMT and AUDIO LOGO BRAND fields support the Quiet Hear Services feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 402 or SFID 288 must be set to "Y" to activate the Quiet Hear Services feature.

TCCID form (5454 Record) - The TCCID form provides identification for telephone cards other than the 14-digit LEC card. The QUIET HEAR TRMT field supports the Quiet Hear Services feature.

TPRINTL form (5464 Record) - This form provides TERM CC and ADDITIONAL DIGITS information to screen/restrict calls to specific international forward numbers or groups of numbers. It also specifies the treatment to be given to DIOR, AATOS, AATLSOS, and wireless call types to the entered international forward numbers or groups of numbers. The QUIET HEAR TRMT field supports this feature.

TPRNPA form (5465 Record) - This form defines the terminating point restrictions data for a DIOR, AATOS, AATLSOS, and wireless call with a domestic forward number. The QUIET HEAR TRMT field supports this feature.

4. GLOSSARY

AATOS	OSPS Alternate Access to Operator Services
CAS NCP	Customer Account Services Network Point Control
CCS7	Common Channel Signaling 7
DDD	Direct Distance Dialing
FNSI	Forward Number Specific Information

ISUP IAM	Integrated Services User Part Initial Address Message
TFOS IDs	Transparency Feature IDs
USEC	Universal Services Echo Canceler

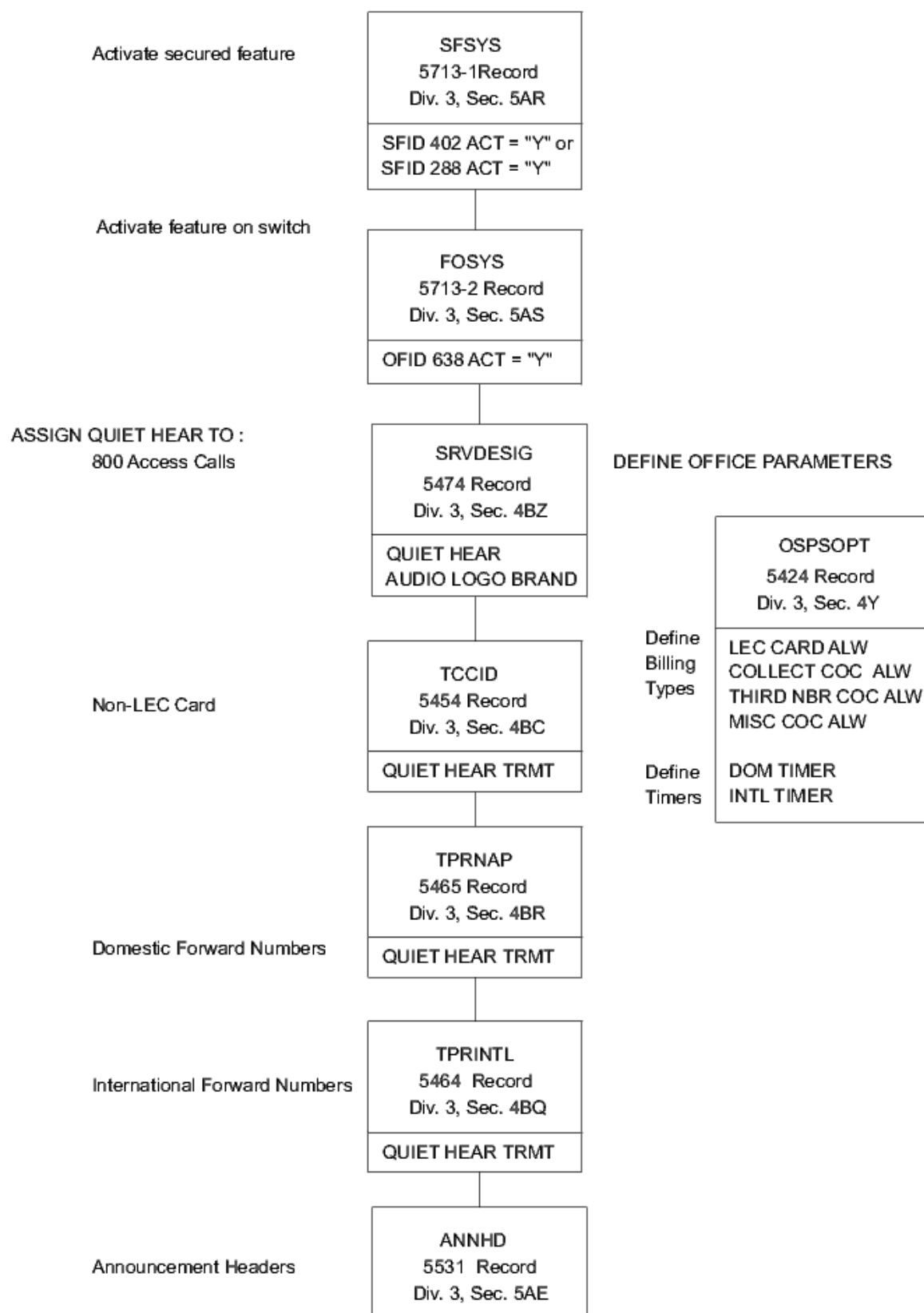


Figure 1 FORM FLOW FOR QUIET HEAR FEATURE**SEC. 4A403: OSPS ALTERNATE ACCESS TO LANGUAGE SPECIFIC OPERATOR SERVICES - AUTOMATED ACCESS PROMPTING.****1. FEATURE DESCRIPTION**

The AATLSOS - AAP (Alternate Access to Language Specific Operator Services - Automated Access Prompting) is available for 5E9(2) and later. This feature migrates the current 1-800-CALLATT calls from the 4ESS Switch to the OSPS/APS (Automated Position System) and provides the OSPS/APS with the ability to process 1-800-CALLATT calls that are currently handled by the 4ESS Switch. The feature number for this capability is 98-5E-3121.

On an AAP 1-800-CALLATT call, the OSPS

1. Provides a first attempt initial prompt menu announcement similar to the one given at the 4ESS Switch for the current 1-800-CALLATT call. The announcement informs the caller to enter one of the following optional responses:
 - 1 - For calling card or credit card call,
 - 2 - For collect call,
 - 3 - For AT&T customer services,
 - 4 - For directory assistance,
 - 5 - For a new service to be determined in the future,
 - 0 - For operator assistance.
2. Determines the treatment to be given in response to the caller's action to the prompt menu which is:
 - The call will be provided the existing AATOS (Alternate Access to Operator Services) functionality and routed to an operator queue for the following conditions:
 - If the call is signaled to the OSPS without good ANI (Automatic Number Identification).
 - If the call is identified for operator handling in the Originating Line Screening table (RC/V view 26.2) or the Automated Calling Card Service Special Treatment (RC/V view 26.40)
 - If the caller presses 0, times out, or enters multiple digits without having the interdigit timeout occur on either the first or second attempt of the initial prompt,

- If the caller fails to press a valid response at the second attempt of the initial prompt,
 - If the call bails out to an operator for some other reason (Enters 0 or times out on the subsequent forward number prompt or calling card prompt, or TCS (Terminating Code Screening), or TPRE (Terminating Point Restrictions Expansion), after the caller presses 1 at the initial prompt menu.
- The call is processed as an AATOS originated call except with a new forward number prompt announcement if the caller presses 1 at the initial prompt menu (for either the first or second attempt).
 - The call is routed to a position queue and handled the same as an 1-800-OPERATOR call if the caller presses 2 at the initial prompt menu (for either the first or second attempt). (The Service Provider will set up the ECTD (Expanded Call Type Determination) data to send the call to an AP (Automated Position) queue.)
 - The call is routed to a position queue and handled based on the option selected as an AAP 1-800-CALLATT call if the caller presses 3, 4, or 5 at the initial prompt menu (for either the first or second attempt). (The Service Provider will set up the ECTD data to send the call to an AP queue.)
 - A second attempt initial prompt menu announcement (similar to the first attempt announcement) will be given to the caller if the caller enters an unrecognized single digit (i.e., 7, #, *, etc.) at the first attempt initial prompt menu.

2. FEATURE ASSIGNMENT

The OSPS switch data population MUST BE co-ordinated with the availability of the data required to update the Cluster data in the AP systems for this feature.

Either SFID 403 or 288 must be activated on the SFSYS form (5713-1 Record) indicating this secured feature has been purchased. The OFID 619 on the FOSYS form (5713-2 Record) turns on this feature.

The AUTO TRMT field on the SRVDESIG form (5474 Record) specifies whether a 1-800-CALLATT call will be processed at the OSPS/APS instead of the 4ESS Switch. If AUTO TRMT is "Y" then SERVICE TYPE must be "SVC01" - "SVC41".

2.1 Recent Change Provisioning

To populate the switch Recent Change data for this feature, the following order of population to the RC/V views must be followed:

1. Populate the announcement headers 145 (for the first attempt initial prompt menu), 146 (for the second attempt initial prompt menu) and 147 (for the forward number prompt that will be used with this feature) with the appropriate phrases on views 8.61 and 8.63. The actual wording of the announcement is provided by the Service Provider.
2. Populate the call type determination information on views 26.9 and 26.10 to define the AP call types for these calls.
3. Populate the AP treatment information on view 26.26 for each trunk group handling these calls.
4. Populate the AP protocol information on view 8.9 (if this data has not already been populated on this view).

5. Populate the OSPS Service Designation information on view 27.70 for the appropriate "SSC-WXY and Z" or "800 access number" (if the data has not already been populated), and set the "AUTO TRMT" field to "Y" so the calls are recognized as AAP 1-800-CALLATT calls.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22
SRVDESIG	5474	3	4BZ	27.70

FOSYS form (5713-2 Record) - This form is used to administer OFIDs (Optioned Feature System IDs) for Special and Transparency Features. The ACT field for OFID 619 must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 403 or 288 must be set to "Y".

SRVDESIG form (5474 Record) - This form is used to determine the expected service type for 1+800 calls arriving on AATOS and SDN/NRA MF trunks. The AUTO TRMT field supports this feature. This field specifies whether a 1-800-CALLATT call will be processed at the OSPS/APS instead of the 4ESS Switch.

4. GLOSSARY

AAP	Automated Access Prompting
AATLSOS	Alternate Access to Language Specific Operator Services
AATOS	Alternate Access to Operator Services
ANI	Automatic Number Identification
AP	Automated Position
APS	Automated Position System
ECTD	Expanded Call Type Determination
OFIDs	Optioned Feature System IDs
TCS	Terminating Code Screening
TPRE	Terminating Point Restrictions Expansion

SEC. 4A404: OSPS AUTOMATED CLOSE-END BRANDING FOR OPERATOR HANDLED CALLS

1. FEATURE DESCRIPTION

This feature is available for 5E9(2) and later. It provides an automated close-end announcement on an early

position release call before outpulsing to the forward party, e.g., "Thank you for using (name)". The feature number for this capability is 98-5E-3167.

The Automated Close-End Branding for Operator Handled Calls feature provides OSPS with an automated close-end announcement capability on calls handled by operators. Prior to the activation of this feature, operators had to provide the close-end treatment verbally to callers. With this feature, close-end announcement treatment is provided automatically to calls that receive early position release treatment. Switch announcements are automatically provided after the operator has released the call for routing.

2. FEATURE ASSIGNMENT

The Automated Close-End Branding for Operator Handled Calls is secured feature with SFID 404 (or SFID 288). The Automated Close-End Branding for Operator Handled Calls is also an optioned feature with FID 639.

Use the secured feature activation procedures to activate either SFID 404 or 288.

To activate the feature option, set the ACT field to "Y" for FID 639 on the FOSYS form.

This feature is activated on a serving team basis via the STINFO form (5402 Record) by setting the AUTO CLOSE END ANNC field to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22
STINFO	5402	3	4C	21.2

FOSYS form (5713-2 Record) - This form is used to administer OFIDs (Optioned Feature System IDs for Special and Transparency Features. This feature is activated by FID 639.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 404 (or SFID 288) must be set to "Y".

STINFO form (5402 Record) - The form defines the parameters for a serving team. The AUTO CLOSE END ANNC field supports this feature.

SEC. 4A405: OSPS TOLL-FREE NPA EXPANSION

1. FEATURE DESCRIPTION

The OSPS Toll-Free NPA Expansion supports SACs (Service Access Codes) other than 800. 888 is expected to be the first new SAC assigned. Calls to these new SAC codes are identified as toll-free calls and are treated like 800 calls. This feature is available for 5E10 and later. The feature numbers for this capability are 98-5E-3171 and 98-5E-3180.

This feature changes the identification of toll-free calls from a hard-coded recognition of the 800 SAC, to a data-driven recognition of 8XX SACs. The feature also makes the necessary changes to existing data tables used in OSPS features so that 8XX SACs can be supported as toll-free SACs.

Although there are no new or changed operator displays, this feature does allow the automatic display of the

AUTO COLLECT class-of-charge on the entry of a toll-free forward-number by the operator or automated position.

2. FEATURE ASSIGNMENT

See Figure 1 for The Toll-Free NPA Expansion feature assignment form flow.

The OSPS Toll-Free Services NPA Expansion is a Secured feature with SFID 405. (This feature is otherwise activated if the ACT field for SFID 288 is set to "Y".) It is also an optioned feature with OFID 627. To activate the feature, both the ACT field for the SFID and OFID must be set to "Y".

NPAs that are to be given toll-free treatment are defined on the INWNPA form (6404 Record 27.72 View). An entry of 800 is pre-defined. The INWATS NPA field is used to define the new NPA of the toll-free number. The new INWATS NPA must be defined on the INWNPA form before the following forms can reference it:

- DEHNP (5431 Record)
- DEHOCSM (5496 Record)
- DNRA (6400 Record)
- SRVDESIG (5474 Record)

A toll-free NPA of the form 8XX can be defined using the SEQUEST form (5429 Record).

The global parameters for the Toll Free NPA Expansion are found under the heading "Toll-Free NPA Expansion" on the OSPSOPT form (5424 Record).

The following data changes must be made to give toll-free treatment to an additional NPA (Numbering Plan Area), such as 888.

- Insert the new NPA in the INWNPA form.
- If any direct-dialed calls (i.e., Feature Group D) use the new toll-free NPA to obtain OSPS service, update the SRVDESIG form, so these toll-free numbers have an entry.
- Also, for direct-dialed calls, the LEC Toll-free Treatment for NPA 888 Phase 1 feature must be active. This is a secured feature with SFID 158. For more information on this feature, see Division 2, Section 4A158.
- If any new toll-free numbers need to be provisioned for the DIOR Toll-Free International Service feature or the DIOR NRA (Network Remote Access), insert those numbers on the DEHOCSM and DEHNP forms.
- If the toll-free NPA code should not be allowed as a sequence number, insert an entry with that NPA on the SEQUEST form.
- Define the entries for the new NPA being assigned for toll-free calling on the LDIT form (5300-3/5/9 Record). Set the call type to INWATS or NS800 (as is appropriate) for all entries with the new toll-free NPA. The LDIT can be updated to translate the NPA only or to translate as many digits as desired. For example, if only one NXX is being made available in the 888 NPA, then LDIT entries could be defined for all possible 888-NXX combinations.
- Determine if the Automated Position System is ready to have the 5ESS Switch display AUTO COLLECT on entry of a toll-free number. If desired, set the DISP AUTO COLLECT field on the OSPSOPT form to "Y".

If AUTOCOLLECT is the only class-of-charge wanted with a non-DIOR, non-wireless call to a toll-free number, then set the ENF AUTO COLLECT to "Y". This is only allowed if DISP AUTO COLLECT is set to "Y".

The display auto collect option modifies operator handling of a toll-free forward number. If the option is active, then OSPS automatically updates the class-of-charge displayed to the operator to AUTO COLLECT on entry of a toll-free forward number by the operator or automated position.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DEHNP	5431	3	4AF	27.85
DEHOCSM	5496	3	4CW	27.84
DNRA	6400	3	4CZ	27.87
FOSYS	5713-2	3	5AS	8.31
INWNPA	6404	3	4DD	27.72
OSPSOPT	5424	3	4Y	8.9
SEQUEST	5429	3	4AD	26.41
SFSYS	5713-1	3	5AR	8.22
SRVDESIG	5474	3	4BZ	27.70

DEHNP (5431 Record) - This form specifies the toll-free number and the billing treatment that applies to it from all DIOR originating countries or the default treatment plus per-country alternate treatments. The INWATS NPA field supports this feature.

DEHOCSM form (5496 Record) - This form specifies the SM (Switching Module) on which the billing treatment data is stored for DIOR calls to an toll-free number. The INWATS NPA field supports this feature.

DNRA form (6400 Record) - This form specifies the DIOR NRA toll-free access number, a routing number for routing the call to the NRA toll office, and up to 128 specific originating country codes that are exceptions to the default treatment. This is a new form to support the DIOR NRA feature.

FOSYS form (5713-2 Record) - This form is used to administer OFIDs (Optioned Feature System IDs for Special and Transparency Features. The ACT for OFID 627 must be set to "Y".

INWNPA form (6404 Record) - This new form, for 5E10 and later Software Releases, provisions NPAs (other than 800) as INWATS NPAs to allow more INWATS numbers after the exhaustion of 800 numbers.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The following fields support this feature:

- DIOR VMS FWD NBR
- DISP AUTO COLLECT
- ENF AUTO COLLECT

SEQUEST form (5429 Record) - This form assigns 3-, 7-, and 10-digit telephone numbers that cannot be accessed with ACCS as an automated sequence call. The values in the RESTRICTED TN field were increased to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 405 must be set to "Y".

SRVDESIG form (5474 Record) - This form is used to determine the expected service type for 1+8XX calls arriving on AATOS and SDN/NRA MF trunks. The INWATS NPA field was added to support this feature.

4. GLOSSARY

ACCS	Automatic Calling Card Service
DIOR	Direct International Origination
NPA	Numbering Plan Area
NRA	Network Remote Access
SAC	Service Access Codes
SM	Switching Module

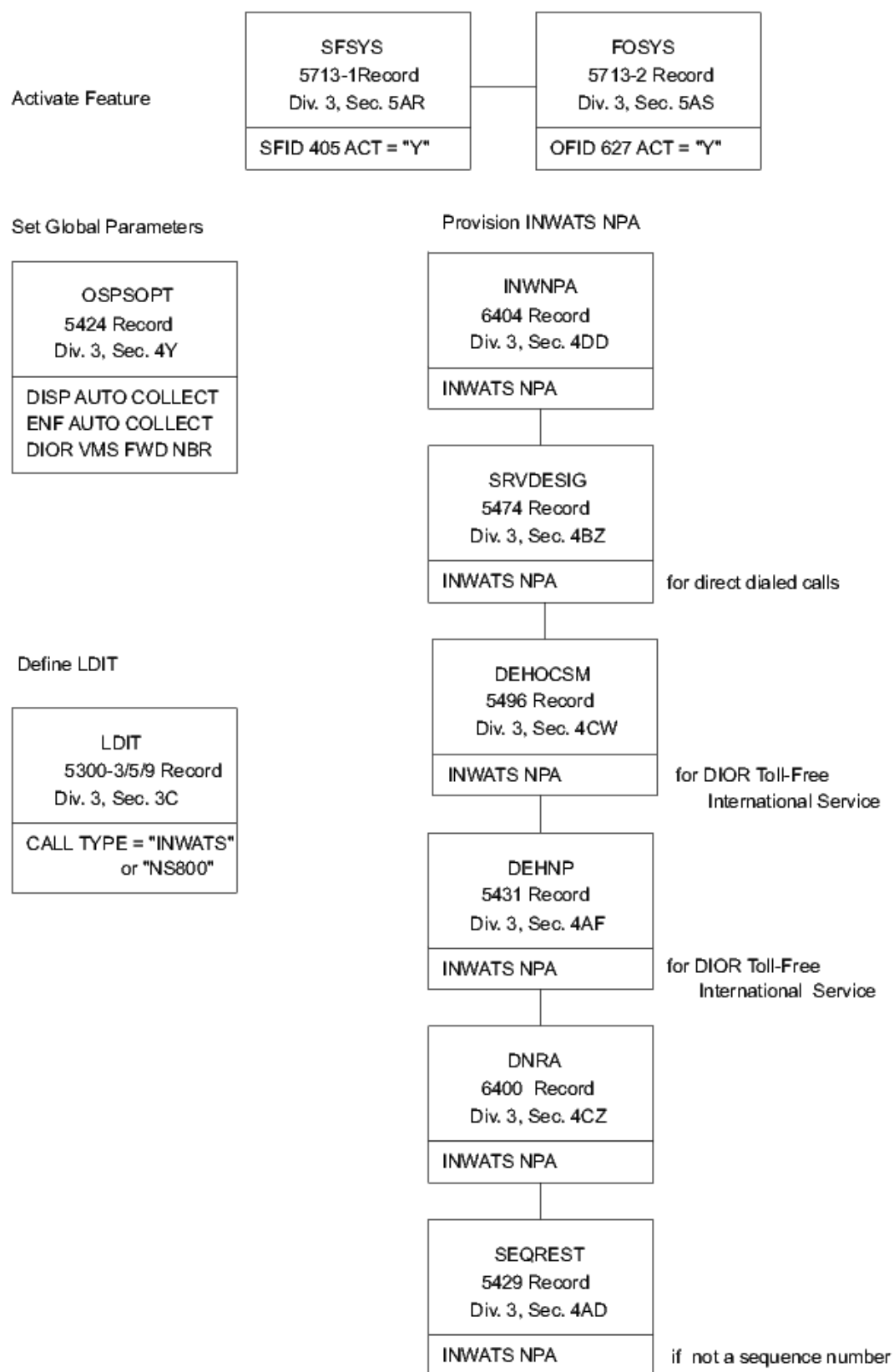


Figure 1 FORM FLOW FOR TOLL-FREE NPA EXPANSION**SEC. 4A409: OSPS AUTOMATION OF TERMINATING CODE SCREENING/COUNTRY PAIR SCREENING OVERRIDE****1. FEATURE DESCRIPTION**

The ATCO (Automation of TCS/CPS (Terminating Code Screening/Country Pair Screening) Override) feature provides automation of OSPS Toll and Assist operator's involvement during card verification with the ICVC (International Card Verification Center). This feature is available for 5E10 and later. The feature number is 98-5E-3218.

To help reduce operator worktime, this feature automates the verification process for TCS and CPS "card restricted" calls. Rather than an OSPS operator establishing the conference connection between the caller and ICVC attendant for verification procedures, the OSPS ATCO feature establishes and monitors the connection. TCS restrictions specify whether the restricted call should be sent to reorder or to an operator for handling. Only those TCS restrictions that specify "send call to operator" are candidates for ATCO processing. If the TCS restriction indicates that the call should be given "reorder", the call is processed according to existing functionality and will not be forwarded to ATCO processing.

Only those TCS/CPS "card restricted" calls that are billed to an AT&T card are referred to the ICVC and therefore, are candidates for ATCO processing. Those TCS/CPS "card restricted" calls that are billed to cards not in the AT&T CAS/NCP (Customer Account Services/Network Control Point) will proceed according to current functionality and be routed to an OSPS operator queue (with existing TCS/CPS displays) for handling.

AT&T cards such as promotional cards, prepaid cards, UNITEL cards, etc. are not appropriate to send to the ICVC for verification and neither ATCO processing nor manual verification with the ICVC is initiated. To identify this subset of AT&T cards, The ATCO feature will expand the table in the CHBCPT form (6404 Record, RC view 27.61) to include a new field for each card product type that indicates how to proceed when a TCS/CPS card restriction is encountered.

Some AT&T card accounts may have arrangements for permanent TCS override authorization to specific areas or global authorization. When the OSPS recognizes this automatic override, the restriction is overridden and the call proceeds without verification.

A person-to-person call requires an OSPS operator to complete the call. If a person-to-person call is being handled by the APS (Automatic Position System) and a "card restriction" has been encountered, the APS sends the call to an operator position for manual verification rather than sending it to the ATCO process.

Easy Reach (500 and 700) calls are not candidates for ATCO processing.

If an OSPS automated call encounters a "TCS/CPS card restriction" and the call is a candidate for ATCO processing, the call is transferred to an automated process that coordinates the ICVC verification procedure. If an OSPS operator-assisted call encounters a "TCS/CPS card restriction" and the call is a candidate for ATCO processing, a new display is given to the operator to indicate that the call is a candidate for verification automation. The operator may hand-off the call to automation processing via a special keying action or choose to keep the call at the position and coordinate the verification with the ICVC manually according to current procedures. An MLOS (Multi-Lingual Operator Services) operator may choose to handle the verification coordination so that translation can be provided during the verification.

2. FEATURE ASSIGNMENT

2.1 Feature Activation

The ATCO feature is a secured feature. To activate this feature the ACT field for SFID 409 (or SFID 288) must be set to "Y" on the SFSYS form (5713-1 Record).

With this feature, a new ODA form was created as an extension to the OSPSOPT form (RC view 8.9). The new OSPS Feature Parameters FTPARM form (view 8.41) provides the feature activation based on the calling and called destinations, timers for various stages of an ATCO call and the routing number to the ICVC attendant. For the ATCO feature to be activated, all of its timers and the ICVC routing number must be specified.

2.2 Card Restriction Types

The CARD RSTRCT HNDLG field was added to the CHBCPT form (6406 Record) and indicates the type of card restriction that a card product type will receive. A value of "ALLOW" indicates that verification is not needed and the restriction can be automatically overridden. "OTHBLG" indicates that verification is not needed and the restriction cannot be overridden - use other billing. "VERIFY" indicates that ATCO processing can be used to route the call to ICVC for verification.

The card product type is returned from the CAS/NCP, therefore, coordination is needed in specifying these values.

2.3 Define Announcements

Sixteen new customer defined announcements (Announcement HEADER IDs for "OSPSTA" 301 - 316) are provided for this feature. All announcements are given in English, only.

Announcement 301 is given to the caller when his/her card call is restricted by TCS/CPS and the call is going to be handled by ATCO processing for the verification. Following is recommended wording for the announcement.

"Thank you. This call requires special billing approval.
Please hold. You will hear an announcement or talk with a representative shortly."

Announcements 302-307 and 316 are used to pass the card number, forward number and back number to the ICVC attendant. Following is the recommended wording. Each of these announcements contains a variable indicator, phrase 16503, which announces a variable number of digits, e.g.:

"Card number or AT&T True Choice Card
[card number without PIN]
Calling [NPA/NXX] or
Calling Country [CCC],
Number [Next digits for total of 6]
from [NPA]
from [first 6-digits of DIOR back number]."

The individual announcements making up this call information message follow:

Announcement 302 passes the non-Virtual card number. Following is the recommended wording for the phrase(s) and variable indicator.

"Card number"

Announcement 303 passes the Virtual card number. Following is the recommended wording for the phrase(s) and variable indicator.

- "AT&T True Choice Card [card number
- without PIN]"

Announcement 304 passes the domestic called number. Following is the recommended wording for the phrase(s) and variable indicator.

"Calling [NPA/NXX]"

Announcement 305 passes the Country Code. Following is the recommended wording for the phrase(s) and variable indicator.

"Calling Country [CCC]"

Announcement 316 passes the international-formatted number. Following is the recommended wording for the phrase(s) and variable indicator.

"Number [Next digits for total of 6]"

Announcement 306 passes the originating NPA. Following is the recommended wording for the phrase(s) and variable indicator.

"from [NPA]"

Announcement 307 passes the DIOR back number.

"from [first 6-digits of DIOR back number]"

Announcement 308 is given to the ICVC attendant if the attendant enters a DTMF (Dual Tone Multifrequency) signal for "Help Message" during the Call Information Segment of the ATCO call. Following is recommended wording for the announcement.

"To verify with caller, press 1.
To request other billing, press 2.
To deny call, press 3.
To grant call, press 4.
To connect to an operator, press zero.
To hear the call data again, press 7.
To repeat this help message, press star."

Announcement 309 is given to the ICVC attendant if a DTMF signal for "Help Message" has been entered during the Caller Interaction Segment of the ATCO call. Following is a recommended wording for the announcement.

"To request other billing, press pound 2.
To deny call, press pound 3.
To grant call, press pound 4.
To connect to an operator, press pound zero.

To repeat this help message, press star."

Announcement 310 is given after the ICVC attendant has signaled back to the OSPS that verification with the caller is needed and the OSPS has "unsplit" the caller. Following are some recommended wordings for the announcement.

"Verify"

-or-

[tone] - Should be distinguishable from

intrusion tone and error tone

Announcement 311 is given when the ICVC attendant signals for assistance from an OSPS operator or the call is bailing out to an OSPS operator due to a failure in ATCO processing. Following is a recommended wording for the announcement.

"Please hold for further assistance."

Announcement 312 is given to the caller when the ICVC attendant has signaled back a "denial" to the OSPS. Following is a recommended wording for announcement 312.

"We're sorry.

This card call cannot be completed.

Please hang up."

Announcement 313 is given to the ICVC attendant whenever the OSPS receives a DTMF response of "denial", "allow", or "other billing". Following is a recommended wording for the announcement.

"Thank you"

-or-

"Acknowledged"

Announcement 314 is given to the ICVC attendant when either the CALLER SPLIT TIMER or the CALLER INTERACTION TIMER expires. This announcement warns the ICVC attendant that the call is placed on an OSPS operator queue after an additional POST WARNING TIMER expires. Following is a recommended wording for the announcement.

[intrusion tone] (i.e., a series of 4 short

beeps)

Announcement 315 is given to the ICVC attendant whenever an incorrect DTMF entry is received during an ATCO call. Following is a recommended wording for the announcement.

[error tone] A pure tone of 350 or 400 Hz

is recommended.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CHBCPT	6406	3	4DE	27.61
FTPARM	6424	3	4DY	8.41
SFSYS	5713-1	3	5AR	8.22

CHBCPT form (6406 Record) - The 6406 Record is used to populate the Card Product Type table for the PLBQ Business/Residential Card feature. For 5E10 and later, the CARD RSTRCT HNDLG field was added to support the ATCO (Automated TCS/CPS Override) feature.

FTPARM form (6424 Record) - The OSPS Feature Parameters form provides the capability for specifying OSPS feature options. The office parameters for the ATCO feature are

- DIOR TO INTL DEST
- DIOR TO DOM DEST
- NO DIOR TO INTL DEST
- NO DIOR TO DOM DEST
- ICVC TOLL-FREE NUMBER

fields and the timer fields which must be set to activate this feature. The timer fields are the following:

- CALL SETUP TIMER
- CALL SPLIT TIMER
- INTERACTION TIMER
- POST WARNING TIMER
- FINAL DISP TIMER.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 409 must be set to "Y".

4. GLOSSARY

APS	Automatic Position System
ATCO	Automation of TCS/CPS Override
CAS	Customer Account Services
CPS	Country Pair Screening
DTMF	Dual Tone Multifrequency
ICVC	International Card Verification Center
MLOS	Multi-Lingual Operator Services
NCP	Network Control Point
TCS	Terminating Code Screening

SEC. 4A412: AUTOMATED ACCESS PROMPTING USING CPDL

1. FEATURE DESCRIPTION

The feature number for the AAP (Automated Access Prompting) using CPDL (Call Processing Data Links) feature is 98-5E-3585. This secured feature (SFID 412) is being deployed as a software update for the 5E10 Software Release.

This feature provides an interface between OSPS (Operator Service Position System) and an EIS (External Information System) adjunct based SHARP (Shared Access Resource Platform) (which consists of a CDSU (Customer Data Service Unit) and a Platform Manager) for the handling of a call which has been identified as a 1-800-CALLATT using CPDL interface call. Upon recognition of a 1-800-CALLATT using CPDL interface call, OSPS will establish communication with the CDSU via CPDL interface.

When a 1-800-CALLATT using CPDL interface call arrives at the OSPS, the OSPS will forward the call to the SHARP for processing based on switch provisioned data. The SHARP is expected to provide the 1-800-CALLATT front end menu and sub-menu to interact with the caller and allow the caller to use either DTMF digits or spoken keywords to make credit card, collect, BT3 (Bill to 3rd), operator, Person-To-Person calls, or request to be externally transferred to the customer service representatives, DA (Directory Assistance) services, or AVL (AT&T Voice Line) services.

The SHARP is expected to support Card, Collect, BT3, operator, and Person-To-Person calling using DTMF (Dual Tone Multifrequency) digits or spoken keywords (by saying calling card, collect, BT3, operator, Person-to-Person, etc.) and also support multiple digits entry by callers to make card, collect, BT3, operator, or Person-To-Person calls. Based on the caller's response at the SHARP, the SHARP is expected to send the following internal transfer requests to the OSPS:

- Card call (the OSPS will send the card call request to ACCS),
- Collect or BT3 call (the OSPS will send Collect or BT3 call request to an Automated Position (AP)),
- Operator or Person-To-Person request call (the OSPS will send operator request or Person-To-Person request call to an operator).

The SHARP is also expected to handle external transfer requests and send the external transfer requests with either a toll free routing number or a 129 routing number to the OSPS and request the OSPS to use the above external routing number to transfer the call external to the OSPS switch. The OSPS will use the external routing number received from the SHARP to route the call.

Below is a description for the new announcements headers:

- 317 - provides the new CPDL turn-back announcement. The recommended wording - "We're sorry, the service you have requested is not available (1/2 second pause). Please hang up". This consists of phrases 156, 157, 27, 64.
- 318 - provides the initial ACCS (Automated Calling Card Service) forward number prompt when the SHARP does not pass the forward number to the OSPS. The wording to be provided by the Service Provider Technician.
- 319 - provides the forward number re-prompt on forward number failure during digit analysis checks when the forward number is entered at the initial ACCS prompt and the SHARP does not pass the forward number to the OSPS. (This is a re-prompt announcement when ONLY a forward number is entered in response to announcement 318.) The wording to be provided by the Service Provider Technician.
- 320 - provides the forward number re-prompt on forward number failure during digit analysis checks when the forward number and card number are entered at the initial ACCS prompt and the SHARP does not pass the forward number to the OSPS. (This is a re-prompt announcement when BOTH the forward number and card number are entered in response to announcement 318.) The wording to be provided by the Service Provider Technician.
- 321 - provides the forward number re-prompt on forward number failure during digit analysis checks when

the SHARP passes the forward number to the OSPS. The wording to be provided by the Service Provider Technician.

- 322 - provides the forward number re-prompt on forward number failure during digit analysis checks when the SHARP passes the forward number and card number to the OSPS. The wording to be provided by the Service Provider Technician.

2. FEATURE ASSIGNMENT

Before activating this feature on the switch, the OSPS switch Software Update package and the APS Software Update package MUST BE applied, and the SHARP MUST BE available. The OSPS switch data population MUST BE coordinated with the availability of the SHARP and the data required to update the Cluster data in the APS (Automated Position System) for this feature.

To provision this feature on the switch the following must be done:

- On the SFSYS form (5713-1 Record), SFID 412 must have the ACT field for SFID 412 set to "Y".
- EISDATA form (5462-1 Record), provides the new EIS NAME, NRP for vendor platform, and MSG SET 6 to support the CPDL services.
- SERVDATA form (5466 Record), provides the service ID data needed for this application. A new PRE OPER EIS is supported for CPDL services, with an OSPS SVC CODE value of "SRVC8" and the expected INITIAL ACTION to ASKEIS. The INT ANNC TYPE field should be populated on this view for these calls; this value (announcement header 317) is the Toll & Assistance header ID that is used to provide a turn-back announcement in case of a call failure before setting up to the EIS system.
- ACDCTP form (5412 Record), defines the service ID for 1-800-CALLATT using CPDL interface calls. This service ID is the SRV ID for 5466.
- SERVDEST form (5476 Record), provides a mapping of a service destination to a 5ESS-2000 Switch routing type and associated routing code such as a route index.
- FTPARM form (6424 Record), defines the timers and parameters used when handling 1-800-CALLATT using CPDL interface calls.
- SRVDESIG form (5474 Record), provides the new CPDL TREATMENT that specifies whether the 1-800-CALLATT call can be supported by the CPDL Interface interacting with the NRP platform.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
EISDATA	5462-1	3	4BM	21.51
SERVDATA	5466	3	4BS	21.54
ACDCTP	5412-A/D	3	4M	26.9
SERVDEST	5467	3	4BT	21.53
FTPARM	6424	3	4DY	8.41
SRVDESIG	5474	3	4BZ	27.70

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 412 must be set to "Y".

EISDATA form (5462-1 Record) - This form defines the operational parameters for a particular OSPS EIS (External Information System).

SERVDATA form (5466 Record) - This form is used to define EIS (External Information Systems) service parameters.

ACDCTP form (5412 Record) - This form assigns call type information for ACD (Automatic Call Distribution).

SERVDEST form (5476 Record) - This form provides a mapping of a service destination to a 5ESS-2000 Switch routing type and associated routing code such as a route index.

FTPARM form (6424 Record) - The OSPS Feature Parameter form provides the capability for specifying OSPS feature options.

SRVDESIG form (5474 Record) - This form is used to determine the expected service type for 1+800 calls arriving on AATOS (Alternate Access to Operator Systems) and SDN/NRA (Software Defined Network/Number Remote Access) MF (Multifrequency).

4. GLOSSARY

AAP	Automated Access Prompting
AATOS	Alternate Access to Operator Systems
AVL	AT&T Voice Line
CDSU	Customer Data Service Unit
CPDL	Call Processing Data Links
DA	Directory Assistance
DTMF	Dual Tone Multi-frequency
EIS	External Information System
OSPS	Operator Service Position System
SHARP	Shared Access Resource Platform

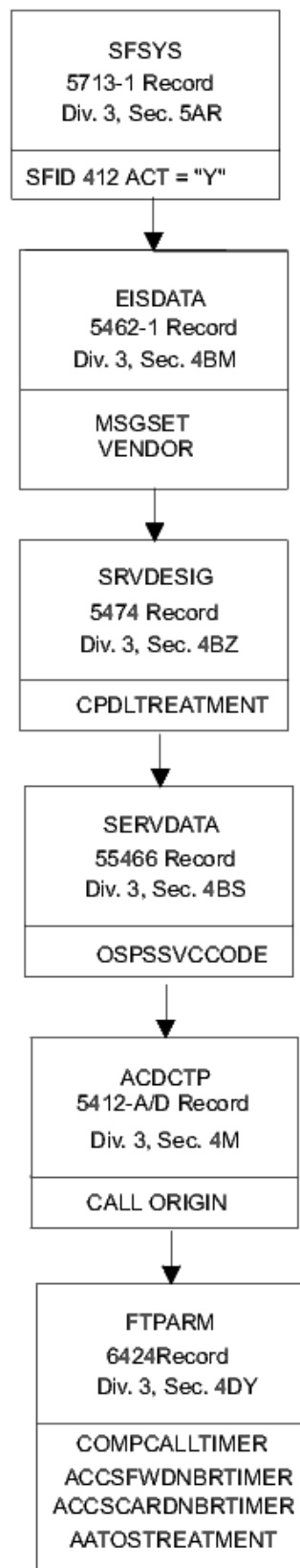


Figure 1 FORM FLOW FOR AUTOMATED ACCESS PROMPTING USING CPDL**SEC. 4A414: OSPS AUTOMATED SERVICE ACCESS PROMPTING FOR LANGUAGE SPECIFIC OPERATOR SERVICES RATING CHANGES.****1. FEATURE DESCRIPTION**

The ASAP (Automated Service Access Prompting) for LSOS (Language Specific Operator Service) RC (Rating Changes) feature is available for 5E10 and later. The feature number for this capability is 98-5E-3447. This feature provides the OSPS with the ability to differentiate the level of front-end automation provided on AATLSOS (Alternate Access to Language Specific Operator Services) calls. The rating and charging associated with the call may be changed as follows:

- designate which AATLSOS call originations should identify automation differentiation.
- charge differently by incorporating the level of automation information in the AMA (Automatic Message Accounting) record when the AP (Automated Position) provides front-end handling (ASAP Handling) on an AATLSOS call.
- identify the level of automation for AATLSOS calls which require RTRS (Real Time Rating System) interaction, such as with Purchase Limits, Hotel/Motel, and Rate Quotation calls.

See also the following ASAP features:

- AATLSOS Alternate Access Prompting; Division 2, Section 4A403 (SFID 403).
- ASAP for LSOS Using 129 Route Number; Division 2, Section 4A398 (SFID 398).
- ASAP Release 2; Division 2, Section 4A284 (SFID 284)

2. FEATURE ASSIGNMENT

This feature is dependent on ASAP Release 2 feature, therefore, SFID 384 must be activated on the SFSYS form. Also, ASAP AMA and ASAP RTR fields on the OPSOPT form (5424 Record) must be "Y".

ASAP LSOS RC feature is controlled by a global switch parameter, as well as a secured feature activation parameter and an optioned feature parameter.

The ASAP LSOS RC feature is activated by the following:

- ASAP LSOS RC is a secured feature. Enter "Y" in the ACT field for SFID 414 on the SFSYS form (5713-1 Record).
- ASAP LSOS RC is also an optioned feature and is turned on in the switch by entering "Y" in the ACT field for OFID 657 on the FOSYS form (5713-2 Record).
- In addition, to operate this feature, the Alternate Access Service Designation Table indicates if ASAP for LSOS RC applies to the call. If this feature applies to the call, the ASAP TREATMENT field on the SRVDESIG form (5474 Record) is set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22
SRVDESIG	5474	3	4BZ	27.70

FOSYS form (5713-2 Record) - This form is used to administer OFIDs (Optioned Feature System IDs) for Special and Transparency Features. The ACT field for OFID 657 must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 414 must be set to "Y"

SRVDESIG form (5474 Record) - This form is used to determine the expected service type for 1+800 calls arriving on AATOS and SDN/NRA MF trunks. The ASAP TREATMENT field supports this feature.

4. GLOSSARY

AATLSOS	Alternate Access to Language Specific Operator Services
ASAP	Automated Service Access Prompting
AMA	Automatic Message Accounting
AP	Automated Position
LSOS	Language Specific Operator Service
RTRS	Real Time Rating System

SEC. 4A415: OSPS RECORD AND PLAYBACK

1. FEATURE DESCRIPTION

The OSPS Record and Playback feature is an OSPS adjunct-based feature that reduces operator work time on LS/DA (Listing Services/Directory Assistance) calls by initiating the automation of the DA caller contact. This feature prompts the DA caller to speak the locality name for which a listing is desired and then to speak the desired listing name. The APS (Automated Position System) that provides this feature records the DA caller's responses, trims out initial and final silences, optionally compresses the remaining recorded speech, and plays the recording to an LS/DA operator. The feature number for this capability is 98-5E-2997.

In order for the 5ESS-2000 Switch portion of this feature to be functional, the APS portion of the feature must be purchased, loaded and activated.

2. FEATURE ASSIGNMENT

In order to activate this secured feature, the ACT field for SFID 415 on SFSYS form (5713-1 Record) must be set to "Y". This is also an optioned feature, therefore, the ACT field of OFID 659 must be set to "Y" on the FOSYS form (5713-2 Record).

The DA AUTOMATION field on the OPRTK form (5417 Record) must be set to indicate whether an LS/DA call should be routed to an automated position or to an LS/DA operator position. This route indicator is supported on a per trunk group basis.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2/3	3	5AS	8.31
OPRTK	5417	3	4R	26.26
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to activate optioned features. The ACT field for OFID 659 must be set to "Y" to activate this optioned feature.

OPRTK form (5417 Record) - This form is used to define the common information and type of traffic over each trunk group that can access an OSPS operator. An OPRTK form must be completed for each incoming trunk group in the office that can access the OSPS operator. The DA AUTOMATION field supports this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 415 must be set to "Y" to activate this feature.

4. GLOSSARY

APS	Automated Position System
DA	Directory Assistance
LS	Listing Services

SEC. 4A417: OSPS LOCAL NUMBER PORTABILITY (LNP) - LEC Version

1. FEATURE DESCRIPTION

Available for 5E11 and later, the OSPS LNP (Local Number Portability) feature implements the use of LNP on an OSPS for both LEC (Local Exchange Carrier) (feature number 98-5E-3518) and AT&T (feature number 98-5E-3571) offices. This feature uses OSPS office data and external database queries to determine if calling numbers, called numbers, and billing numbers (e.g. calling cards, third numbers, collect numbers) should use LRNs (Location Routing Numbers) for call routing and AMA (Automatic Message Account) recording. The LRN is a 10-digit number used to identify which company is offering service to the particular number in question. Called numbers and conferenced numbers used to verify billing (e.g. third numbers) are routed using the LRN instead of the actual number when routed via SS7 (Signaling System 7).

To obtain LRNs, the LEC version of the OSPS LNP feature uses existing AIN (Advanced Intelligent Network) queries.

This section covers general feature information that is applicable to both the LEC and the AT&T versions of this feature as well as information that is specific to the LEC. Unless otherwise specified, the information is applicable to both LEC and AT&T. For AT&T specific information, refer to Division 2 Section 4A419.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow of the OSPS LNP feature.

2.1 Activation/Deactivation

FOR USE BY LEC OFFICES ONLY.

The LEC FEAT ACT field on the FTPARM form (6424 Record) is the nonsecure feature activation/deactivation parameter for the LEC OSPS LNP feature. Setting this field to "Y" activates the OSPS LNP feature for a LEC office. To allow this feature to be accessed, Secured Feature ID 417 on the SFSYS form (5713-1 Record) must also be activated. In order to deactivate this feature, set the LEC FEAT ACT field to "N".

2.2 Direct Signaling Application

A new Direct Signaling Application type of "OLNP" (OSPS Local Number Portability) was added as an allowed key value for the DSAPP form (5537 Record).

2.3 Trunk Group Settings

Mark the affected "Trunk Group Calling LNP Source" parameter by setting the CALL LNP SRC field on the OPRTK form (5417 Record). The default value is "NOPT" which means no portability. Other allowed values are "QUERY", for LNP/AIN query, and "OFCD" for use of the office data specified in the LRN PARAMETER field of this form.

When the value in the CALL LNP SRC field is "OFCD", then the LRN PARAMETER field on this form must be filled in with a 10-digit number to be used as a back number for calls coming into the trunk group.

2.4 NXXs For LNP Query

Data regarding the portability status of NXXs specified within the NPA can be inserted, updated, reviewed and/or deleted using the OLNPU form (6411 Record). This form provides for the designation of portability data for individual NXXs and ranges of NXXs.

2.5 AIN Trigger Number

FOR USE BY LEC OFFICES ONLY.

To reserve a specific AIN (Advanced Intelligent Network) trigger number to be used with OSPS for AIN LNP queries, it must first be defined on the NSTRIG form (5324 Record). It can then be assigned to the AIN TRIGGER NBR field on the FTPARM form (6424 Record).

2.6 Other Options

On the FTPARM form (6424 Record) several other options are available for both the LEC and AT&T offerings of this feature as follows:

- **TLN CARD NBR** (Telephone Line Number based 10+4 Card Number) - Enter "Y" for yes if Local Number Portability (LNP) queries are to be sent on TLN-based 10+4 card numbers, otherwise enter "N" (default value) for no.
- **THRD NBR CALLS** (Third Number Calls) - Set this field to specify when LNP queries for third number calls are to be sent. Use either "B" for BILL to send at billing validation time or "R" for ROUT to send at routing time.
- **LRN IN OTRS** (Location Routing Numbers in Operator Trouble Reports) - Specify whether the LRN is to be supplied in the OTR by entering "Y" for yes or "N" for no.
- **LRN ASSERTS** (Location Routing Numbers in Asserts) - Specify whether the LRN is to be included in

assert output data by entering "Y" for yes or "N" for no.

- **DIGIT LIDB QRY** (Number of Digits in Line Interface Data Base Query Address) - Specify the number of digits, either 6 or 10, to be included in the address of an LIDB query.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
DSAPP	5537	3	5AK	8.17
FTPARM	6424	3	4DY	8.41
OLNPU	6411	3	4DJ	27.34
				27.35
OPRTK	5417-3	3	4R	26.26
SFSYS	5713-1	3	5AR	8.22

DSAPP form (5537 Record) - This form is used to translate a direct signaling application type into a translation type and a subsystem number. This is only used by a direct signaling application providing a service unit that uses the pure CCS7 (Common Channel Signaling system 7) protocol. The value "OLNP" was added for use as a key on this view.

FTPARM form (6424 Record) - This form is used for updating the listed global parameters used in OSPS features. Added fields are as follows:

- (FOR LEC USE ONLY)
 - LEC FEAT ACT
 - AIN TRIGGER NBR
- (FOR BOTH LEC AND AT&T USE)
 - TLN CARD NBR
 - THRD NBR CALLS
 - LRN IN OTRS
 - LRN ASSERTS
 - DIGIT LIDB QRY

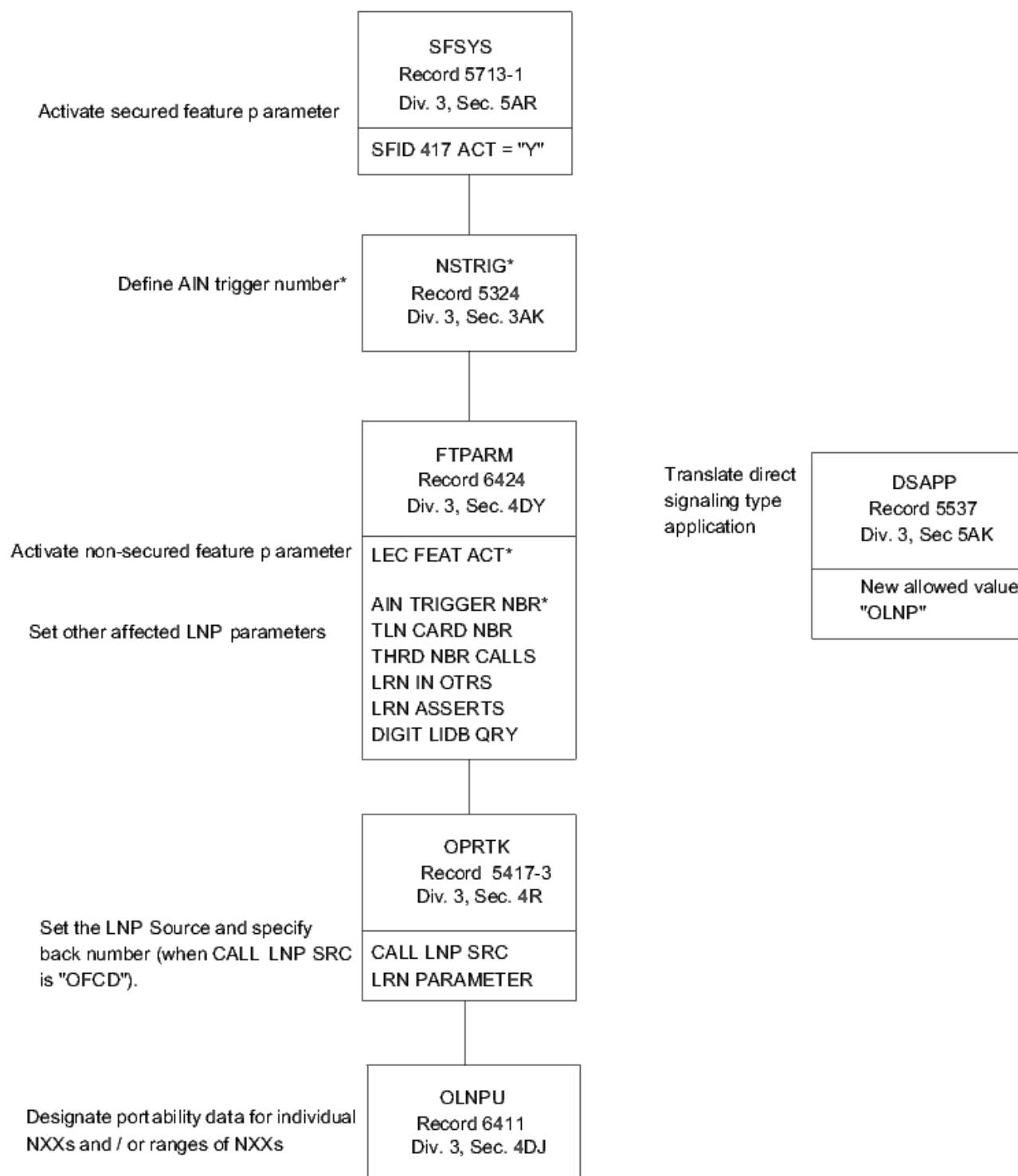
OLNPU form (6411 Record) - This form is used to maintain the billing validation for a specified set of NXXs in an NPA. The LNPD (Local Number Portability Database) or an alternate destination may be selected. This is a new form.

OPRTK form (5417-3 Record) - This form provides the capability for specifying or verifying access tandem incoming trunk group assignments for an OSPS Administrative Office. Added fields are CALL LNP SRC and LRN PARAMETER.

SFSYS form (5713-1 Record) - This form allows activation and deactivation of secured features. SFID 417 has been added for activation of the LEC OSPS LNP feature.

4. GLOSSARY

AIN	Advanced Intelligent Network
CCS7	Common Channel Signaling Version 7
LEC	Local Exchange Carrier
LIDB	Line Interface Data Base
LNP	Local Number Portability
LNPD	Local Number Portability Database
LRN	Location Routing Number
ODA	Office Data Administration
OLNP	OSPS Local Number Portability
OSPS	Operator Services Position System
OTR	Operator Trouble Report
RC	Recent Change
SFID	Secured Feature Identification
SS7	Signaling System 7
TLN	Telephone Line Number



* Indicates applicable for LEC of fices only

Figure 1 FORM FLOW FOR LEC OSPS LNP FEATURE

SEC. 4A418: VMS ACCESS DIALING CHANGES

1. FEATURE DESCRIPTION

Available for 5E10 and later, the VMS ADC (Voice Messaging Service Access Dialing Changes) feature modifies several aspects of the OSPS switch treatment which is provided by the current series of VMS features.

The following enhancements are included in this feature:

- Callers are able to initiate a VMS explicit transfer request without having to first dial the # key at times when sequence dialing is allowed.
- Callers no longer have to dial the VMS Service Code when requesting an explicit transfer to VMS at times when sequence dialing is allowed.
- OSPS provides a recent-changeable interdigit timer used to determine the end of input on a caller-entered ESP (Enhanced Service Provider) Access Code.
- For non-DIOR (Direct International Origination) calls that encounter a CCS7 (Common Channel Signaling, CCITT Version 7) busy condition, callers may be transferred to the VMS automatically (the caller implicitly indicates a desire to be transferred to the VMS by staying off-hook following completion of the VMS busy prompt announcement; no other caller action is required.)
- For non-DIOR calls, callers may be prompted (with a VMS Ring/No Answer announcement) for transfer to a VMS ESP when no CCS7 indication is received that identifies the status of the destination number. With the addition of this capability, non-DIOR callers may be prompted for transfer to VMS when any of the following conditions are encountered:
 - CCS7 Busy
 - CCS7 Ring/No Answer
 - no CCS7 indication is received

NOTE: Non-DIOR callers are not prompted for transfer to VMS when CCS7 indications other than Busy or Ring/No Answer are encountered.

- On non-DIOR calls to international destination numbers, OSPS uses a new ring time-out timer to determine when to play a VMS Ring/No Answer prompt announcement.
- OSPS allows the operator to perform a VMS transfer while in the initial call class state.
- OSPS blocks the VMS transfer prompt and VMS transfer requests on calls billed to a calling card subscribed to the ESP Credit Checking feature or to a card defined as ineligible for VMS treatment in the OSPS Card Recognition table.
- OSPS blocks the VMS transfer prompt and VMS transfer requests on calls to destination numbers defined as ineligible for VMS treatment.
- OSPS provides new VMS announcements used to instruct callers of the new dialing method and to handle error conditions.

- OSPS supplies new operator displays that provide operators with information related to new VMS transfer procedures and transfer request denials.
- OSPS provides additional VMS service and per-ESP measurements.
- The type of billing record OSPS creates for the call to the VMS ESP is changed for certain types of calls. The manner in which OSPS creates an AMA record for this call is described as follows (both new and existing functionality):
 - For DIOR and Wireless originations transferred to ESP Access Code ``1", OSPS creates a billable AMA record for the call to the ESP. The public access number of the Message Service is included as the destination number in this record. This capability currently exists and continues to be supported for DIOR and Wireless originations transferred to ESP Access Code "3".
 - For Message Collect calls, OSPS creates an Auto-Collect AMA record for the call to the ESP, as is done currently.
 - For all other VMS transfers, OSPS has the ability to create a billable AMA record for the call to the ESP.

This capability is controlled by two activation parameters: one for calls to domestic destination numbers and one for calls to international destination numbers. Billing changes take effect only when these parameters, referred to as the VMS Domestic Billing Changes and VMS International Billing Changes parameters, are active. These parameters have been added to the *Voice Messaging Service Interface* table thereby allowing the Service Provider to define billing for other VMS transfers on a per-ESP basis. It is not necessary for both of these parameters to be active at the same time in order to have a particular ESP.

The billable AMA record contains the destination number for which the caller would like to leave a message. It does not contain the redirection number of the associated ESP. OSPS creates the record in this manner even when the call is completed to the ESP.

VMS ADC is a secured feature. The ACT field for SFID 288 or 418 on the SFSYS form must be set to "Y" in order to use this feature.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow of the VMS Access Dialing Changes feature.

2.1 Activation/Deactivation

The VMS ACC DIAL field on the OSPSOPT form (5424 record) is the nonsecure feature activation/deactivation parameter for the VMS Access Dialing feature. Setting this field to "Y", along with activating the original VMS feature by setting the VMS ON field on the OSPSOPT form to "Y", activates the VMS Access Dialing Changes feature. To allow this feature to be accessed, one of the Secured Feature IDs, 288 or 418, must be activated. In order to deactivate the feature, set the VMS ACC DIAL field to "N".

2.2 Implicit Transfer Option

The Implicit Transfer Option is turned on by setting the IMPLCT TRANS field on the OSPSOPT form (5424 record) to "Y" and by assigning a predefined ESP access code value to the IM TR ESP AC field on the OSPSOPT form. This value is predefined using the ESPINFO form (5472 record).

2.3 Timer Values

Set the VMS AD TIMER field on the OSPSOPT form (record 5424) to the duration of time, in tenths of a second, that is desired for OSPS to wait for the user to complete entering an ESP access code. If not set, this field takes on a default value of 20. This timer is applied only when a caller requests a transfer utilizing the VMS Access Dialing Changes feature (i.e., abbreviated dialing).

Set the INTL RING TO field on the OSPSOPT form to the duration of time, in seconds, that is desired for ringing to be provided before VMS prompt treatment is applied. This field applies only to non-DIOR calls to international destination numbers. If this field is not set, it takes on a default value of 36.

2.4 Eligibility

Use the VMSTPR form (6410 record), OSPS VMS Terminating NPA NXX Restrictions, to define NANP (North American Numbering Plan) destination numbers as ineligible for VMS treatment.

Set the VMS ELIGIBLE field on the TCCID form (5454 record) to "Y" if this card's issuer identifier is eligible for VMS treatment. Otherwise, set it to "N".

2.5 Billing

For billing of VMS transferred calls, to which the destination number is domestic, set the VMS DOM BLG field on the ESPINFO form (5472 record) to "Y" if it is desired to have OSPS create a billable AMA record. Setting this field to "Y" also means that there must be an acceptable VMS billing method available in order for the VMS transfer to be allowed.

Set the VMS INTL BLG field to "Y" if the preceding described functionality is desired for the billing of VMS transferred calls to which the destination number is international.

2.6 Announcements

Define ten new announcements using the ANNHD form (5531 record). Following are the available announcement header ID numbers and their associated events:

ID#	EVENT
323	A non-DIOR call receives busy - explicit VMS transfer request
324	A DIOR call receives busy
325	A non-DIOR call receives ringing
326	A DIOR call receives ringing
327	VMS is not allowed but, a re-prompt is provided
328	VMS is not allowed and a reprompt is not provided
329	The access code is invalid but, a re-prompt is provided - the caller has not previously dialed the # key
330	The access code is invalid but, a re-prompt is provided - the caller has previously dialed the # key
331	The access code is invalid and a re-prompt is not provided
335	A non-DIOR call receives busy - implicit VMS transfer request

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ANNHD	5531	3	5AE	8.61
ESPINFO	5472	3	4BX	27.65

OSPSOPT	5424	3	4Y	8.9
SFSYS	5731-1	3	5AR	8.22
TCCID	5454	3	4BC	27.55
VMSTPR	6410	3	4DI	27.64

ANNHD form (5531 Record) - This form contains announcement header definitions. For this feature, ten new announcement headers are provided which can be used to define new VMS announcements. No modifications to this form were necessary.

ESPINFO form (5472 Record) - This form contains information about the ESP (Enhanced Service Provider) external to the 5ESS Switch. The following fields were added: VMS DOM BLG and VMS INTL BLG.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. The following fields were added: VMS AD TIMER, INTL RING TO, IMPLCT TRANS, IM TR ESP AC. Data rules for the INTL RING TO and the IMPLCT TRANS fields have also been added.

SFSYS form (5731-1 Record) - This form allows activation and deactivation of secured features. SFID 418 has been added for activation of the VMS Access Dialing Changes feature.

TCCID form (5454 Record) - This form is used for Telephone Credit Card (TCR) identification. The VMS ELIGIBLE field was added to this form.

VMSTPR form (6410 Record) - This is a new form which contains the NPA, NXX and LINE information to block call terminations for Voice Message Service (VMS) calls.

4. GLOSSARY

ADC	Access Dialing Changes
AMA	Automatic Message Account
CCS7	Common Channel Signaling, CCITT version 7
DIOR	Direct International Origination
ESP	Enhanced Service Provider
NANP	North American Numbering Plan
NPA	Number Plan Area
ODA	Office Data Administration
OSPS	Office Service Position System
RC	Recent Change
RTU	Right To Use
SFID	Secured Feature Identification number
TCR	Telephone Credit Card
VMS	Voice Messaging Service

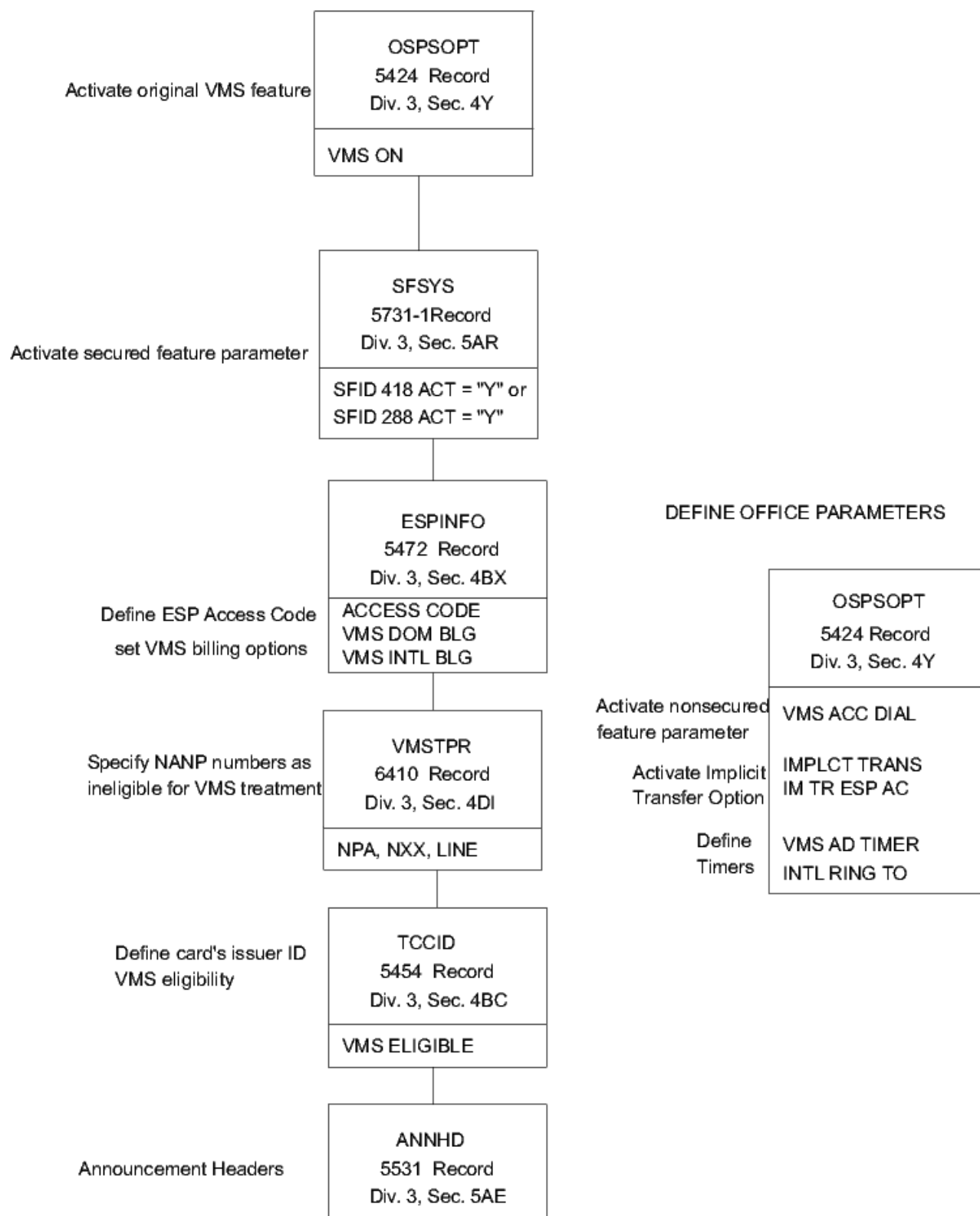


Figure 1 FORM FLOW FOR VMS ACCESS DIALING CHANGES FEATURE**SEC. 4A419: OSPS LOCAL NUMBER PORTABILITY (LNP) - AT&T Version****1. FEATURE DESCRIPTION**

Available for 5E11 and later, the OSPS LNP (Local Number Portability) feature implements the use of LNP on an OSPS for both LEC (Local Exchange Carrier) (feature number 98-5E-3518) and AT&T (feature number 98-5E-3571) offices. This feature uses OSPS office data and external database queries to determine if calling numbers, called numbers, and billing numbers (e.g., calling cards, third numbers, collect numbers) should use LRNs (Location Routing Numbers) for call routing and AMA (Automatic Message Account) recording. The LRN is a 10-digit number used to identify which company is offering service to the particular number in question. Called numbers and conferenced numbers used to verify billing (e.g., third numbers) are routed using the LRN instead of the actual number when routed via SS7 (Signaling System 7).

To obtain LRNs, the AT&T version of the OSPS LNP feature uses a new type of query, LNP.

This section covers information that is specific to the AT&T version of this feature. For general feature information that is common between both the LEC and the AT&T versions as well as LEC specific information, refer to Division 2 Section 4A417.

2. FEATURE ASSIGNMENT

Refer to Figure 1 for AT&T specific feature assignment form flow of the OSPS LNP feature. Refer to Figure 1 in Division 2 Section 4A417 for general feature assignment form flow of the OSPS LNP feature.

2.1 Activation/Deactivation

The ATT FEAT ACT field on the FTPARM form (6424 Record) is the nonsecure feature activation/deactivation parameter for the AT&T OSPS LNP feature. Setting this field to "Y" activates the OSPS LNP feature for an AT&T office. To allow this feature to be accessed, either Secured Feature ID 288 or 419 must also be activated. In order to deactivate this feature, set the ATT FEAT ACT field to "N".

2.2 Query Parameters

Update the following fields on the FTPARM form (6424 Record) for AT&T LNP:

- Set the ATT QRY TRANS (AT&T Query Translation type) field to a number from 0 to 255 to specify a unique translation type for an AT&T LNP query.
- Set the ATT QRY TIMEOUT (AT&T Query Timeout) field to a number from 1 to 8 seconds to specify when a query should time out.
- Set the ATT QRY ALM THR (AT&T Query Alarm Threshold) to a number from 0 to 100 to indicate the percentage of LNP queries that must succeed per quarter hour. When the query success rate falls below this percentage, in any quarter hour interval, an LNP Query Failure Alarm is activated.
- Set the ATT MIN THR (AT&T Minimum Threshold) to a number from 1 to 64 to specify the minimum number of queries that must be attempted per quarter hour in order to calculate the query success rate.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
FTPARM	6424	3	4DY	8.41
SFSYS	5731-1	3	5AR	8.22

FTPARM form (6424 Record) - This form is used for updating the listed global parameters used in OSPA features. Added fields are as follows:

- ATT FEAT ACT
- ATT QRY TRANS
- ATT QRY TIMEOUT
- ATT QRY ALM THR
- ATT MIN THR

SFSYS form (5731-1 Record) - This form allows activation and deactivation of secured features. SFID 419 has been added for activation of the AT&T OSPA LNP feature.

4. GLOSSARY

LEC	Local Exchange Carrier
LNP	Local Number Portability
LRN	Local Routing Number
ODA	Office Data Administration
OSPA	Operator Services Position System
RC	Recent Change
SFID	Secured Feature Identification
SS7	Signaling System 7

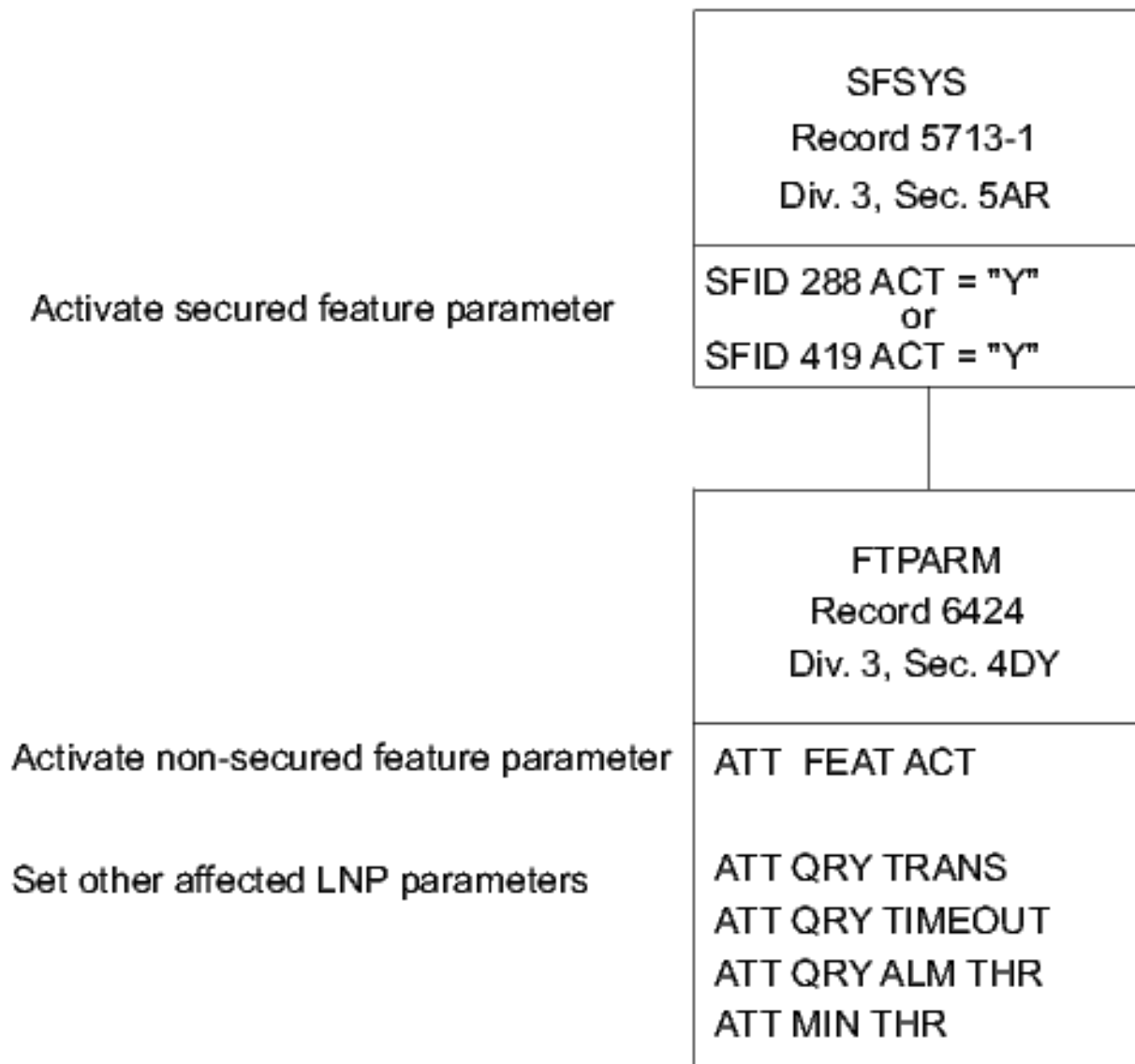


Figure 1 FORM FLOW FOR AT&T OSPA LNP FEATURE

SEC. 4A420: CAS INTERNATIONAL INTERCEPT

1. FEATURE DESCRIPTION

The feature number for the CASII (CAS (Customer Account Services) International Intercept) feature is 99-5E-3834. This secured feature (SFID 420) is being deployed as a software update for the 5E10 Software Release.

The feature introduces a new card restriction type. This new restriction type, Intercept, parallels the TCS (Terminating Code Screening) and CPS (Call Progress Stopped) restrictions in screening precedence rules and in display and verification processing. An intercept indicator is stored with each card account in the CAS/NCP (Network Control Point). If the card is to be verified with the ICVC (International Card Verification Center) when a call is billed to that account, the Intercept Indicator is set in the CCIF (Calling Card

Information) parameter of the card validation response. The CAS/NCP sets the Intercept Indicator in the CCIF parameter of the response if the flag has been set in the account and the card.

Upon the activation of the CAS International Intercept Feature, the OSPS (Operating Services Position System) will examine the CCIF parameter to determine if intercept applies to the call, typically to an international destination because the card has not been used recently for international calls. If intercept does apply to the call, the OSPS will provide processing for card verifications to the ICVC for ATCO (Automation of TCS/CPS Override) treatment.

For calls that are at a position, either operator or APS (Automated Position System), a warning message consistent with the TCS/CPS warning message is provided. Additionally, a new display indicator can be provided at the position to show which card restriction type applies. The restriction type can also be quoted to the ICVC attendant in the call information message.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for SFID 420 is set to "Y" on the SFSYS form (5713-1 Record). In addition, the following fields must be activated on the FTPARM form (6424 Record):

- INTRCPT DIOR - Set to "Y" if this feature applies for DIOR originations
- INTRCPT NDIOR - Set to "Y" if this feature applies to domestic originations
- CRD RESTR TYP - Set to "Y" if the restriction type announcement header IDs 332, 333, or 334 is to be quoted to an ATCO attendant on an automated verification call and if the new indicator will be displayed when an OSPS operator handles a restricted call. This can be activated independent of the INTRCPT DIOR and the INTRCPT NDIOR fields.

There are also external interfaces required before the feature can be used. This feature should be activated after the CAS/NCP changes have been implemented for populating the Intercept Indicator in parameter CCIF of the TCAP reply message. The new parameter value will be ignored by OSPS if it is received and this feature is not active.

There are 2 SCENARIOS:

- 0+ Call with the ATCO feature active
 - An AT&T call is made using an AT&T Card. After the forward or international forward number and card number are entered, a CAS card validation query is sent.
 - The CAS reply contains a new field in the CCIF parameter which represents the CASII indicator. If this indicator is set or if TCS/CPS restrictions are present and not overridden by the CAS reply, then this call is a candidate for ATCO treatment.
 - Since the ATCO feature is active, a call is routed to an ATCO attendant.
 - A new measurement is pegged indicating restrictions were applied because of the CASII indicator.
 - When the ATCO attendant requests the call information, a new phrase may be prefixed to the current call information announcement. The new phrase will indicate what caused the restriction 1) TCS or CPS screening 2) non-use or 3) TCS/CPS with non-use.
 - The new phrase is only prefixed if the card restriction type quotation parameter is set on the

FTPARM form (6424 Record).

- If the ATCO attendant presses #0 for operator assistance, an OSPS operator is attached to the call.
 - Upon position seizure, if the card restriction type quotation parameter is set, then a new indicator identifying the cause of the restriction is displayed on the operator's terminal. The restriction may be caused by 1) TCS or CPS screening 2) non-use or 3) TCS/CPS.
 - The rest of the call is handled according to operator practices for TCS/CPS restricted calls, i.e. early position release is not allowed because of the restriction.
- 0- call with the ATCO feature active
 - The caller dials 0- to request operator assistance. The operator enters a valid forward/international forward number and Calling Card number. A CAS card validation query is sent.
 - The CAS reply contains a new field in the CCIF parameter which represents the CASII indicator. If this indicator is set or if TCS/CPS restrictions are present and not overridden by the CAS reply, then this all is a candidate for ATCO treatment.
 - If the card restriction type parameter is set, a new indicator is displayed to the operator identifying the cause of the restriction. The restriction may be caused by 1) TCS or CPS screening 2) non-use or 3) TCS/CPS with non-use.
 - Since the ATCO feature is active, a message is given to the operator that auto verification is allowed.
 - The operator enters TRANS 4 SEND.
 - The call is released from the position and routed to an ATCO attendant.
 - When the ATCO attendant requests the call information, a new phrase is prepended indicating the cause of the TCS/CPS restriction. The new phrase is prepended if the CAS International Intercept indicator is set and the global parameter (Card restriction type quotation) is active for the call.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FTPARM	6424	3	4DY	8.41
SFSYS	5713-1	3	5AR	8.22

FTPARM form (6424 Record) - This record provides the capability for specifying, updating, and/or verifying OSPS feature options.

SFSYS form (5713-1 Record) - This form is used by the SEE (System Equipment Engineer) to enable the feature for the operating company. The secured feature ID 420 on the SFSYS form must be set to "Y" to provide offices with control of this feature.

4. GLOSSARY

APS Automated Position System

ATCO	Automation of TCS/CPS Override
CAS	Customer Account Services
CCIF	Calling Card Information
CPS	Call Progress Stopped
ICVC	ICVC - International Card Verification Center
NCP	Network Control Point
OSPS	Operating Services Position System
SEE	System Equipment Engineer
TCS	Terminating Code Screening

SEC. 4A428: RATE FOR FLAT AND MEASURED SERVICE

1. FEATURE DESCRIPTION

The feature number for the Rate for Flat and Measured Service is 98-5E-3991. This secured feature (SFID 288) is being deployed as a software update for the 5E11 Software Release.

This feature provides the OSPS (Operator Services Position System) with the ability to supply rating information to the T&A operator for both Flat and Measured services during rate quotations. In areas where the tariffs allow for both Flat and Measured services, the RTRS (Real Time Rating System) returns to the OSPS the rates for both types of services.

After the caller has indicated which type of service plan they subscribe to, the operator can choose the correct set of rates to quote to the caller. If only one type of service is tariffed, the RTRS returns the rates for that service only. Since this feature only handles the rate quotation of one flat and one measured service plan, the OSPS is unable to handle rate quotations to areas where multiple measured services have been tariffed. In this situation, the RTRS notifies the OSPS that multiple measured services apply and does not return rating information for measured services. However, if a flat service is also tariffed for that area, the RTRS does return the associated information for the flat service. When multiple measured services apply, the OSPS provides a display to the operator informing them of this condition. The operator will then need to consult an alternative source to obtain rating information for these multiple measured services.

This feature requires changes in the signaling interface between the OSPS and RTRS. The signaling needs to be modified to handle the returning of call rating information for both flat and measured services during rate quotations. Additionally, this feature modifies the T&A operator display so that rating information for both services can be displayed during rate quotations.

This feature only modifies rate quotations for 1+ DDD calls for non-coin/non-ACQS station originations. Rate quotations for other calls will continue to use the existing rate quote functionality that provided rating information for one service type (i.e. flat services). Additionally, other real-time rated calls in the OSPS are not modified by this feature. Those calls will continue to use the existing rating interface for flat services and will not support measured services.

2. FEATURE ASSIGNMENTS

To activate this feature:

- set the ACT field for one of the following to "Y" on the SFSYS form (5713-1 Record)
 - ASAP (Automated Service Access Prompting) Secured Feature ID (428)
 - Secured Feature ID (288)
- set the ACT field for the optioning number 674 to "Y" on the FOSYS form (5713-2 Record)

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Transparency and Special features and as feature options to control various aspects of feature operation. TFOS ID 674 on this form must be set to "Y" to activate this feature.

SFSYS form (5713-1 Record) - This form is used by the SEE (System Equipment Engineer) to enable the feature for the operating company. The secured feature ID 288 on the SFSYS form must be set to "Y" to provide offices with control of this feature.

4. GLOSSARY

ASAP	Automated Service Access Prompting OSPS Operator Service Position System
RTRS	Real Time Rating System
SEE	System Equipment Engineer
TFOS	Transparency Feature Optioning System

SEC. 4A449: OSPS NPA CODE EXPANSION FOR BLV

1. FEATURE DESCRIPTION

The OSPS (Operator Services Position System) NPA (Numbering Plan Area) Code Expansion for BLV (Busy Line Verification) feature is a secured feature (SFID 449) that is available as a 5E11 Software Update. The feature number for this feature is 98-5E-4281.

This feature allows a switch owner to determine whether or not BLV is permitted to the full range of NPAs and LNP (Local Number Portability) LRNs (Location Routing Numbers).

This feature also provides the following data enhancements to allow an OSPS to perform BLV operations for all NANP (North American Numbering Plan) numbers served by the switch:

BLV data will be expanded to allow 800 verifiable NPAs. If the switch handles portable numbers in an LNP environment, the first six digits of the LRN will be used in place of the NPA-NXX (Numbering Plan Area

Office Code) in the BLV data tables.

A Route Code is associated with each NPA for which BLV is permitted. The range of the Route Code, currently 1 through 199, will be increased to 1 through 999.

The data dependence between the BLV NPA, on the BLVNPA form (5441 Record) and on RC/V (Recent Change and Verify) 27.10, and the BLV exclusion table, on the BLVEX form (5442 Record), and the RC/V 27.11, is being removed with this feature, so that any number can be included in the BLV exclusion table independently of the data contained in the BLV NPA table.

2. FEATURE ASSIGNMENT

The provisioning of this feature is as follows:

Set the ACT field for SFID 449 on the SFSYS form (5713-1 Record) to "Y".

Set the ACT field for OFID 720 on the FOSYS form (5713-2 Record) to "Y".

Insert or update the ENHBLV form (6435 Record).

On the BLVNPA form (5441 Record), define the lines that can be verified for an NPA-NXX code.

On the BLVEX form (5442 Record), define the lines that will be excluded from verification for an NPA-NXX code.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BLVEX	5442	3	4AQ	27.11
ENHBLV	6435	3	4EH	27.12
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. For 5E9(1) and later, these TFOS IDs (Transparency Feature IDs) are called OFS IDs (Optioned Feature System IDs). Transparency Features have been developed to replicate features that exist on the 1A ESS Switch. To activate the OSPS NPA Code Expansion for BLV feature for an office, the ACT field for OFID 720 on this form must be set to "Y".

BLVEX form (5442 Record) - This record contains information regarding the lines excluded from verification for an NPA-NXX code. For 5E11 and later, added a data rule to the NPA field.

ENHBLV form (6435 Record) - This record provides the capability for specifying the LRN or NPA, the route code, and NXX or range of NXXs. This is a new form to support this feature.

SFSYS form (5713-1 Record) - This form is used to enable secured features. To activate the OSPS NPA Code Expansion for BLV feature, the ACT field for SFID 449 on this form must be set to "Y".

SEC. 4A450: FLEXIBLE AUTOMATED CALL TYPE DETERMINATION

1. BACKGROUND

OSPS (Operator Services Position System) ACD (Automatic Call Distributor) Call Type Determination is used when OSPS requires handling by an operator, an AP (Administration Processor), or an external service platform to continue processing a call. In order to determine which operator, AP, or external service platform should provide initial handling for the call, OSPS assigns an ACD call type to these calls based on a primary set of ACD call characteristics and optionally a secondary set of ACD call characteristics. The following primary ACD call characteristics are used whenever selecting an ACD call type:

- Call Origin (e.g., Inward, Intermediate Switching Point, and XFER)
- Dialed Prefix (e.g., 0+, 0M, and 1+)
- Carrier of a Call (e.g., IC, LEC, and UNKNOWN)
- Originating Station (i.e., COIN or NONCOIN)
- OSPS ID

An ACD call type is initially selected using Basic ACD Call Type Determination on the basis of a call's primary ACD call characteristics. If desired, an alternate ACD call type may be selected using the output of Basic ACD Call Type Determination and the call's secondary ACD call characteristics. The following secondary ACD call characteristics may be used in selecting an ACD call type:

- Incoming Trunk Group
- Destination Code Index

The use of these secondary ACD call characteristics, called ECTD (Expanded ACD Call Type Determination), provides greater granularity in selecting an ACD call type, and allows the service provider to indirectly include additional factors which may be derived from these secondary ACD call characteristics (e.g., language code, toll-free access number, and DIOR country code and carrier). However, the use of these secondary ACD call characteristics has certain limitations:

- As ISUP signaling becomes more prevalent in the network, trunking has less significance, since the trunk groups are often shared by calls having vastly differing call characteristics. Therefore, the use of trunk group in selecting an ACD call type has decreasing value.
- When using both secondary ACD call characteristics (trunk group and destination code index) in OSPS ACD Call Type Determination, the current design of office data often requires the service provider to define handling in a manner that is inefficient and data intensive (and therefore expensive and difficult to maintain).

2. FEATURE DESCRIPTION

The feature number for the Flexible Automated Call Type Determination feature is 98-5E-4668. This is a Secured Feature (SFID 450) that is being deployed in the 5E13 Software Release.

This feature introduces several new factors into the OSPS ACD call type determination process, and modifies the process of OSPS ACD call type determination to provide greater flexibility. When FACT (Flexible Automated Call Type) Determination is performed, it is done instead of ECTD. The new factors in OSPS ACD call type determination include:

- Access Number (includes 8XX type and SSC-WXYZ type access numbers)
- Originating NPA (Numbering Plan Area)-NXX
- Originating LRN (Local Routing Number)
- ANI (Automatic Number Identification) II Digits or OLI (Originating Line Identity) Digits
- OLS (Originating Line Screening) Code
- DIOR (Direct International Originations) Carrier
- Carrier Identification Code
- Account Owner
- Language Code

FACT Determination is intended to provide capabilities that are inclusive of those provided in Expanded ACD Call Type Determination. Therefore, in addition to the secondary ACD call characteristics mentioned above, this feature allows the usage of incoming trunk group and destination code index in OSPS ACD call type determination using FACT Determination. The output of FACT Determination is the same as that of Expanded ACD Call Type Determination (i.e., FACT Determination results in the selection of a call type or an APOS call type, and a display index). Upon completion of FACT Determination, OSPS routes the call to a position or external service platform as is done prior to this feature. OSPS also provides the appropriate displays on seizure based on the display index.

3. FEATURE ASSIGNMENT

For 5E13 and later, to enable this feature, the ACT fields for SFID 450 on the SFSYS form (5713-1 Record) must be set to "Y".

See Figure 1 for provisioning form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDCTP	5412	3	4M	26.9
FLEXACD	6434	3	4EG	26.8
FTPARM	6424	3	4DY	8.41
SFSYS	5713-1	3	5AR	8.22

ACDCTP form (5412 Record) - This form assigns call type information for the OSPS ACD. For 5E13 and later, added new field (ACDEXPRESSION).

FLEXACD form (6434 Record) - This form provides the ability to specify OSPS call queues based on various call characteristic parameters. For 5E13 and later, this is a new form.

FTPARM form (6424 Record) - This record provides the capability for specifying, updating, and/or verifying OSPS feature options. For 5E13 and later, two new fields (FLEXACDFEATACT and MAXCTDLEVELS) are being added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 450 to "Y".

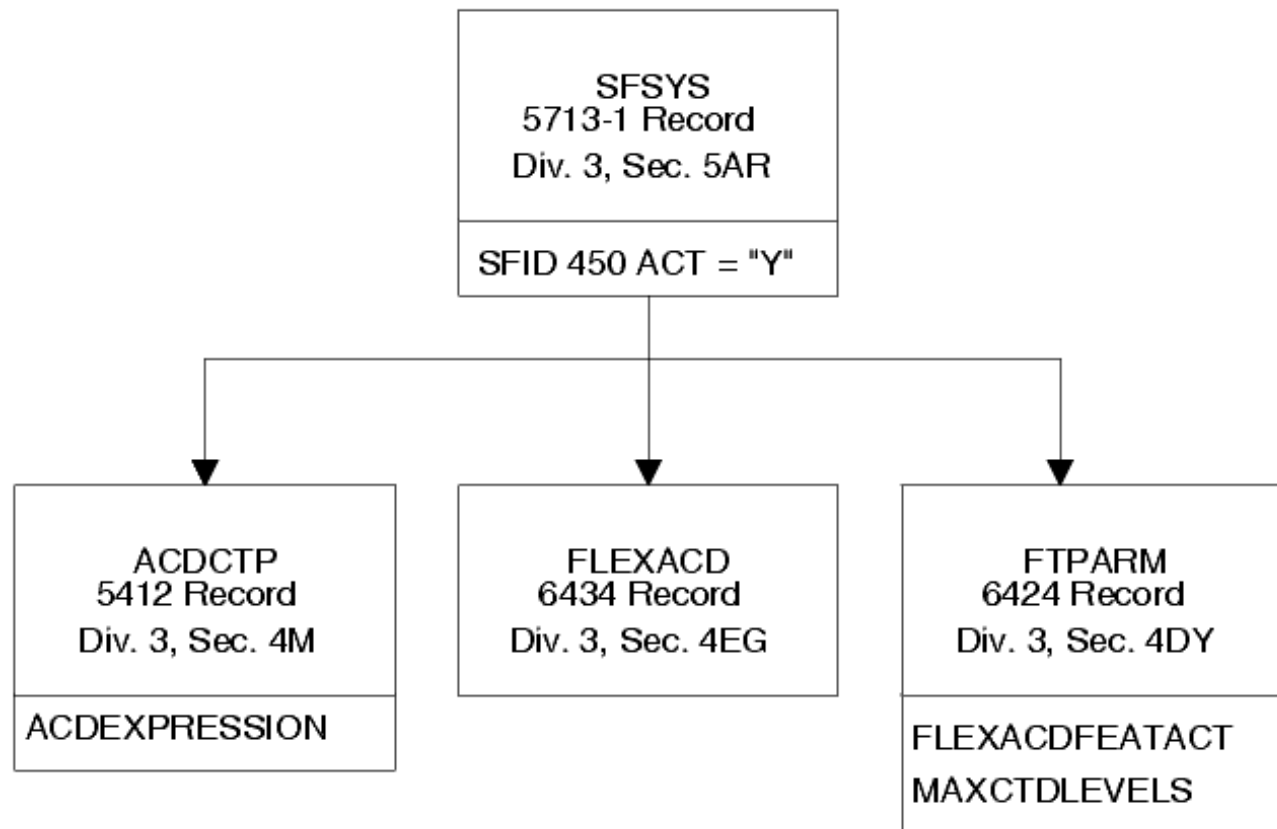


Figure 1 FORM FLOW FOR FLEXIBLE AUTOMATED CALL TYPE DETERMINATION

SEC. 4A505: NUMBER PORTABILITY — VERIFY OFFICE FOR LRNS

1. FEATURE DESCRIPTION

The feature number for Number Portability - Verify Office for LRNs (Location Routing Numbers) is 99-CP-4346. This secured feature (SFID 505) is being deployed as a 5E14 Software Release.

For more information concerning this feature, see document 235-190-127 (*Number Portability Users Guide*).

The purpose of the Number Portability - Verify Office for LRNs feature is to support verification of the switch NP (Number Portability) routing information and recognition of LRNs in the routing tables. The existing VFY:OFC capability for verification of office routing translations was enhanced as part of the NP - Test Query development, but still requires multiple input messages to completely verify routing for a ported number. In addition, the enhancement for NP Test Query does not output several items related to NP (for example, Geographic Portability indications and trigger-related attributes).

This feature modifies VFY:OFC capabilities to allow craft to:

- A. Verify a port (DN/TG/MLHG/PORT) dialing or receiving specific digits (DIG) - the switch provides the outgoing routing information or terminating NOC (NPA-NXX) information, along with any NP-related information associated with the dialed digits.

1. If the dialed digits are served by this switch (and its Non-Conditional 10-Digit Trigger [NCDT] is not set), an indication that the switch serves this line, plus the associated NOC and NCDT indicator setting will be output.
 2. If the dialed digits are not served by this switch (or has an NCDT set), and an active LNP Trigger is associated with the dialed digits, an NP TCAP Query will be sent to the NP SCP associated with the LNP Trigger. Information related to the response will be output in another output segment, indicating the response was:
 - the original dialed number (not ported),
 - a new number (the LRN of a ported number), or
 - a query failure.
- B. Verify routing of an arbitrary LRN by using the same input message as in item (A) Above, but included an LRN parameter as input - the switch will provide the same type of output as in item (A) above, but will use the input LRN rather than query an NP SCP for the LRN.
- C. Verify routing of an SS7 trunk group (TG) receiving an LRN and the PORTED DN parameter representing a ported number - the switch will provide either the outgoing routing information (for non-Home LRNs) or NOC information (Home LRNs).

The new LRN-related verifications support the GEOPORT indicator and special LRN-screening-based route selection.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable Secured System Optional Features for an entire 5ESS Switch or for selected Switching Modules. The ACT field for SFID 505 must be set to "Y" on the SFSYS form to enable this feature.

SEC. 4A506: DRM-2000

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-150 Application and Platform Documents - DRM-2000*.

SEC. 4A507: ASP TERMINATING BUSY/NO ANSWER TRIGGERS AND SUBSEQUENT EVENT DETECTION

1. BACKGROUND

Prior to this feature, ASP (Advance Services Platform) Release 0.1B provided the SCP (Service Control Point)

with the ability to specify one or more routes (i.e. Carrier/DN (Directory Number) or Route Index) which the switch used to complete the call. The SCP-supplied routing information is hierarchical in that an alternate routing process was used to attempt each route in turn until an idle facility was found over which the call could complete. Once the SCP supplied the switch with routing data, its involvement in the call was over. If the switch could not find an idle route from the set of routes supplied, the call completed to reorder. Additionally, if the call was completed over an idle route, and the terminating station was busy or rings without being answered, alternate routing could not redirect the call.

The ASP Originating Busy/No Answer Subsequent Event Detection feature allows the SCP to continue its involvement on a call by indicating that it is interested in being notified if certain call processing events occur while the switch completes the call. A request component which contains an NEL (Next Event List) is sent to the SSP (Service Switching Point) with the routing component. The NEL indicates events in which the SCP is interested. In the following list, the ASP Originating Busy/No Answer Subsequent Event Detection feature allowed for the detection of the first four events and the ASP Network busy and Enhanced Alternate Carrier Routing feature allowed for the detection of the fifth (and last) event:

O_Term Seized - (an EDP-N (Event Detection Point-N))

O_Called_Party_Busy - (an EDP-R)

O_No_Answer - (an EDP-R)

O_Answer - (an EDP-N)

Network_Busy (an EDP-R)

When the SCP included a request component, including an NEL indicating the events in which it was interested, the switch maintained the TCAP (Transaction Capabilities Application Part) transaction with the SCP and informed the SCP of when the requested condition(s) occurred. If the condition corresponding to an indicated event occurred and was a notification event, the SSP (Service Switching Point) informed the SCP that the event occurred and continued processing the call. If the condition corresponding to an indicated event occurred and was a request event, the SSP informed the SCP that the event occurred, and the SCP could then return additional routing instructions to the switch or could play a final interactive announcement. The SSP would also inform the SCP when none of the events which it had "armed" in the NEL could occur. For example, the No Answer event was armed and the Answer occurred.

2. FEATURE DESCRIPTION

Available as a 5E14 Software Update and in the Beginning Managed Introduction of the 5E15 Software Release, the ASP Terminating Busy/No Answer Triggers and Subsequent Event Detection feature is a secured feature using Secured Feature ID (SFID) 507. The feature number is 99-5E-4132.

This feature is dependent on the ASP Release 0.1B secured feature (see Division 2, Section 4A126), which must also be purchased and activated. The Terminating Busy/No Answer Subsequent Triggers and Event Detection feature provides incremental functionality to that provided in the ASP Release 0.1B feature and the ASP Busy/No Answer Subsequent Event Detection feature.

This feature enhances the 5ESS Switch with the following three new major pieces of functionality:

Terminating Busy/No Answer Subscribed Triggers - Provides the ability to assign the following subscribed triggers to terminating DN's and to have a call encounter them upon termination when the appropriate condition is detected:

T_Busy TDP (Trigger Detection Point)

T_No_Answer TDP

Terminating Subsequent Event Detection NELs - Provides the ability for the SCP to return a NEL and to indicate the following additional events when sending an Authorize_Termination or Offer_Call message to complete the call to the terminating DN:

Term_Resource_Available (an EDP-N (Event Detection Point-N))

T_Busy (an EDP-R)

T_Answer (an EDP-N)

T_No_Answer (an EDP-R)

NOTE: The T_Busy EDP-R is only allowed in a request component which accompanies an Auth_Term message, not when accompanying an Offer_Call message.

Offer_Call and Display - The Offer_Call message allows the call to be delivered to the busy line following the T_Busy EDP or TDP. Offer Call is used whenever the T_Busy EDP or TDP is encountered and the line has some form of call waiting feature assigned. For analog lines with call waiting assigned, the Offer_Call response allows the call to proceed and encounter switch-based call waiting. For ISDN lines, the line would need to have the Additional Call Offering feature assigned for the Offer Call response to be used. Offer_Call also provides interworking with Caller ID on Call Waiting.

In addition, the Offer_Call message supports the display text parameter. This allows for the displaying of display text on ISDN and analog CPEs (Customer Premise Equipment). This feature also supports the display text parameter in the Authorize_Termination message for ISDN. Currently, the display text parameter is only supported for analog lines using the Authorize_Termination message.

This feature introduces multiple transactions. Prior to the introduction of this feature, multiple simultaneous transactions were handled by multiple processes; one for each open transaction. This feature handles multiple transactions from a single process and introduces a modified transaction manager which handles these transactions as well as enhances the TCAP transaction.

3. FEATURE ASSIGNMENT

Since this feature is dependent on the ASP Release 0.1B Base feature (SFID 126), to activate the feature, the ACT fields for SFIDs 126 and 507 respectively on the SFSYS form (5713-1 Record) must both be set to "Y".

See Figure 1 for provisioning form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPF	5632-1	4	31A	12.64
ASPLPA	5632-2	4	31B	1.64
ASPMMPA	5632-3	4	31C	1.64
ASPOPT	5670	4	31G	8.49

SFSYS	5713-1	3	5AR	8.22

ASPF form (5632-1 Record) - This form defines various combinations of options available with the ASP feature. For 5E14 and later, the TBL TRIG NBR, TBL TRIG ACT, TNA TRIG NBR, TNA TRIG ACT, and TNA TIMER fields and related data rules were added.

ASPLPA form (5632-2 Record) - This form is used to define ASP line parameters. For 5E14 and later, the TBL TRIG NBR, TBL TRIG ACT, TNA TRIG NBR, TNA TRIG ACT, and TNA TIMER fields and related data rules were added.

ASMPA form (5632-3 Record) - This form is used to define ASP Multi-Line Hunt line parameters. For 5E14 and later, the TBL TRIG NBR, TBL TRIG ACT, TNA TRIG NBR, TNA TRIG ACT, and TNA TIMER fields and related data rules were added.

ASPOPT form (5670 Record) - This form is used to define ASP (Advanced Services Platform) office parameters for a switch. For 5E14 and later, the TERM NO ANS TIME field was added.

SFSYS Form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 126 and 507 respectively, to "Y".

Turn on the dependent ASP Release 0.1B Base feature (SFID 126) and then activate this feature (SFID 507).

Set the appropriate trigger numbers for the ASP Terminating Busy/No Answer feature.

Set up the ASP Terminating Busy/No Answer feature:

- Set TBL TRIG NBR/TNA TRIG NBR to appropriate trigger number.
- Set TBL TRIG ACT/TNA TRIG ACT to activate the feature.
- Set TNA TIMER or leave blank, and then set TERM NO ANS TIME.

Assign the feature as an ASP BRCS feature using the appropriate LINEFA or MLHLNFA form. These two forms can also be used to modify the ASP terminating triggers if necessary.

Use the ASPLPA or ASPMPA form to optionally modify the ASP parameters.

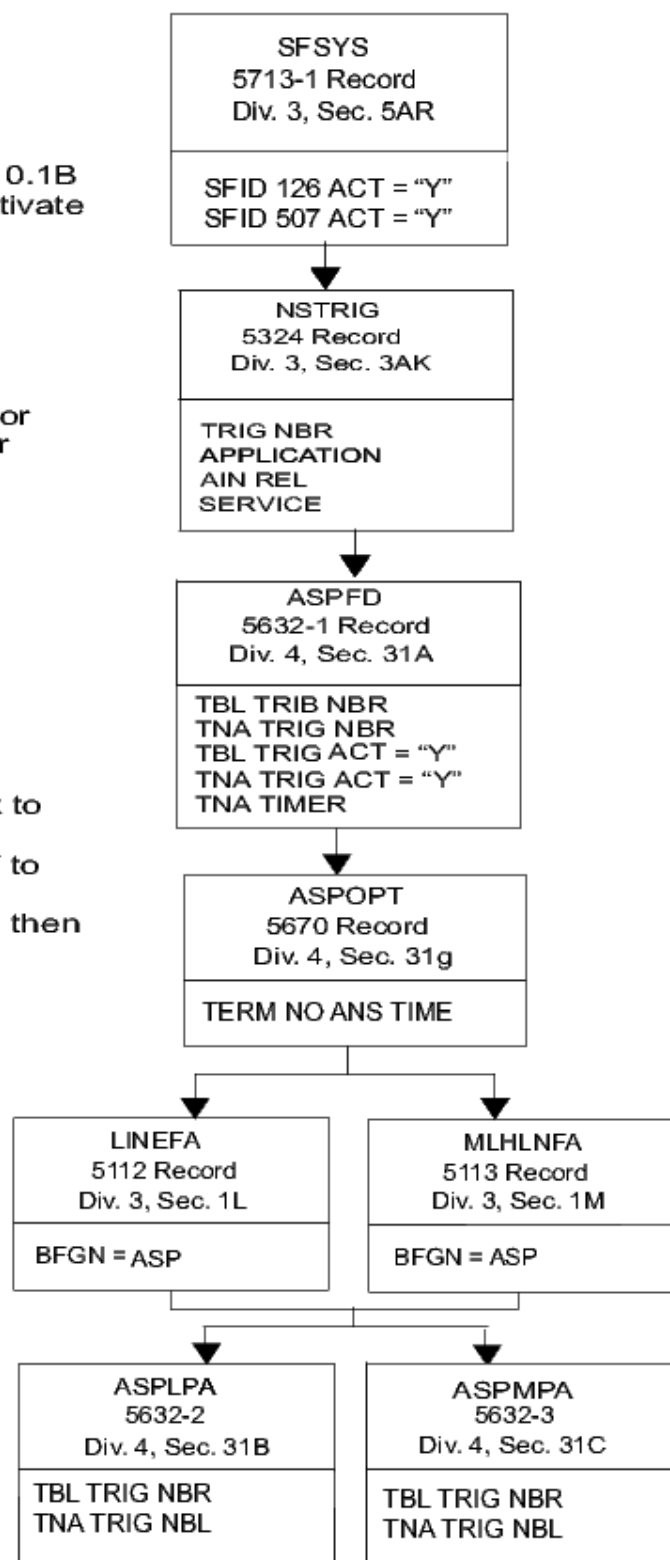


Figure 1 FORM FLOW FOR ASP TERMINATING BUSY/NO ANSWER TRIGGERS AND SUBSEQUENT EVENT DETECTION

SEC. 4A508: ASP DISPLAY ON BRI**1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4A509: CALEA (Communications Assistance for Law Enforcement Act) AND CALEA ENHANCEMENTS FOR DIAL OUT CDC AND CCC FEATURES**1. FEATURE DESCRIPTION****Calea Core Capability**

The feature number for the CALEA (Communications Assistance for Law Enforcement Act) Core Feature is 99-5E-4275. This secured feature (SFID 509) is available for the 5E14 Software Release.

The CALEA Core feature provides compliance to the Communications Assistance for Law Enforcement Act of 1994 for 5ESS Switches providing service to wireline subscribers. The CALEA Act requires that a telecommunications service provider be able to support lawful surveillance of the traffic in its network. CALEA requires that two levels of surveillance be supported:

Level I: Provides call progress data after cut-through for all of the subject's calls and call progress data for all calls redirected by the subject. Call content is not provided.

Level II: Provides call progress data and all call content. It is equivalent to Level I plus call content. This is intended to satisfy a Title III court order which specifically authorizes the surveillance of call content for the subject's calls and for all calls redirected by the subject.

The CALEA Core feature provides this functionality for both circuit-switched and packet-switched calls. The CALEA Core feature includes the 5ESS Switch functionality necessary to access and deliver call data and call content to a Law Enforcement Agency and the functionality necessary to administer surveillances and provision and maintain Call Content Channels, Call Data Channels, and Packet Data Channels.

CALEA - TCP/IP Suite Functionality

The core protocol suite includes the TCP (Transmission Control Protocol), UDP (User Datagram Protocol), the IPV4 (Internet Protocol Version 4), and the ICMP (Internet Control Message Protocol). The application program interface will be provided in the form of sockets. The first application to use the platform feature will be CALEA Core (99-5E-4275) to route surveillance information to a Law Enforcement Agency.

See (LEA (Law Enforcement Agency) Interface specification 235-900-500 for more information.

CALEA - TCP/IP DSL Access via X.25/X.75

The Core TCP/IP Access via X.25/X.75/X.75' feature allows a Core TCP/IP Platform application on the 5ESS Switch to interface with a remote host over a BRI (Basic Rate Interface) or T1, using LAPB (Link Access Procedures - Balanced) as the Layer 2 protocol and X.25 or X.75/X.75' as the Layer 3 protocol. For the X.25 interface, the 5ESS Switch will act as the DCE (Data Circuit Terminating Equipment) while the remote host will act as the DTE (Data Terminal Equipment). PVCs (Permanent Virtual Circuits) will be utilized; SVCs (Switched Virtual Circuits) are not required.

The CALEA feature will be the first application to use the Core TCP/IP Access via X.25/X.75/X.75' feature. The

CALEA application requires the use of TCP/IP/X.25 over BRI, TCP/IP/X.25 over T1 (i.e. TCP/IP over XAT), TCP/IP/X.75 over T1, and TCP/IP/X.75' over T1 to transport CDC (Call Data Content) messages and PDC (Packet Data Channel) messages from the 5ESS Switch to Law Enforcement Agency Monitoring Stations. With the CALEA feature, CDC messages are generated in the subject's SMP (Switching Module Processor). PDC messages are generated in the subject's PH (Protocol Handler). The Core TCP/IP Suite Functionality For CALEA feature is utilized to encapsulate these messages into TCP/IP messages, which are then sent to the PH serving the interface between the 5ESS Switch and the Law Enforcement Agency (i.e., the delivery PH).

In the delivery PH, the CALEA Core TCP/IP Access via X.25/X.75/X.75' feature provides the software to encapsulate the TCP/IP messages into X.25, X.75, or X.75' messages, as determined by provisioning, and transport these messages over the X.25 PVC, XAT PVC, X.75 PVC, or X.75' PVC to the designated Law Enforcement Agency. For the BRI interface, PVCs may be assigned to the B-channel. RC/V for this feature will block provisioning of the PVC to the D-channel.

For the BRI B-channels, the dedicated interface supports a signaling rate of 64 kbps. For the XAT (X.25 Access over a T1 facility) B-channels, the dedicated interface supports a provisionable signaling rate of either 56 kbps or 64 kbps. For the X.75/X.75' interface, the dedicated interface support a signaling rate of 56 kbps.

This feature is developed for the PH3 and the PH4 on an ISDNPH image. RC/V blocks the provisioning of this feature on a PH2 for X.75/X.75' interfaces. No other features are blocked.

The end users of this feature are:

- the CALEA application on the 5ESS Switch which sends TCP/IP messages to the delivery PH; and

- the Law Enforcement Agency Monitoring Stations which receive the TCP/IP messages over the X.25 interface, the XAT interface, or the X.75/X.75' packet network.

CALEA PUNCH LIST

This feature (99-5E-7599) provides additional capabilities which are beyond those provided by the CALEA Core Capabilities (99-5E-4275) and is available with the 5E15 Software Release and requires the ACT field for SFID 509 be set to "Y" on the SFSYS form.

The CALEA Punch List capabilities include:

- Conference Party Change: reports the addition or removal of one or more conference call participants by their call identity(ies), party identity(ies), or both when independently or in any combination. (Hold, Join, or Drop)

- Connection: reports the addition of one or more participants to an existing conference call. (Join)

- Connection Break: reports when one or more participants are removed from an existing conference call. (Hold or Drop)

- Dial Digit Extraction: reports dialed digits when a call is connected to another TSP (Telecommunications Service Provider) service for processing and routing.

- Network Signal: reports signals generated or sent by the IAP (Intercept Access Point) switch to the subject using the facilities under surveillance.

- Subject Signal: reports signals to control a feature or service operation.

2. FEATURE ASSIGNMENT

Procedures necessary to provision the CALEA feature are available in the "5ESS Switch Lawfully Authorized Electronic Surveillance Network Provisioning, Troubleshooting, and Maintenance" (235-200-400) document.

To enable this feature, the ACT field for SFID 509 must be set to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

Calea Core Capability				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	None
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

ECDOPT form (5706 Record) - This form reflects the current hardware configuration of the system and describes the attributes and status of all processor and peripheral hardware entered into the UNIX-RTR (Real Time Reliable) Operating System, formerly DMERT (Duplex Multiple Environment Real Time). The fields on this form indicate which items are equipped and, in some cases, the type of equipment used. In effect, this form links the 5ESS to the UNIX-RTR Operating System. Added TTY information for CALEA.

OFCOPT form (5509 Record) - The 5509 Record provides the office option global parameters residing in the CP (Central Processor). The CALEA SM field was added to support this feature.

SFSYS form (5713-1 Record) - The 5713-1 Record is used to activate secured features. This feature is activated by setting the ACT field for SFID 509 to "Y".

TKGRP form (5202 Record) - The 5202 Record is used to define each Trunk Group in a 5ESS Switch. The CALEA field was added to support this feature.

Calea - TCP/IP Suite Functionality				
Form Name	Record Number	Division	Section	RC View
IPINTF	5988	5	3O	33.2
IPPROC	5987	5	3N	33.1
IPROUT	5989	5	3P	33.3

IPINTF form (5988 Record) - The 5988 Record provides the capability to provision up to five IP addresses and subnet masks, and associated IP, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) parameters to a internet interface (SM or PH). This form was created to support the CALEA TCP/IP Core feature.

IPPROC form (5987 Record) - The 5987 Record provides the capability to provision up to five IP addresses and subnet masks, and associated IP, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) parameters to a processor (SM or PH). This form was created to support the CALEA TCP/IP Core feature.

IPROUT form (5989 Record) - The 5989 Record provides the capability to provision an IP gateway between an external IP destination and a local IP interface. This form was created to support the CALEA TCP/IP Core feature.

Calea - TCP/IP DSL Access via X.25/X.75				
Form Name	Record	Division	Section	RC View

	Number			
PSPVC	5923	5	3D	23.11
X75PVC	5926	5	3G	5.13

PSPVC form (5923 Record) - The 5923 Record is used to assign PVC (Permanent Virtual Circuit) Logical Channel Numbers to DSLs (Digital Subscriber Lines) that have Packet Switching. The "INET" enumeration was added to the FCL TYPE field.

X75PVC form (5926 Record) - The 5926 Record is used to assign PVC (Permanent Virtual Circuit) Logical Channel Numbers to X.75P and X.75 packet switching trunks. The "INET" enumeration was added to the FCL TYPE field.

CALEA Punch List				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1, 8.15

OFCOPT form (5509 Record) - The 5509 Record provides the office option global parameters residing in the CP (Central Processor). Under the CALEA field group the ADMIN ACCESS and TD LIMIT fields were added to support this feature.

4. FEATURE DESCRIPTION

CALEA Enhancement for Dial Out CDC and CCC Capability (99-5E-8221)

The feature number for the CALEA (Communications Assistance for Law Enforcement Act) Enhancement for Dial Out CDC (Call Data Channel) and CCC (Call Content Channel) Feature is 99-5E-8221, and is available with the 5E16(2) Software Release. This feature is an enhancement to the Core CALEA (99-5E-4275) and the CALEA Punch List features (99-5E-7599) described above.

The CALEA Enhancement for Dial Out CDC and CCC feature provides alternative provisioning as an enhancement to the CALEA-CORE feature. This enhancement uses Dial Out CDC and CCC connections whenever the user makes or receives a call.

For CDC Dial Out, the capability of using SVCs (Switched Virtual Circuits) to send CDC (not PDC (Packet Data Channel)) messages to law enforcement collection facilities is added. The SVC connection is established from an XAT (X-25 packet switching Access on T1 facilities) PH (Protocol Handler) logical channel emulating an X.25 DTE (Data Terminal Equipment) to a local LEA (Law Enforcement Agency) facility via a BRI (Basic Rate Interface) or XAT termination. The SVCs are originated on a XAT PH channel group member PSUEN (Packet Switching Unit Equipment Number) where the 5ESS switch emulates a DTE to establish the X.25 packet call. The destination address of the X.25 packet call originated by the emulated DTE can route using the local packet network or X.75/X.75 network. The X.25 destination address is specified by the application. Note that X.25 SVC packet standards are supported on local (BRI/XAT) and X.75/X.75 interfaces.

For CCC Dial Out, the connection is established to a local LEA with POTS (Plain Old Telephone Service) or ISDN (Integrated Services Digital Network) BRI/PRI termination. The CCC connection can also be established to a remote LEA over SS7 (Signaling System7), MF (Multi-Frequency) or PRI (Primary Rate Interface) trunks over the PSTN (Public Switched Telephone Network). This feature supports combined, separate, and mixed delivery modes.

5. FEATURE ASSIGNMENT

Provisioning of this capability is the same as for the Core CALEA feature.

6. TRANSLATION REQUIREMENTS

CALEA Enhancements				
Form Name	Record Number	Division	Section	RC View
IPINTF	5988	5	3O	33.2
XAT	5909	5	1J	23.40

IPINTF form (5988 Record) - This form was created to support the Core CALEA TCP/IP Core feature. Modified the OE field to allow the "U" value.

XAT form (5909 Record) - This form is used to provision T1 facilities (digital lines and trunks) with X.25 Packet Switching services on a subscription basis using Q.931 signaling. Modified the OE to allow the "U" value and added data rules to support this new OE.

7. GLOSSARY

BRI	Basic Rate Interface
CALEA	Communications Assistance for Law Enforcement Act
DMERT	Duplex Multiple Environment Real Time
LEA	Law Enforcement Agency
IAP	Intercept Access Point
ICMP	Internet Control Message Protocol
IP	Internet Protocol
IPV4	Internet Protocol Version 4
LAPB	Link Access Procedures - Balanced
SFID	Secured Feature ID
TCP	Transmission Control Protocol
TSP	Telecommunications Service Provider
UDP	User Datagram Protocol
XAT	X.25 Access over a T1 facility

SEC. 4A512: FGD Cut Through Enhancements

1. FEATURE DESCRIPTION

The feature number for the FGD (Feature Group D) Cut Through Enhancements feature is 99-5E-4632. This is a secured feature (SFID 512) that is being deployed as a 5E13 Software Update and for the BMI (Beginning Managed Introduction) of the 5E14 Software Release.

This feature is dependent on the LDP Basic Call Processing (99-5E-3127) feature (SFID 165), which allows

optional tandem routing of LDP cut through calls. For more information on the LDP Basic Call Processing feature, please see Division 2, Section 4A165.

A secured feature allows an FGD Cut Through Call to be switched to another carrier without first collecting digits for the call. The 99-5E-4632 feature allows the provisioner of an LDP (Long Distance Platform) switch to specify on a carrier basis that a FGD Cut Through Call (MF (Multi-Frequency) or ISUP (Integrated Services-User Part)) is to be routed to another carrier to collect called party digits. The switch uses the tandem Cut Through RTI (Route Index) / CDI (Code Index) specified for the carrier to route the call to the designated carrier, if LDP Tandem Cut Through is indicated on the ICF form (5305 Record). Otherwise, a digit collector is attached at the current LDP switch, and the called party is connected locally.

1.1 Call Scenario

The following is a typical scenario of the usage of this feature:

- A user picks up the phone and dials 10[1]XXX#.
- The Equal Access End Office identifies the call as a carrier cutthru call and routes the call out of the end office towards the dialed carrier.
- At the LDP switch, the Information Digits and Automatic Numbering Identification ([OLI or II] +ANI) digits are stored.
- The cutthru call is identified, and assuming the FGD Cut Through Enhancements feature is activated, the ICF form (5305 Record) is read.
- If the TANDEM CUT flag is set for the given carrier, the TANDEM CUT CDI and TANDEM CUT RTI data from the ICF form (5305 Record) is copied, other appropriate data in the route request is set, and the call (bypassing digit analysis at this switch) is routed.
- It is assumed that once the call reaches the distant switch, that a receiver will be attached to collect the actual called party digits.

If the downstream switch is a 5ESS-2000 Switch, and the LDP feature is not activated (SFID 165), the call will be terminated, as cutthru calls are not supported on a 5ESS-2000 Switch without LDP.

2. FEATURE ASSIGNMENT

To provision this feature:

- Since this feature is dependent upon the LDP Basic Call Processing (SFID 165) feature, it must first be activated by setting the ACT field for SFID 165 on the SFSYS form (5713-1 Record) to "Y".
- The FGD Cut Through Enhancements feature can only then be activated by setting the ACT field for SFID 512 to "Y".
- Populate the ROUTE INDEX field on the RTIDX form (5303 Record)
- Populate the LDP tandem cut through information for each carrier. On the ICF form:
 - Set the TANDEM CUT field to "Y".
 - Set the TANDEM CUT RTI field to the appropriate value.

— Set the TANDEM CUT CDI field to the appropriate value.

NOTE: The egressing trunk from the LDP switch must be an IC trunk. If this trunk is an ISUP7 trunk, the LDP indicator on RC view 5.1 must be set to "Y" or the call will fail.

See provisioning form flow on Figure 1.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ICF	5305	3	3R	10.3
OFCOPT	5509	3	5i	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

ICF form (5305 Record) - The Carrier Administration form is used to define the characteristics of Inter-LATA (Local Access Transport Area) and Intra-LATA carrier. Each carrier is defined as either a feature group B or D carrier along with a carrier type, access method, and other routing information. All carriers used for carrier interconnect subscriber access in an office, including the Local Exchange Carrier (LEC), must be defined. The TANDEM CUT, TANDEM CUT CDI, and TANDEM CUT RTI fields have been added to this form to support the FGD Cut Through Enhancements feature.

OFCOPT form (5509 Record) - This form is used to define miscellaneous office options and parameters. For 5E13 and later, added a data rule to the PRODUCT field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for both SFID 165 and SFID 512 to "Y", respectively.

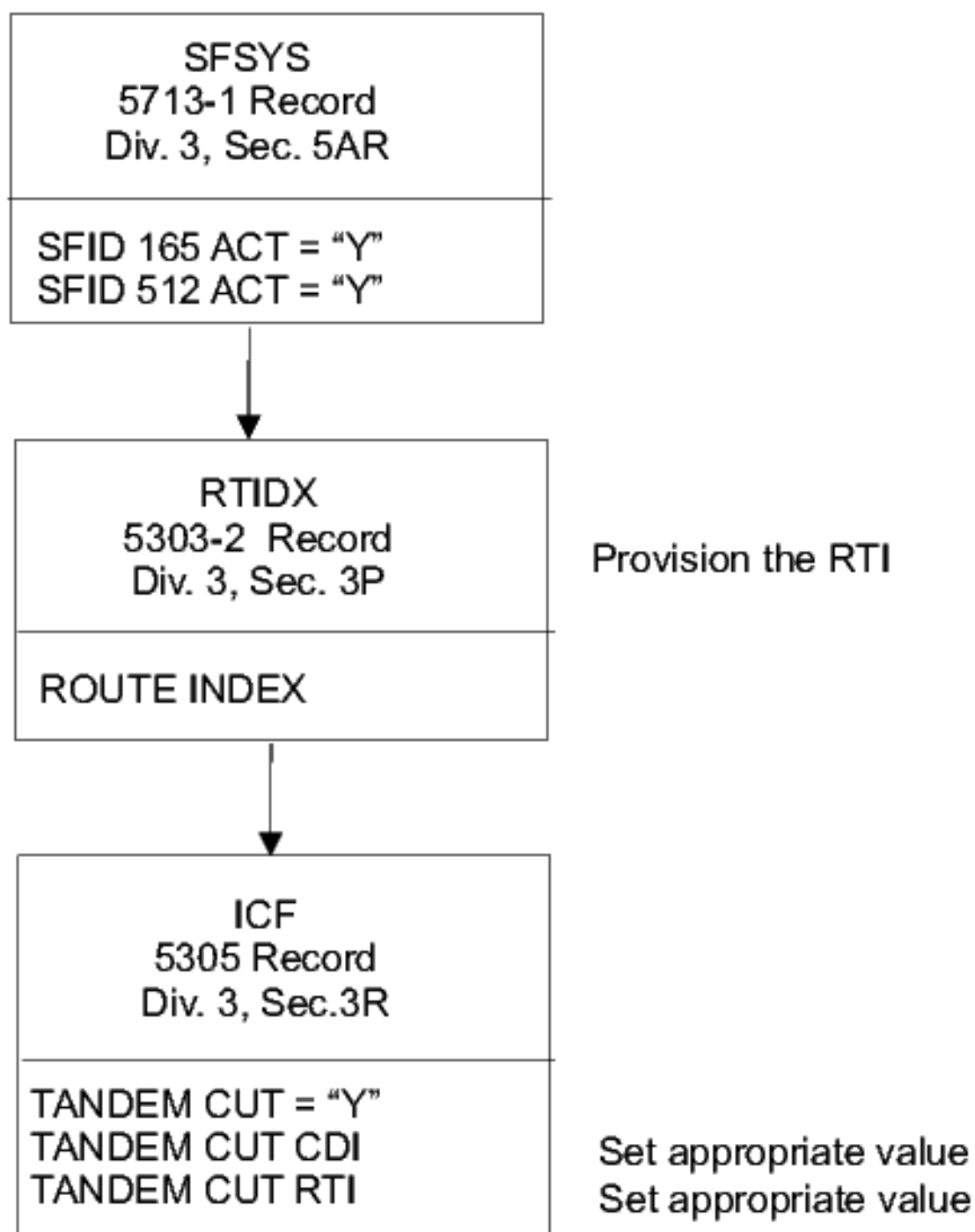


Figure 1 FORM FLOW FOR FGD CUT THROUGH ENHANCEMENTS

SEC. 4A513: PINNACLE THIRD PARTY CALL CONTROL ENHANCEMENTS 1

1. FEATURE DESCRIPTION

The PINNACLE Third Party Call Control Enhancements 1 feature is available as a 5E13 Software Update and

in the Beginning Managed Introduction of the 5E14 Software Release. It is a secured feature using SFID (Secured Feature ID) 513. The feature number for this feature is 99-CP-4574.

This feature enhances the functionality of the current Link III/Third Party Call Control feature. The PINNACLE ACD reports the following agent states over the Event Link to the ACD (Automatic Call Distributor) Interface Unit:

Login/Logout

Make Busy

Agent Ready

Agent Closed

The enhancement enables a Computer Telephony application to change the agent state by issuing a command to the AIU (Application Interface Unit) over the Link III interface. The AIU formats the command for the 5ESS-2000 Switch Third Party Call Control Enhancements 1 feature which changes the agent to the desired state.

2. FEATURE ASSIGNMENT

To activate this feature, the ACT fields for SFIDs 123 and 513 respectively on the SFSYS form (5713-1 Record) must both be set to "Y".

3. TRANSLATION REQUIREMENTS

There are no new or modified forms for this feature, however, the SFSYS form is used to activate this feature.

ODA Form				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 123 and 513 respectively, to "Y".

SEC. 4A516: ASP DEFAULT ROUTING FOR R0.1 OHD TRIGGERS

1. FEATURE DESCRIPTION

The ASP (Advanced Services Platform) Default Routing for R0.1 OHD (Off-Hook Delay) Triggers feature is available with 5E14 and later Software Releases. This is a secured feature (SFID 516) which must be activated prior to using this capability. SFID 126, the base Advanced Services Platform feature, must also be activated.

The ASP Default Routing for R0.1 OHD Triggers feature provides the ability for OHD calls to be routed even when the switch has not received valid routing information from the SCP (Service Control Point). OHD Default Routing can be provisioned on any line or trunk that can be assigned an OHD trigger via BRCS feature provisioning. Examples of when the switch provides default routing are when any of the following events occur during an OHD query:

- the query is blocked by Automatic Call Gapping or hardware failures,

- the query T1 timer expires before a response is received, or
- a fatal application or protocol error is detected/received in response to the OHD query.

When OHD Default Routing is provisioned on a line/trunk and a condition occurs which triggers default routing, the switch will attempt to route the call using the dialed digits and the DAS (Digit Analysis Selector) assigned to the line/trunk.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPF	5632-1	4	31A	12.64
ASPLPA	5632-2	4	31B	1.64
ASPM	5632-3	4	31C	1.64
ASPT	5632-4	4	31D	5.64
SFSYS	5713-1	3	5AR	8.22

ASPF form (5632-1 Record) - This form is used to define various combinations of options available with the ASP. The OHD DFLT ROUTE field was added with related data rules.

ASPLPA form (5632-2 Record) - This form is used to define the per port data associated with the ASP. The OHD DFLT ROUTE field was added with related data rules.

ASPM form (5632-3 Record) - This form is used to define ASP Multi-Line Hunt line parameters. The OHD DFLT ROUTE field was added with related data rules.

ASPT form (5632-4 Record) - This form is used to define parameters to trunks if the default parameters on the ASPF form are inappropriate or unspecified. The OHD DFLT ROUTE field was added with related data rules.

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features. The ACT field for SFID 516 must be set to "Y" on the SFSYS form to enable this feature.

SEC. 4A517: AIN FURNISH AMA INFORMATION

1. FEATURE DESCRIPTION

The AIN (Advanced Intelligent Network) Furnish AMA (Automatic Message Accounting) Information feature is available with 5E14 and later Software Releases.

The AIN Furnish AMA Information feature allows service specific AMA data to be passed from a SCP (Service Control Point) to the switch and be appended to certain AMA records generated by the switch. The Furnish_AMA_ Information component will be accepted in any AIN response that can contain routing and billing information. These AIN responses include:

- Analyze_Route,
- Forward_Call,

Auth_Term,

Continue,

Disconnect,

Offer_Call,

Send_To_Resource (for final announcements).

The Furnish_AMA_Information component can contain two parameters, the "AMABAFModules" parameter which contains one or more AMA modules in BAF format, and the "AMASetHexABIndicator" parameter, which contains a flag set by the SCP when the "AMABAFModules" parameter contents are suspected to have errors. The Furnish_AMA_Information component is only accepted by the switch when an "AMASIpI" is also present in the routing message. This causes the switch to generate an AMA record with Structure Code 0220 or 0221. The AMA modules from the Furnish_AMA_Information component are appended to the AMA record before the Final (Trailer) Module 000. The Furnish_AMA_Information modules are not interpreted in any way by the switch.

To support this feature, a new Software Resource parameter, "FRNAMA", is implemented. Software Resources are maintained on the SREINCR form (5547 Record).

The feature number for this feature is 97-5E-4000.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
SREINCR	5547	3	5AW	8.40

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features. The ACT field for SFID 517 must be set to "Y" on the SFSYS form to enable this feature.

SREINCR form (5547 Record) - This form is used to increase engineering software resource (memory) parameters per SM (Switching Module) for new start and/or retrofit offices. A software resource is defined as a dynamic ODD (Office Dependent Data) data structure, or data block, required to provide the necessary memory to support various service requirements. With retrofit to the 5E14 Software Release, and with SFID 126 set to "Y" on the SFSYS form, the software resource of "FRNAMA" supports this feature. If routine system messages indicate that more software resources are required to support this feature, the SREINCR form is used to increment the resource.

SEC. 4A518: AR/AC DESTINATION POINT CODE

1. FEATURE DESCRIPTION

The AR/AC (Automatic Recall/Automatic Callback) Destination Point Code feature is available in a 5E13 Software Update and in the Beginning Managed Introduction of the 5E14 Software Release. The feature

number for this feature is 99-5E-7118.

This feature changes how the Terminating Scanning Response messages are routed via the SS7 (Signaling System 7) network. Currently, the TCAP (Transaction Capabilities Application Part) Terminating Scanning Idle Response and Terminating Scanning Timer Expired Response messages are global titles routed to the originating switch. When this feature is enabled, the terminating switch will route the messages using point code routing.

The AR/AC Destination Point Code feature also enhances the basic AR/AC feature such that if Terminating Scanning is requested by the originating switch, the point code and subsystem number of the AR/AC originating switch (received in the AR/AC TCAP messages from the originating switch) are stored, along with the platform point code associated with the platform (e.g., GSM/PSU (Global Switching Module/Packet Switch Unit), CNI (Common Network Interface)) through which the message was received. These point codes and subsystem numbers are used for Point Code routing of AR/AC TCAP messages sent to the originating AR/AC switch during the AR/AC Terminating Scanning session. Subsequent Terminating Scanning Idle Response messages will now be point code routed instead of global title routed. Note that even if this feature is not enabled and Originating Scanning is requested, the TCAP Originating Scanning Busy/Idle Response messages sent from the far switch will be point code routed as it is currently done. This feature only modifies the Terminating Scanning procedures. The TCAP messages impacted are the:

Terminating Scanning Idle Response, and

Terminating Scanning Timer Expired Response.

1.1 SCENARIO - AR/AC Activation Requesting Terminating Scanning

NOTE: The only change to the AR/AC functionality in the following scenario, as a result of this feature, is in steps 5 and 6.

1. An originating switch invokes AR/AC which results in sending an AR/AC Initial TCAP Query towards a 5ESS Switch which has the AR/AC Destination Point Code feature 99-5E-7118 enabled.
2. The terminating destination number (DN) on the terminating switch is busy so a busy indication is sent in the Initial Query Response which is point code routed to the originating switch.
3. The originating switch requests the terminating switch to scan the terminating DN for an idle status by sending a global title routed TCAP Terminating Scanning Request Query.
4. The terminating switch replies with a point code routed Terminating Scanning Conversation message indicating it will perform terminating scanning.
5. If the terminating DN becomes idle before the terminating scanning timer has expired, the terminating switch responds to the originating switch with a Terminating Scanning Idle Response message. With this feature enabled, the message will be point code routed. If the feature is not enabled, the message will be global title routed.
6. If the terminating DN does not become idle before the terminating scanning timer expires, the Terminating Scanning Timer Expired Response message would be sent to the originating switch. With this feature enabled, the response message will be point code routed. If the feature is not enabled, the message will be global title routed.
7. From this point on the call will continue processing as normal. No other changes are impacted by this feature.

2. FEATURE ASSIGNMENT

For 5E13 and later, the only provisioning required to activate this feature is to set the ACT field for SFID 518 on the SFSYS form (5713-1 Record) to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 518 to "Y".

SEC. 4A520: RELEASE LINK FOR TOLL - ANSI STANDARD PROTOCOL AND TOPS NONSTANDARD PROTOCOL

1. RELEASE LINK FOR TOLL

1.1 Feature Description

Available as a 5E14 Beginning Managed Introduction, the Release Link for Toll feature uses OFS ID (Optioned Feature System ID) 788. The feature number for this feature is 99-5E-4687.

The Release Link for Toll feature offers two signaling interface options; ANSI (American National Standards Institute) standard signaling and TOPS (Operating System for DMS (Data Management System)) nonstandard signaling.

The ability to provide release link signaling allows minimization of both incoming and outgoing facilities to OSPA (Operator Services Position System) sites. Additional trunks to handle Directory Assistance call completion would not be necessary if they had the ability to provide release link signaling (i.e., the call transport function could be relegated back to the originating central office or originating toll office where the trunk facilities already exist).

1.2 Feature Assignment

For 5E14 and later, to activate this feature, the ACT field for OFS ID 788 on the FOSYS form (5713-2 Record) must be set to "Y". (See Figure 1 for the feature assignment form flow.)

1.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency features. This feature is activated by setting the ACT field for OFS ID 788 to "Y".

2. RELEASE LINK FOR TOLL - ANSI STANDARD PROTOCOL

2.1 Feature Description

Available as a 5E14 Beginning Managed Introduction, the Release Link for Toll - ANSI Standard Protocol feature is a secured feature using SFID (Secured Feature ID) 520. The feature number for this feature is 99-5E-4687.

This feature uses elements of the generic RTP (Release to Pivot) procedure to provide release link signaling over SS7 (Signaling System Number 7) ISUP (Integrated Services Digital Network User Part) trunks between a 5ESS-2000 Switch and an Operator System site. This allows Directory Assistance calls to use nondedicated SS7 trunks.

The following elements of the generic RTP procedure are used by this feature:

A switch (Releasing Switch), after receipt of an incoming ISUP IAM (Initial Address Message) message with a RCP (Redirect Capability Parameter), and after some internal processing (may return ACM (Address Complete Message) and/or ANM (Answer Message) ISUP messages), releases the call back to the previous (Pivot) switch with RI (Redirection Information) in the ISUP REL (Release Message) message for routing to a new destination.

The process described for the Releasing Switch enables the Pivot Switch to terminate the initial call and route a new call directly to the number supplied by the Releasing Switch as an alternative to having the Releasing Switch route the call.

There could also be one or more Intermediate Switches between the Pivot and Releasing Switches which would transparently pass the new parameters in the IAM and REL messages.

For the Release Link for Toll Office application using ANSI standard protocol, the Releasing Switch is an Operator Systems Switch (providing Directory Assistance with the Release Link RTP capability) and the Pivot Switch is a 5ESS-2000 Originating Toll Office Switch receiving a request for Directory Assistance (e.g., 411, 555-1212, NPA (Numbering Plan Area)-555-1212). The RI information in the REL message consists of the RN (Redirection Number) parameter (containing the number as determined by the Operator System Directory Assistance).

2.2 Feature Assignment

See Figure 1 for the feature assignment form flow for the Release Link for Toll - ANSI Standard Protocol feature.

To activate this feature, the ACT fields for SFIDs 165 and 520 respectively on the SFSYS form (5713-1 Record) must both be set to "Y".

2.3 Translation Requirements

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
LDIT	5300-3B	3	3C	9.3
MLDIT	5300-5B	3	3C	9.15
RDIT	5300-8B	3	3H	9.9
RTIDX	5303-2	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-3	3	2A	5.1

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for

Special and Transparency features. The Release Link for Toll feature is activated by setting the ACT field for OFS ID 788 on the FOSYS form (5713-2 Record) to "Y".

LDIT form (5300-3/5/9 Record) - This form is used to define all area, office and service codes in a 5ESS-2000 Switch. For 5E14 and later, added a data rule associated with the "CONFLCT" entry for the CALL TYPE field and added the REL LINK field and its associated data rules.

MLDIT form (5300-3/5/9 Record) - This form is used to define all area, office and service codes in a 5ESS-2000 Switch. For 5E14 and later, added a data rule associated with the "CONFLCT" entry for the CALL TYPE field and added the REL LINK field and its associated data rules.

RDIT form (5300-7/8 Record) - This form contains information for the translation of remaining dialed digit strings for digit analysis. For 5E14 and later, added data rules associated with the "CONFLCT" entry for the CALL TYPE field and added the REL LINK field and its associated data rules.

RTIDX form (5303 Record) - This form is used to define the route indexes for routing a call. For 5E14 and later, added the REL LINK TYPE field and its associated data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 165 and 520 respectively, to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. For 5E14 and later, added the REL LINK INIT field.

3. RELEASE LINK FOR TOLL - TOPS NONSTANDARD PROTOCOL

3.1 Feature Description

Available as a 5E14 Beginning Managed Introduction, the Release Link for Toll - TOPS Nonstandard Protocol feature is a secured feature using SFID (Secured Feature ID) 521. The feature number for this feature is 99-5E-4687.

This feature uses the protocol developed by Nortel to provide release link signaling with a similar functionality as the Release Link for Toll - ANSI Standard Protocol feature using dedicated SS7 trunks. In the TOPS nonstandard protocol, the differences from ANSI standard protocol include the following:

- The IAM is sent to the Operator Services switch with no special signaling (no RCP (Redirect Capability Parameter or equivalent)).

- The RI is carried in different parameters in the REL message. The SAP (Service Activation Parameter) and GAP (Generic Address Parameter) are used for the Nortel version, instead of the RN parameter.

- Since dedicated trunks are used, the Nortel version does not lend itself to being used with an Intermediate Switch between the Pivot and Releasing Switches.

3.2 Feature Assignment

See Figure 1 for the feature assignment form flow for the Release Link for Toll - TOPS Nonstandard Protocol feature.

To activate this feature, the ACT fields for SFIDs 165 and 521 respectively on the SFSYS form (5713-1 Record) must both be set to "Y".

3.3 Translation Requirements

See the ODA forms described in Translation Requirements for ANSI standard protocol. The same modified ODA forms apply to TOPS nonstandard protocol.

4. GLOSSARY

ANSI - American National Standards Institute

ACM	Address Complete Message
AMA	Automatic Message Accounting
ANM	Answer Message (SS7 ISUP message)
GAP	Generic Address Parameter
IAM	Initial Address Message
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
OFS-ID	Optioned Feature System ID
OSPS	Operator Services Position System
RCP	Redirect Capability Parameter
REL	Release Message
RI	Redirection Information
RN	Redirection Number
RTP	Release to Pivot
SAP	Service Activation Parameter
SFID	Special Feature ID
SS7	Signaling System 7
TOPS	Operating System for DMS (Data Management System)

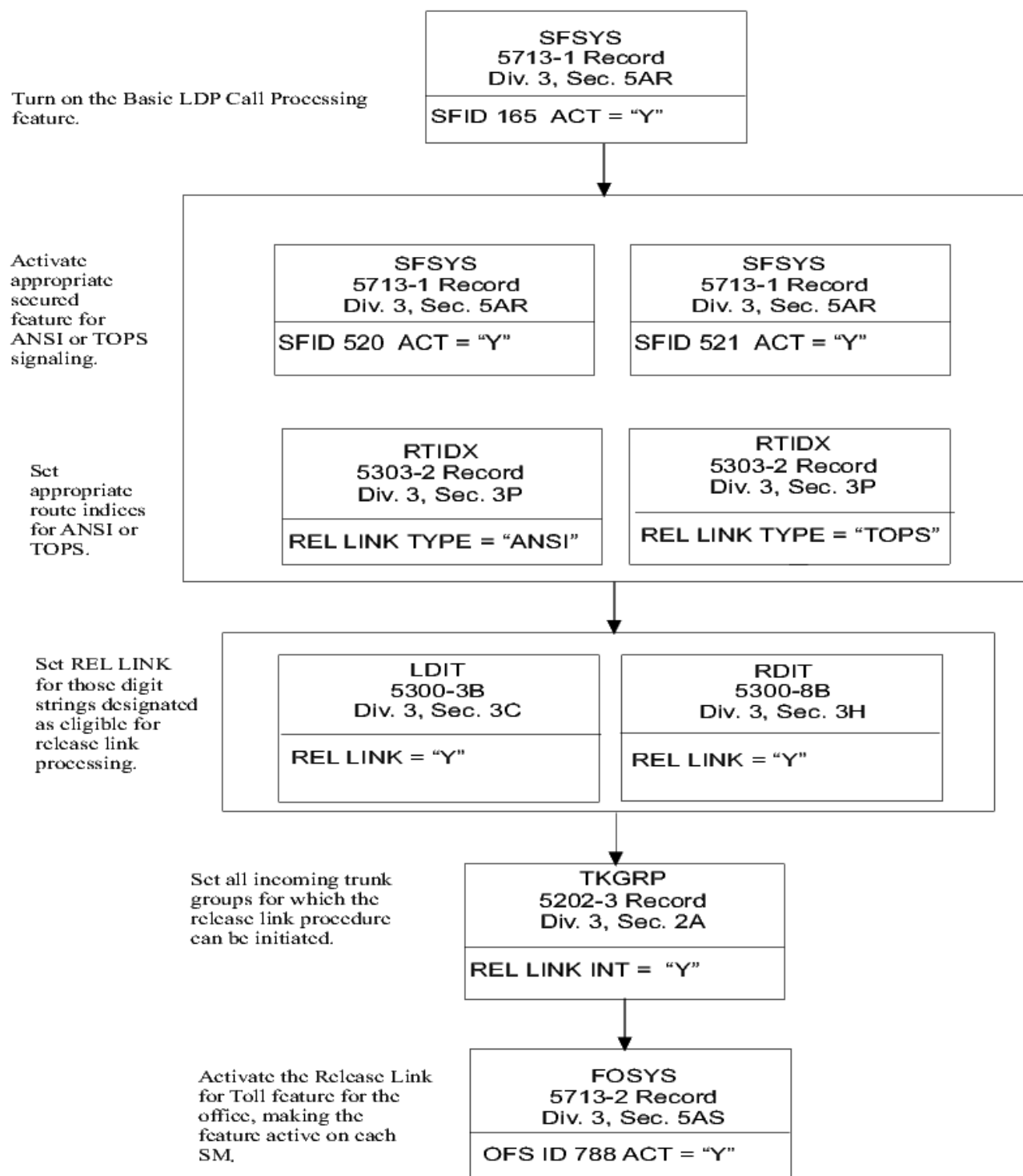


Figure 1 FORM FLOW FOR RELEASE LINK FOR TOLL - ANSI STANDARD PROTOCOL AND TOPS NONSTANDARD PROTOCOL

SEC. 4A521: RELEASE LINK FOR TOLL - TOPS NONSTANDARD PROTOCOL

1. FEATURE DESCRIPTION

For detailed information on the Release Link for Toll - TOPS Nonstandard Protocol feature, see Division 2, Section 4A520.

SEC. 4A522: SS7 PSU MTP ROUTING ENHANCEMENTS

1. FEATURE DESCRIPTION

The SS7 (Signaling System 7) PSU (Packet Switch Unit) MTP (Message Transfer Part) Routing Enhancement feature is a secured feature (SFID 522) that is available with the 5E15 Software Release. The feature number is 97-CP-4246.A.

This feature adds the CNI (Common Network Interface) functionality to the PSU platform that allows the customer to define routing data which no longer requires full point code definitions. The MTP is able to route to a specific network (most significant 8 bits of the point code), a Cluster within the network (basically the most significant 16 bits of the point code), and to the current routing mechanism (full member routing using all bits of the point code). Additional, TYMSG (TTY Message Subsystem) facilities are being added to support the routing methods as well as route management procedures.

The customer is able to define up to an additional 15 alias point codes to the GSM (Global Switch Module). These point codes are associated with ISUP (ISDN (Integrated Service Digital Network) User Part) trunk groups only. ISUP calls can be handled using any of the 16 bit point codes, but other switch functions and applications must use the primary GSM point code.

2. FEATURE ASSIGNMENT

For 5E14 and later, to enable this feature, the ACT field for SFID 522 on the SFSYS form (5713-1 Record) must be set to "Y". Once the SFSYS form is updated, there are two different provisioning sequences:

Data Link to Trunk Group Sequence:

- Define GSM on the CCGSM form (6008 Record).

- Add Bunny-Hop using the MDLNK form (6009 Record).

- Update GSM parameters on the CC7PR form (6001 Record).

- Define GSM Data Rate timers on the CCPDL form (6002 Record).

- Define Link Set on the LNKSET form (6003 Record).

- Create combined link sets on the CLKSET form (6005 Record).

- Associate a link set to a GSM/DPC (Destination Point Code) on the PC form (6006 Record).

- Create link set members on the CCLNK form (6004-1/2 Records).

- Use GSM's OPC (Origination Point Code) and DPC (Destination Point Code) from the PC form on the TKGRP form (5202 Record), then add trunk members on the TRUNK form (5204 Record).

SCCP (Signaling Connection Control Part) Sequence:

Grow/Degrow a SCCP GSM on the CCNET form (6010 Record).

Specify parameters for the SCCP GSM on the CCSPR form (6011 Record).

Specify a primary and backup GSM-DPC-SSN (Sub-System Number) destination on the CCPBD form (6012 Record).

Specify the global title translation treatment for the data located in the called party address, on the CCTT form (6014 Record).

Specify the global title translation group mask for the incoming digit strings on the CCSGT form (6015 Record).

Maintain the digit strings for global title translations on the CCTGM form (6013 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CC7PR	6001	9	10A	16.2
CCGSM	6008	9	10H	16.1
CCLNK	6004	9	10D	16.6
CCPBD	6012	9	10M	16.22
CLKSET	6005	9	10E	16.7
CLU	6020	9	10T	16.9
LNKSET	6003	9	10C	16.5
MDLNK	6009	9	10J	16.17
NID	6019	9	10S	16.8
OFCOPT	5509	3	5I	8.1
PC	6006	9	10F	16.10
SFSYS	5713-1	3	5AR	8.22

CC7PR form (6001 Record) - This form is used to specify and update the GSM CCITT7 (International Telegraph and Telephone Consultative Committee - Common Channel Signaling System Number 7), office parameters and MTP Level 3 timers. Added the X-LIST and the LOW PRI SRST fields.

CCGSM form (6008 Record) - This form is used to specify data used for the global switching module. Added a data rule to the GSM field, and added the ALIAS PC field.

CCLNK form (6004 Record) - This form is used to display the CCS7 (Common Channel Signaling System Number 7) link sets and members. Modified the valid entries for the MEMBER field, added a data rule to the GSM field, and modified a data rule for the LINK SET field.

CCPBD form (6012 Record) - This form is used to define the primary and backup destinations for SCCP signaling. Added data rules to the DPC PRIMARY and DPC BACKUP fields.

CLKSET form (6005 Record) - This form is used to define the link sets that comprise the combined link set. Added a data rule to the GSM field.

CLU form (6020 Record) - This form is used to define MTP cluster route sets. New section to support this feature.

LNKSET form (6003 Record) - This form is used to define CCS7 signaling sets. Added the LINK TYPE field, and added a data rule to the APC field.

MDLNK form (6009 Record) - This form is used to specify the message delivery link and the bunny-hop PH

(Prototol Handler). Added data rules to the SM field.

NID form (6019 Record) - This form is used to define MTP network route sets. New section to support this feature.

OFCOPT form (5509 Record) - This form must be completed for a 5ESS Switch and is used to supply various miscellaneous office options and parameters. It is required at the time of initial translations for all offices. Added a data rule to the COMMON CHAN SIG field.

PC form (6006 Record) - This form is used to specify the point code and alternate link set routing. Added data rules to the POINT CODE field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 522 to "Y".

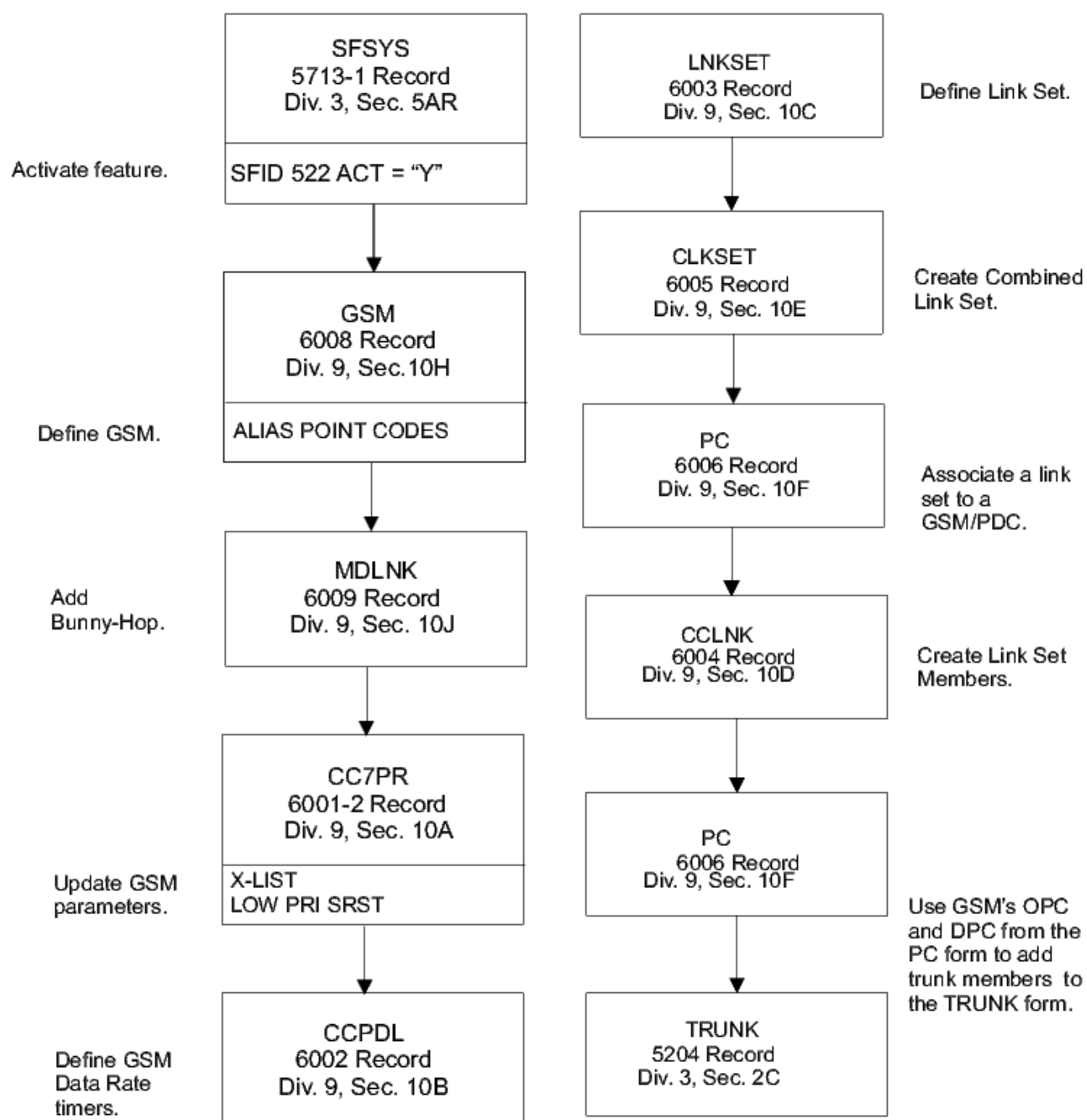


Figure 1 FORM FLOW FOR SS7 PSU MTP ROUTING ENHANCEMENTS FEATURE DATA LINK TO TRUNK GROUP PROVISIONING SEQUENCE

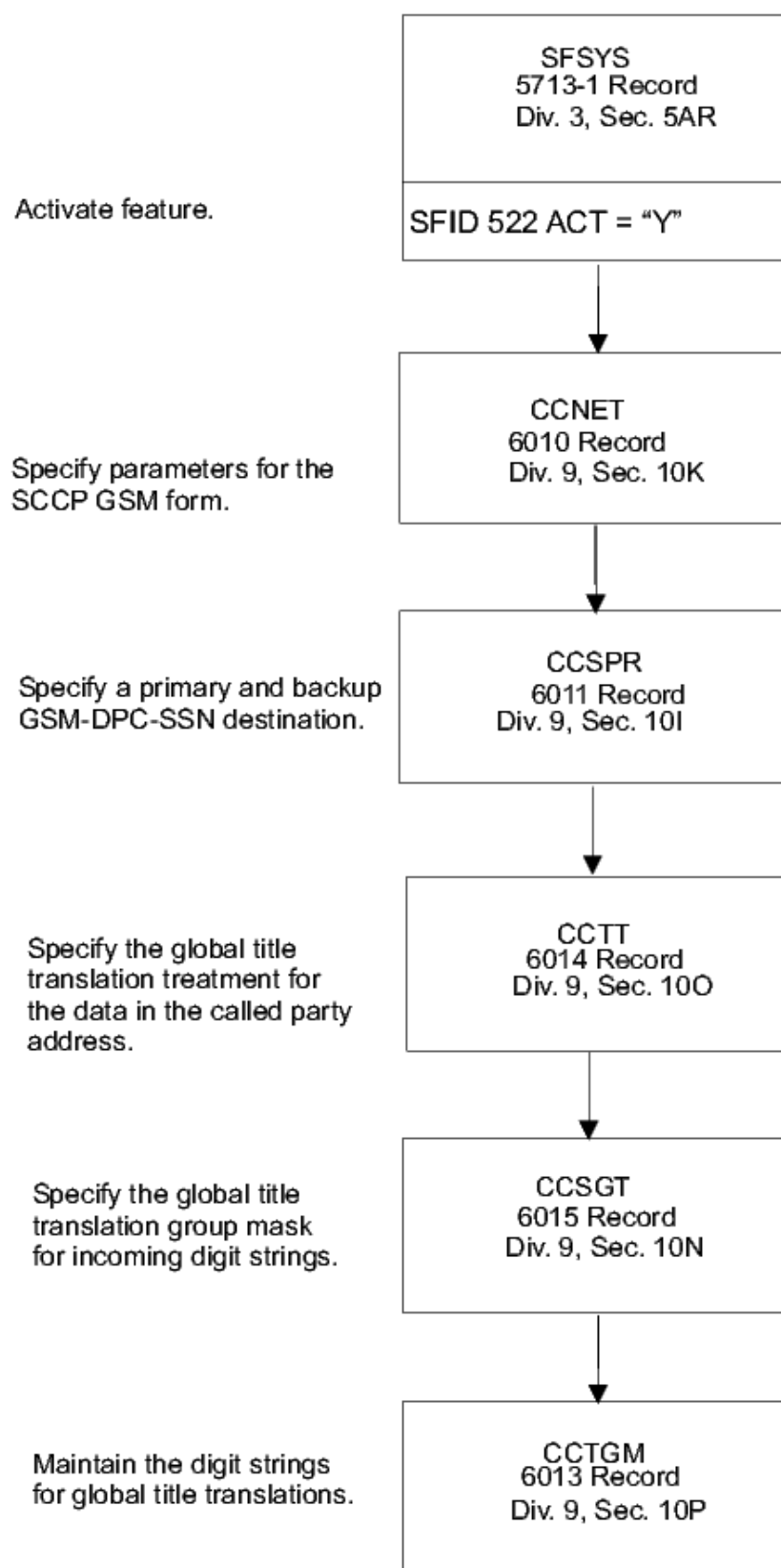


Figure 2 FORM FLOW FOR SS7 PSU MTP ROUTING ENHANCEMENTS FEATURE SSCP PROVISIONING SEQUENCE**SEC. 4A523: IMPROVED RC VERIFY****1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number 235-040-100 — (OAM) Planning Guide for Feature ID 99-5E-4093.

SEC. 4A524: LD CIC AT TERMINATING TANDEM**1. FEATURE DESCRIPTION**

The LD (Long Distance) CIC (Carrier Identification Code) at Terminating Tandem feature is a call processing secured feature that is available as a 5E14 Software Update and in the Beginning Managed Introduction of the 5E15 Software Release. The feature number is 99-5E-7242.

This feature allows a CIC to be re-populated in the IAM (Initial Address Message) on the terminating side of a call prior to the actual termination of the call at the end office. It allows a service provider of a terminating tandem switch to specify, on a trunk group basis, whether or not the carrier identified for a call should be sent to the terminating end office in the CICIP (Carrier Identification Code Parameter) of the outgoing IAM that is sent from the terminating tandem switch.

The feature optionally passes the CIC to the terminating end office from the terminating access tandem switch on a trunk group basis. The incoming trunk group at the terminating tandem must be an MF (Multi-Frequency) or CCS7 (Common Channel Signaling, CCITT (International Telegraph and Telephone Consultative Committee) Version 7) IC (Inter-exchange) trunk, and the egressing trunk at the terminating tandem must be a CCS7 TTOLL_CONN trunk.

2. FEATURE ASSIGNMENT

Prior to activating this feature, the 5ESS Switch must be acting as a terminating tandem in the network. For 5E14 and later, activate this feature as follows:

- set the ACT field for SFID 524 on the SFSYS form (5713-1 Record) to "Y".
- set the SEND LD CIC field to "Y" on the TKGRP form (5202 Record) for the outgoing trunk group at the terminating tandem switch.
- set the SIGNALING PROTOCOL field to "TRAD" on the RTIDX form (5303-1 Record) for the incoming trunk group.
- set the TRKCLS field to "IC" on the TKGRP form (5202 Record) for the trunk used to ingress (enter) the terminating tandem switch.

See provisioning form flow on Figure 1.

The LD CIC at Terminating Tandem feature provides the following capabilities when all of the conditions to activate the feature are met:

The egressing IAM will include a carrier identification parameter that will be populated with the CARRIER

ID of the trunk group used to ingress the terminating tandem switch on the TKGRP form (5202 Record).

If the CIC was populated by the SCP, this feature will not overwrite this value. This is because population of the CIC from the SCP takes priority over a CIC populated by this feature.

3. CALL PROCESSING

To implement this feature, the items described for ingressing and egressing the terminating access tandem are required.

3.1 MF and CCS Ingressing the Terminating Access Tandem

When the LD CIC at Terminating Tandem feature is activated, and the incoming trunk group is an IC trunk group, the carrier for the call defined on the incoming trunk group will be populated in the structure sent to the TTP (Terminating Terminal Process) in the route request.

For those calls where an ASP (Advanced Services Platform) query is invoked at the incoming IC trunk, and the ASP reply results in a different carrier, the carrier returned from the ASP reply is the carrier sent to the TTP for inclusion in the outgoing IAM.

3.2 CCS Egressing the Terminating Access Tandem

The carrier identified at the ingressing terminating access tandem trunk is sent to the terminating end office under the following conditions:

the egressing CCS trunk is a TTOLL_CONN trunk.

the LD CIC at Terminating Tandem feature is activated.

the SEND LD CIC field defined on egressing TTOLL_CONN trunk on the TKGRP form (5202 Record) is set to "Y".

the far class of service is "IC".

the carrier in the trunk termination message is not NULL.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the LD CIC at Terminating Tandem feature, the ACT field for SFID 524 must be set to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. For 5E14 and later, the SEND LD CIC field and related data rules were added.

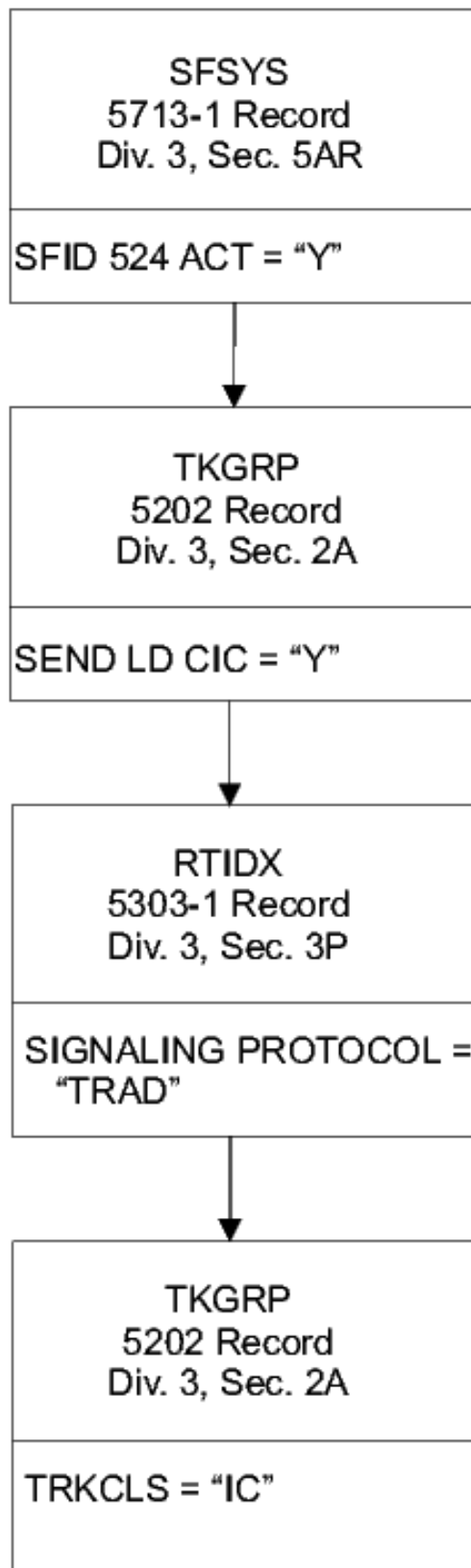


Figure 1 LD CIC AT TERMINATING TANDEM FORM FLOW**SEC. 4A525: Distinctive Remote Module****1. BACKGROUND**

Additional information for this feature is available in the DRM (Distinctive Remote Module) Users Guide (235-200-150).

This feature is intended to serve in those applications in which the customer's business conditions do not easily support the back-hauling of any voice or user data traffic to the host office, but requires administration of service in that remote location via a local, integrated OAM&P (Operation, Administration, Maintenance and Provisioning) interface. To address this goal, the capability to remote an SM-2000 from a host 5ESS-2000 office while minimizing the cost of the required facilities is developed in this feature.

The DRM feature addresses that configuration of the network for which all voice and user data traffic at the remote is essentially confined within the area near the remote switching equipment. Any other traffic, voice or user data between the DRM and the host office or any other cp-node is transferred over interoffice trunks. The DRM provides integrated OAM&P while also providing modular, non-integrated call processing capability. This feature introduces the concept of a call processing node, or cp-node, and a virtual switch, in the sense that it is administered as a part of a host switch (the "virtual switch"), but otherwise functions like an independent switch (the "cp-node"). As a result, DRM may be deployed in the same manner as other remotes provided they do not share hardware with any other network elements and are not part of a cluster, but can share administrative and maintenance functions and resources in order to minimize the cost of these to the customer.

1.1 The Virtual Switch

This Feature Description introduces the concept of a "virtual switch". A virtual switch is a self-sufficient set of resources that the service provider can utilize to provide telephony services. A virtual switch is subsequently made up of the set of resources that call processing software sees and interfaces with, the "cp-node", and the set of resources that maintenance sees and interfaces with, the "m-node". These are just concepts to treat resources making up a switch as the functions they perform and without regard to the organization or location of the hardware used to provide these functions. (See "The CP-Node" and "The M-Node" sections below).

Because the ideal maintenance interface to the maintenance technician makes the set of resources appear to be centrally located and accessible, the image of the switch that this customer sees, the Virtual Switch, should make the set of cp-nodes and m-nodes look like a single interface and single switch. This implies the following:

- Consolidated Generic Retrofit

- Consolidated Software Update

- Common set of Trunk and Line Work Stations (TLWS) and STLWS (Supplementary TLWS)

- Common recovery procedures

- Common Set of OSs, OS Links, and craft IO

- Alarm consolidation

A Virtual Switch can have common resource pools that are shared across cp-nodes and m-nodes, as we will show. This further implies that a given implementation of any cp-node or m-node may include a resource that

can be accessed and therefore shared by other nodes on the virtual switch.

1.2 The CP Node

A cp-node is also occasionally referred to as a "call processing island" or "call processing node". This refers to the idea that the cp-node appears to be a separate island of resources to call processing code and data. That is, resources that cannot cross switch boundaries -- i.e., cannot extend between physical switches -- similarly cannot cross CP Node boundaries. A list of examples (by no means exhaustive) of resources that are unique to a cp-node, and therefore cannot be shared between cp-nodes are:

- Dialing (Numbering) Plans

- NOCs

- Point Codes

- Site IDs

- Cluster IDs

- Sets of terminals

- Sets of trunks

- Port-related hardware

There are also resources that can be shared either physically or by emulation across cp-nodes. Examples of these are:

- OS Data Links

- Trunk and Line Work Stations

- Craft Terminals

In a 5ESS-2000 Switch, a cp-node may be a switching module, or it may be part of a module, a set of modules, or even an entire multi-module 5ESS-2000 Switch. Eventually, it may be engineered as just a set of hardware and software resources that appear to be a separate switch, but the important aspect is that it is defined by the operational features and capabilities it supports. Because of this, a cp-node is defined by the data describing it, and while it is really a set of many kinds of partitioned data, it can be thought of as a set of lines and trunks that look like a single switch to the users of the switch. In this particular implementation of the DRM feature, for example, a DRM is a cp-node.

1.3 The M Node

Maintenance features may have different limitations from call processing features, and because of this, the boundaries of a Maintenance Node, or "m-node", may not be coincident with those of call processing or, therefore, any cp-nodes. In other words, the boundaries describing a cp-node and the boundaries describing a particular m-node may be different. Testing circuits, metallic access networks, and other maintenance resources may be limited by electrical and other hardware restrictions, such as not being able to share test circuits across these boundaries. However, because these limits are often different from those imposed by call processing data and other resources, a cp-node need not be the same lines, trunks and other resources

defined by maintenance islands.

The set of resources to perform maintenance functions and the ports which can make use of these resources is referred to as a maintenance node, or "m-node". In the case of metallic testing, this is referred to as a "metallic m-node", and in the case of digital testing, this is referred to as a "digital m-node". Note that in this particular feature, and in 5E14, a metallic m-node corresponds to a site ID, whereas digital m-nodes correspond to cp-nodes. This is ONLY because a DRM in this feature is a cp-node and also has a site ID. For example, if we shared digital testing resources across all cp-nodes making up the virtual switch, we could form a single digital m-node across the entire 5ESS-2000 Switch. Conversely, if we shared a single SM across multiple customers with multiple, independent corresponding ODDs and corresponding base and control numbers specifying these ODDs, we could have multiple cp-nodes within that single SM.

Examples of those resources that should not be shared among m-nodes are:

- Metallic Access Networks and Test Circuits (cannot be shared among metallic m-nodes)

- Digital Test Circuits, such as ISTF (Integrated Services Test Function) and TTF (Transmission Test Facility/Function) (cannot be shared among digital m-nodes)

- Sufficiently Segregated Measurements to allow proper engineering and monitoring of these nodes.

1.4 The Element Manager and Element Manager Phase Zero

The concept of the Element Manager is one widely discussed in the industry. The EM (Element Manager) encompasses a far-reaching set of functionalities to manage and administer switching resources in order to provide a central interface. In this release of the DRM feature, a minimal set of Element Manager functionalities is provided and runs on the ASM (Administrative Services Module) platform base. This minimal set of Element Manager functionalities is referred to as "Element Manager Phase Zero", or "EM-0", and is one of many applications running on the ASM. Note that future implementations of the Element Manager may run on any processor, or even multiple processors. One intent of the DRM feature is to describe the telephony switch architecture in terms of the software functionalities, and NOT as necessarily running on or coupled with a particular platform, processor, or hardware unit. In this instance, EM-0 may likely run as an application on the ASM, but this is NOT a requirement.

Essentially, the function of the EM-0 is to provide a means of interacting with the various cp-nodes (call processing node) and m-nodes (maintenance node) as if they constituted a single switch. A switch made up of multiple entities, each of which can provide call processing and maintenance functionalities autonomously or together, but which appears to be a single switch interface to the user is the Virtual Switch. In this way, the EM-0 acts as a sort of "traffic cop", shuttling command requests and data to and from the appropriate cp-nodes and m-nodes. To do this, the EM-0 must have a simple database that allows it to know which cp-nodes and m-nodes contain resources, such as test equipment or lines and trunks. It must also know if some additional information is needed, for instance, to be able to determine the location of resources. The intent of the DRM feature is to provide an EM-0 that will allow graceful access to cp-nodes making up the virtual switch, and yet minimize the impact of the craft interface to the individual cp-nodes.

1.5 The DRM

A DRM is a cp-node consisting of a single SM and a single point code. A call outside the cp-node is therefore an inter-switch call, regardless of the hardware it may use. In this particular instance, i.e., this feature implementation, a DRM is also a single m-node. In other words, the DRM is a separate set of hardware resources with some shared software resources that provide the integrated interface for OAM&P, and therefore has a single site code. Examples of these resources that are shared across the entire switch and

therefore between the rest of the switch and the DRM are TTY terminals, OS datalinks, etc..

Note that there is no necessary relationship between a cp-node and a LATA. Just as a switch may cross LATA boundaries, a cp-node may or may not cross LATA boundaries. The 5ESS-2000 Switch currently supports up to 16 point codes, and a point code cannot cross cp-node boundaries. A DRM that functions as a cp-node will have a single point code, while the host switch on which the DRM homes is a cp-node that can have more than one point code. These restrictions arise from the fact that a given SM can have only one PSU, and a given PSU can have only one point code. Again, this is an implementation choice of this feature, but these concepts can eventually be extended to a virtual switch composed of many cp-nodes of different implementations, all coordinated by and interfaced with the Element Manager function.

NOTE: that in this feature, 99-5E-3850, the supported platform consists of:

- a 3B21-based host 5ESS-2000 Switch, referred to for the sake of convenience in this feature as cp-node 0,

- an adjunct processor provided by the ASM, (which in turn provides processing for cp-nodes and any applications that may need it, such as EM-0 -- see below).

- A limited additional set of Element Manager functionalities running as an application on the ASM platform, this set being referred to as "Element Manager Phase Zero", or, more succinctly, "EM-0", and craft maintenance terminals connected to the ASM,

- the DRM, based on an enhanced version of the original VCDX feature, consisting of a DRM SM and a DRM AM, (referred to in this particular feature implementation, for convenience, as "cp-node-1")

- and a data connection consisting of the links from the DRM to the EM-0 running on the ASM.

Later instances of this architecture may include any number of cp-nodes and m-nodes, and may include configurations that have any combination of zero or more DRMs or 5ESS-2000 Switches with a very wide range of line sizes and geographical deployments.

An architectural diagram showing the structure of the DRM is shown in Figure 1.

1.6 The Distributed AM

The distribution of functionalities that were once the sole responsibility of a single Administrative Module (AM) in the 5ESS allows this task load to be shared among processors -- not only by the various switching modules themselves, but also among similar processors that provide Administrative functionalities in intelligent peripherals, such as the DRM. The DRM has a co-located administrative module processor. In the case of the VCDX, from which the DRM is derived, this processor performs similar functions as an AM performs in a 5ESS-2000 Switch, and also provides a workstation interface for performing various maintenance and administrative functions. In the DRM, the processor performs administrative functions as well, and the primary location for a workstation terminal is generally on the host (the host called, by convention in this feature, "cp-node 0") AM (made up of the 3B21 and using the ASM as an applications processor) in the central host office.

Some DRM administrative functions themselves are performed by the local DRM AM. The ability of these processors to share the administrative functions and grow processing power as the switch grows in size allows the AM functions to be distributed and able to grow. Because of this minimization of a processing "bottleneck", intelligent cp-nodes like the DRM will eventually allow the 5ESS-2000 Switch to grow much larger and span

much greater geographical distances. The decoupling of the various cp-nodes and m-nodes will also allow the provisioning of heterogeneous clusters of autonomous switching nodes which appear to the user to be a single switch. This has the advantage of allowing distributed call processing, but with an integrated OAM&P interface which can be accessed by terminals in other local or remote locations, such as at the host. This set of distributed resources that make up this entity is called the Virtual Switch, whose Administrative Module functionality is distributed.

1.7 Summary

Finally, where a cp-node is the set of resources that is visible to call processing software, and an m-node is the set of resources that behaves and looks like a separate switch to maintenance software, the set of all resources that looks like a switch to the users of the switch for call processing, operations, administration, maintenance and provisioning, is a "virtual switch". In other words, as far as the users are concerned, this is the switch, regardless of what hardware is used to provide that functionality. The situation is possible, therefore, where a single maintenance node subtends multiple cp-nodes, providing support for resources that look to software like multiple call-processing entities or even switches. Further, since the cp-nodes and m-nodes are largely decoupled and networked by a data backbone, introduction of a new node into a network for the virtual switch may be largely automated. A new node would be connected to the backbone, and the smaller amount of data that the virtual switch needs to know about this new node can be requested and exchanged by the EM-0 and cp-node, resulting in a type of "plug and play" operation for extending the modular virtual switch.

In summary, the set of resources that maintenance software sees is the "m-node", the set of resources that call processing software sees is the "cp-node", and the combination of these entities that the customer sees and interfaces with is the "virtual switch". In this release of the DRM, the EM-0 will provide this integrated interface to the Virtual Switch, with the idea of later extending this ability to combine current implementations of 5ESS-2000 Switches or DRMs or other telecommunication nodes into larger and larger 5ESS virtual switches while preserving an integrated interface.

1.8 The DRM in The Network

The DRM provides the ability to remote an SM-2000 to beyond distances that are attainable by existing EXM-2000/TRCU2/TRCU3 systems. The distances to which existing remotes (EXM-2000, RSM, MMRS) are controlled, is by the limits imposed by echo path delay. The DRM, having no need to backhaul voice of such limited paths, thus provides the capability to have a point of presence at a remote site while still being associated with a distant host 5ESS-2000 Switch which thus provides integrated control and OA&M support. This is a capability that the existing VCDX does not support. This feature will redefine the boundaries of a host 5ESS-2000 Switch, since its subtended appendages can be virtually anywhere.

The following section provides a synopsis for the feature:

LNP (Local Number Portability) Features is supported on DRM (Distinctive Remote Module).

Each DRM has its own site ID, Packet Switch Number, Point Code, and self-contained islands of Conference Circuits, Announcements, SFG (Simulated Facility Group), Test and Service Circuits.

The DRM does not share hardware (conference ckts, MMSU (Modular Metallic Service Unit), TTF) with the host switch or with any other DRM. Each DRM is a universe of its own, as provisioned with its own set of "global resources" and is independent of the host switch from a call processing perspective.

This DRM is a US product only with a planned availability with 5E14 BMI (Beginning Managed Introduction).

2. FEATURE DESCRIPTION

The feature number for Distinctive Remote Module Special Feature is 99-5E-3850. This secured feature is available for the 5E14 BMI release.

This feature provides the customer additional capability, that of operating an SM that is remotely located without expensive umbilicals. The DRM coexists with other 5ESS-2000 remotely located switch modules (those remotely located using the TRCU2 (Transmission Rate Conversion Unit model 2) or TRCU3 (Transmission Rate Conversion Unit Model 3), RSMs (Remote Switching Module) or ORMs (Optical Remote Switching Module). The functionality and capacity of the existing 5ESS-2000 Switch are not impacted or modified by the introduction of this feature.

At the DRM switch, all line-to-line calls are intra-switch, in the conventional sense. All outgoing calls from DRM to other network elements, including the host, are carried on inter-switch trunks. Figure 1 shows a high level view of the architecture of the DRM.

2.1 User Scenario

From a call processing point of view, a DRM is effectively a separate self-contained switch with its own unique:

- SS7 (Signaling System 7) OPC (Originating Point Code)

- Service & Test Circuits

- SID (Site ID) & CLID (Cluster ID)

- RAX (Rate Center)

- DAS (Digit Analysis Selector)

- Screening Indexes

- RI (Route Indexes) & TGNs (Trunk Group Numbers)

- NPA (Numbering Plan Area)/NXX (Office Code (Part Of Dialed Number))

2.2 Service Provider Perspectives

The office craft personnel is able to attain manual control of the DRM-2000 as is currently applicable to existing remotely located switch modules. Furthermore, the craft person is able to, unambiguously, determine whether an SM-2000 is subtended as a DRM-2000 or as an EXM-2000. Since the DRM cannot share testing resources with the host switch, the fundamental change in testing scenarios is to hunt only these local resources, and if such resources cannot be found locally, provide failure/blockage treatment in the same way that the host switch would provide such treatment were that resource not available to the host switch.

The primary reason for not sharing metallic testing facilities is the high probability of a test circuit path in a DRM metallic network exceeding the 3000-ohm electrical distance limitation.

The primary reason for not sharing digital testing facilities (ISTF, Bit Error Rate and Errored Blocks testing) is the high probability of introducing additional hunted digital paths and the variability introduced into such testing.

The primary reason for not sharing digitally-emulated analog testing (TTF, noise, loss testing) is the lack of a circuit-switched testing path to the host switch and, again, the introduction of additional hunted paths through

the network to provide a test path.

The installation and provisioning of a DRM in a network requires provisioning of the data network providing the interface between the host equipment where the element manager functionality resides and the remote DRM equipment. While every effort has been made to allow as much latitude as possible for the customer, and to describe this network in terms of minimal requirements and the immediate interfaces to the EM-0 running on the ASM and to the DRM, there is also a minimal description of at least one basic configuration. The aim of this is to support the idea of a common and standardized interface for a switching network as well as the availability of a "complete solution" where needed.

2.3 Data Administrative Perspective

The ODD on each cp-node is a separate ODD. There is therefore no conflict between these ODDs. SM numbers must be unique across the entire virtual switch -- i.e., each cp-node must have its own set of unique SM numbers.

DRM-2000 is in a unique circumstance of being administered as part of a host office from an OA&M perspective, and yet treated as an independent office from a call processing perspective - the concept of a pseudo-switch is applicable.

2.4 Provisioning Perspective

DRM is provisionable across the full range of capability consisting of the minimum core system required to set up communication links between the host switch, and the full capability of a remotely located SM-2000.

The ASM co-located with the 5ESS 3B21D/CM2 (which constitutes the AM of cp-node 0) supports the provisioning of one to the maximum of fifteen DRMs. See architecture diagram Fig., 1.

Test circuits, Announcement Systems, SFGs, 3-Way and 6-Way conferencing capabilities are supported locally in the DRM. These facilities will not be globally hunted, the DRM is enabled to point to itself in allocating these resources.

All trunks on the DRM-2000 are locally hunted and support communications with adjacent network elements as well as the host switch. Because the DRM-2000 behaves as an independent office, trunks to the host office are treated as inter-office trunks (supporting SS7 signaling). Thus these host office to DRM-2000 trunks are not inter-module in the traditional usage - an inter-module trunk originates and terminates on the same switch.

2.5 Trunk and Line Testing Scenario

Like other remotes, a DRM has a separate Site ID.

The DRM must have a "Test Circuit Island" - no global test circuits can be used, since there are no network timeslots for backhauling circuit-switched traffic and no hardware can be shared.

Due to the fact that the DRM is a self-contained metallic m-node, as well as a self-contained digital m-node, all testing resources -- test circuits, paths, etc., -- are local to the DRM to test lines and trunks on that DRM. A top-level interface provided by the simple Element Manager functionality will allow selection and access of the cp-node/m-node of the DRM. After this selection has been made, testing features and scenarios are unchanged.

2.6 Network Impacts

Points of presence of the DRM are expected to be diverse, ranging from the in-state deployment to

deployments which project the DRM to distances of up to 2000 miles away from the host office, and thus potentially spanning multiple states. In this sense, the DRM will stretch the geographical limits of a single 5ESS-2000 Switch. The remotely located switch module is capable of reporting its status, routinely or on demand, or off-load archived information to the host switch on reestablishing any lost connections from the host. In other words, the DRM is another type of module of the 5ESS-2000 Switch, like an ORM, an RSM, or EXM, etc., but with enhanced ability to operate at extended distances away from the host, and ability to provide call processing service autonomously.

2.7 Security Issues

Local access to the DRM, at the point of presence, is via existing procedures used with respect to RSMs, ORMs, and EXM-2000s. Key entrance, coded locks or dial-up authorization is supported. Thus it is required that any craft action on the switch be on the basis of some level of authorization.

Because of the expected long distances between a host office and the DRM-2000 subtended from it, normal dispatch will not assure speedy maintenance when needed. Access to local maintenance assets must be developed/provided by the service provider. This will not be unlike any other remote vehicle, and while such manual intervention is expected to be rare, it must be considered as a possibility.

Furthermore, the DRM feature is available on a right-to-use basis relying on a charge on initial deployment of the DRM feature.

3. FEATURE ASSIGNMENT

Procedures necessary to grow a DRM to the Switching Complex are available in the DRM growth section of the DRM User's Guide (235-200-150).

To enable this feature, the ACT field for SFID 525 must be set to "Y" on the SFSYS form (5713-1 Record).

See Figure 2 for DRM provisioning form flow.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	
EQCORE	5701	8	3	17.1 17.14
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

ECDOPT form (5706 Record) - The 5706 Record is used to define Core Unit Assignment in a 5ESS-2000 Switch office. For 5E14 and later, the DRM, ADDL SERIAL PORTS, VIOP/PC SLOT/P, VIRTUAL DEVICE CONTROLLER and VIRTUAL DEVICE TYPE fields are added to this form.

EQCORE form (5701 Record) - The 5701 Record is used define Core Unit Assignment in a 5ESS Switch office. For 5E14 and later the DRM field was added to this form.

OFCOPT form (5509 Record) - The 5509 Record is used to define the various miscellaneous office options and parameters. For 5E14 and later the VIRTUAL SWITCH, ALARM OUTPUT OPT, ALARM INPUT OPT, and ALARM DURATION fields are added. Also, the DRM enumeration was added to the PRODUCT field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 525 to "Y".

5. GLOSSARY

5.1 Acronyms

ACD	Automatic Call Distributor
ASM	Administrative Services Module
BMI	Beginning Managed Introduction
BRCS	Business and Residential Customer Services
CAMA	Centralized Automatic Message Accounting
CLID	Calling Line Identification
CM2	Communication Module 2
CMP	Communication Module Processor
DAS	Digit Analysis Selector
DN	Directory Number
DRM	Distinctive Remote Module
ESA	Enhanced Service Adjunct
EXM	Extended Switch Module as in EXM-2000
FGB	Feature Group - B
FGD	Feature Group - D
IMT	Inter-Module Trunk
ISDN	Integrated Services Digital Network
ISTF	Integrated Services Test Function
LATA	Local Access and Transport Area
LNP	Local Number Portability
MMRSM	Multi-Module Remote Switching Module
MMSU	Modular Metallic Service Unit
NOC	Normalized Office Code
NPA	Numbering Plan Area
NTSs	Network Time Slots
NXX	Office Code (Part Of Dialed Number)

OA&M	Operation, Administration and Maintenance
OAM&P	Operation, Administration, Maintenance and Provisioning
ODA	Office Data Assembler
ODD	Office Dependent Data
OPC	Operator Position Terminal
ORM	Optical Remote Switching Module
PSU	Packet Switch Unit
RAX	Rate Area Exception
RC	Recent Change
RISLU	Remote Integrated Services Line Unit
RSM	Remote Switching Module
RTA	Routing And Terminal Allocation Subsystem
SFG	Simulated Facility Group
SFID	Special Feature ID
SID	Station Identification
SM	Switch Module
SMP	Switch Module Processor
SS7	Signaling System 7
STLWS	Supplementary Trunk And Line Work Station
TGN	Trunk Group Number
TGSR	Terminal Group and Station Restriction
TLWS	Trunk Line Work Station
TRCU2	Transmission Rate Conversion Unit Model 2
TRCU3	Transmission Rate Conversion Unit Model 3
TSI	Time Slot Interchanger
TTF	Transmission Test Facility/Function
VCDX	Very Compact Digital Exchange
VPA	Voice Path Assurance

5.2 Definitions

Back-Haul	Teletraffic that is transported over the umbilical links between a host switch and any remotely located switch module (EXM-2000, ORM, RSM, MMRS) is said to be back-hauled. This provides a distinction between voice traffic on the umbilical link, and host-remote voice traffic over trunks. In the context of the DRM feature, no voice or data traffic is back-hauled over the umbilicals, which are for control data only.
Element Manager	In the context of the DRM feature, this is the software entity that coordinates the maintenance technician interface to make the collection of cp-nodes look and behave to the technician from the OAM&P perspective as though they constituted a single switch. The set of Element Manager functionalities implemented in this capability is referred as "Element Manager Phase 0" or just "EM-0" ("ee-emm zero"). This is what provides the "integrated maintenance" look and feel to the OAM&P technician -- i.e., the "virtual switch".
Critical Unit	A Critical Unit is one whose outage will result in a major loss of functionality of the system dependent on that unit. For DRM, this would correspond to duplex TSI or SMP outage. Craft orders to remove the last circuit element are denied.
Min-mode	This term refers to a minimum equipped working configuration of a system, or refers to a minimum working configuration under failure conditions.
CP-Node	A cp-node, also occasionally referred to as a "call processing island" or "call processing node", refers to a separate group or "island" of resources to call processing code and data. That is, resources that cannot cross switch boundaries -- i.e., cannot extend between physical switches -- similarly cannot cross CP Node boundaries.
M-Node	Maintenance features may have different limitations from call processing features, and because of this, the boundaries of a Maintenance Node, or "m-node", may not be coincident with those of call processing or, therefore, any cp-nodes. Testing circuits, metallic access networks, and other maintenance resources may be limited by electrical and other hardware restrictions, such as not being able to share test circuits across these boundaries. However, because these limits are often different from those imposed by call processing data and other resources, a cp-node need not be the same lines, trunks and other resources defined by maintenance islands. The set of resources to perform maintenance functions and the ports which can make use of these resources is referred to as a maintenance node, or "m-node". In the case of metallic testing, this is referred to as "metallic m-node", and in the case of digital testing, this is referred to as a "digital m-node". Note that in this DRM feature (99-5E-3850), the DRM constitutes a single cp-node as well as a single metallic m-node and single digital m-node, all of which happen to be comprised of the same set of resources, but that may not be true of future implementations or features.
Virtual Switch	The Virtual Switch is the interface to the user of the switch - - generally maintenance technicians and other personnel that deal with the switch as a hardware entity -- that appears to be a single, integrated switch, regardless of the actual hardware configuration or number of hardware units which make it up. This is in contrast to the ideas of cp-nodes and m-nodes, which comprise the actual hardware units and resources making up a single component of the virtual switch. This Feature Description introduces the concept of a "virtual switch". A virtual switch is a self-sufficient set of resources that the service provider can utilize to provide telephony services. A virtual switch is subsequently made up of the set of resources that call processing software sees and interfaces with, the "cp-node", and the set of resources that maintenance sees and interfaces with, the "m-node".

Umbilical	A facility used to remote a network element from a host entity, the remotely located network element could be an RSM, ORM, EXM, RISLU, etc.. In the case of this feature (99-5E-3850), the DRM, the umbilical usually referred to between the DRM and the host entity is that which connects the DRM AM to the EM-0 (running on the ASM in this implementation), and therefore to the other cp-nodes in the virtual switch. That umbilical is implemented as a connection over a data network.
Isolation	Isolation refers to any loss of communication between a network element and a host entity, and therefore the network element and the rest of the network. In the context of this feature, the DRM (99-5E-3850), there are three notable types of isolation: - Isolation of the virtual switch from OSs ("OS Isolation") - Isolation of the Element Manager from a given cp-node, and hence, of that cp-node from the virtual switch (the cp-node in this case is said to be "EM Isolated"), - Isolation of the DRM AM from the DRM SM Since this capability will treat the DRM as a single unit, it will not deal with the third case of isolation within the DRM, isolation of the DRM AM from the DRM SM.
EM Isolation	The state of loss of communication with the DRM AM, which provides administrative functions for the DRM. This state does not affect call processing, only administrative access to the DRM from the Element Manager functionality. Also see "Isolation".

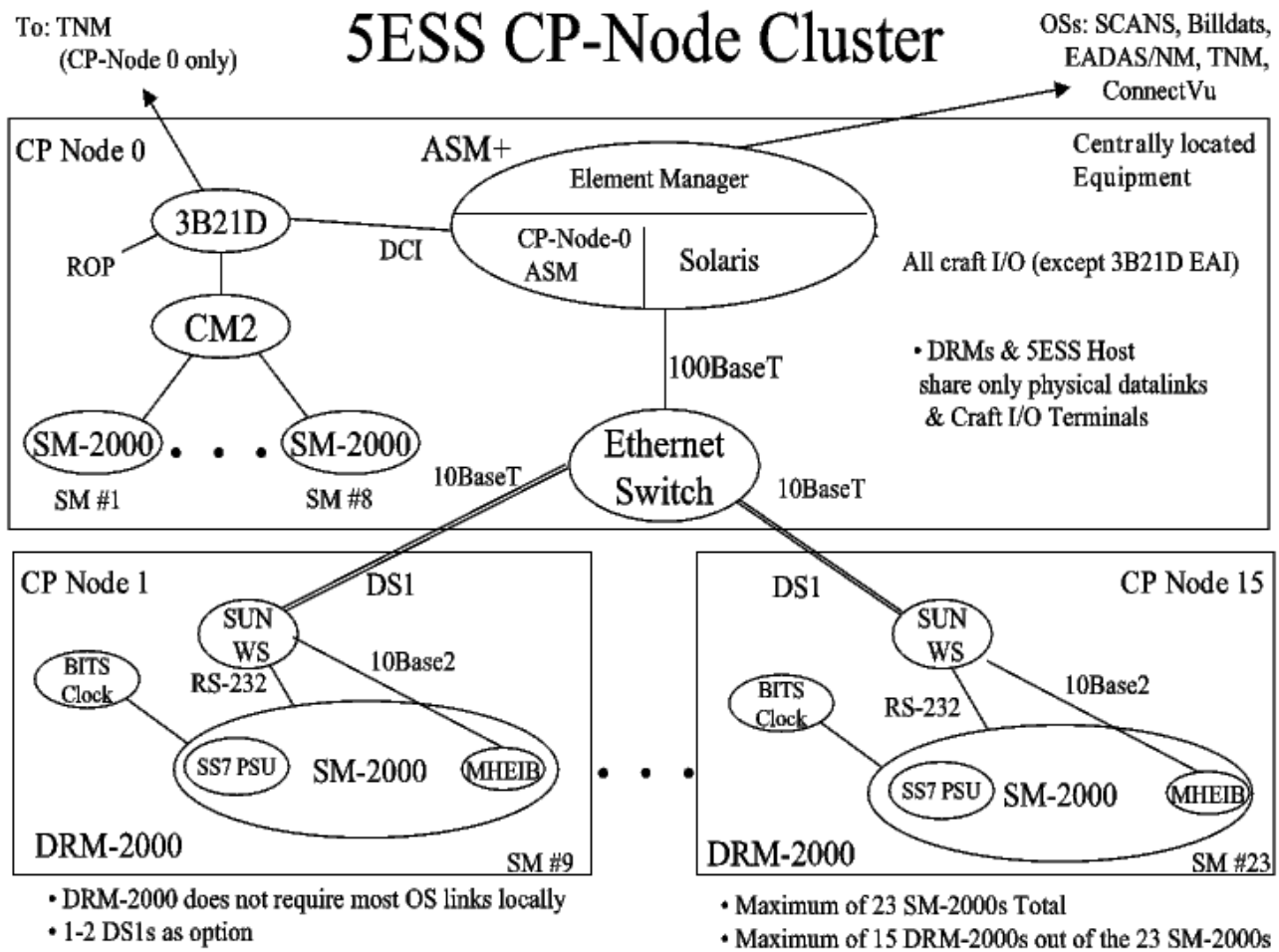


Figure 1 5ESS CP-NODE CLUSTER

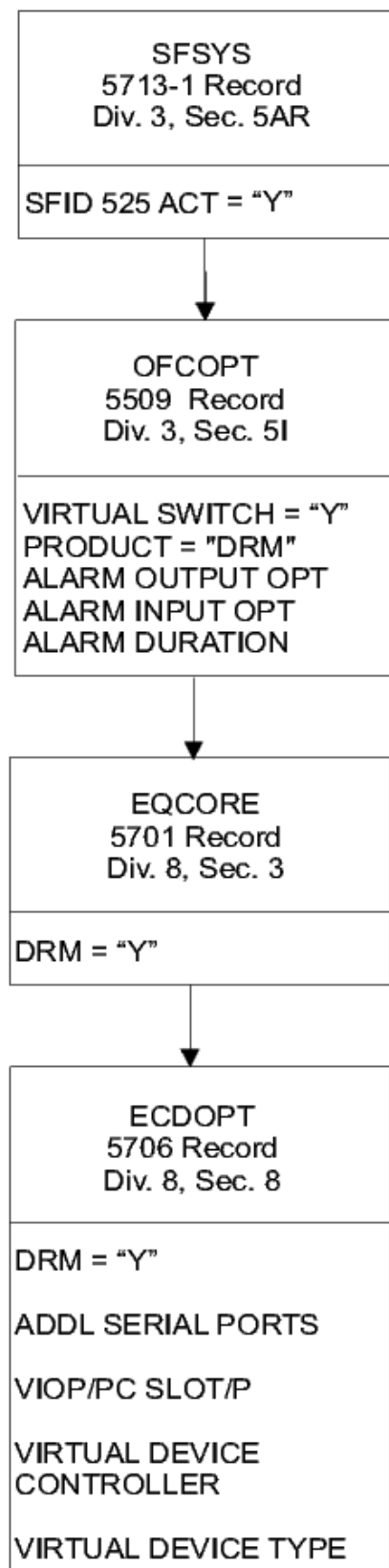


Figure 2 DRM PROVISIONING FORM FLOW**SEC. 4A526: Forwarded Call - Call Screening****1. BACKGROUND**

With a TAD (Telephone Answering Device), a called party is able to listen to a caller leaving a message, without the caller knowing. Also, the called party has the option of picking up the call anytime while the call is connected to the TAD. This capability was previously unavailable to VMS (Voice Message System) subscribers.

Prior to the introduction of the FCCS (Forwarded Call - Call Screening) feature, once a call forwarded from a subscriber's line to a VMS there was no way of monitoring and/or intercepting the call. The called party would have to wait until the calling party finished leaving their message, then dial into voice mail and retrieve the message in order to know who called.

2. FEATURE DESCRIPTION

Available with 5E14 and later Software Releases, the FCCS feature, feature number 99-5E-2652, provides VMS subscribers with the TAD functionality of listening to, without the callers knowledge, and answering a call while the caller is leaving a message. With this feature, a VMS subscriber is able to listen to a call that has forwarded to a VMS without the caller's knowledge. Also, the subscriber is able to then pick up the call if they so choose.

The FCCS feature can only be used with individual analog lines that have an auto-activated CFDA (Call Forward Don't Answer) or CFBL (Call Forward Busy Line) feature assigned. This feature is designed to be used for calls forwarding to a VMS. It is a secured feature which can be defined as part of a CF feature or it can be assigned separately to a line that has a CF (Call Forward) feature. Once assigned to a line, the subscriber activates and deactivates it by dialing the CS (Call Screening) activation and deactivation access codes.

2.1 Forwarded Call Screening with Announcements -- 99-5E-7614

Effective with the 5E16 and later Software Releases, this feature provides call screening subscribers with announcements, rather than confirmation tones, when they activate or deactivate the call screening feature. By using announcements rather than tones, subscribers are less likely to be confused when they activate or deactivate the call screening feature. This feature is activated by the same SFID 526 used to enable the base Forwarded Call - Call Screening feature.

This feature requires that either Call-Forwarding Busy Line or Call-Forwarding Don't Answer be active on the subscriber's line. Two new Fixed Route Indices, defined on the FIXRT form (5301 Record), are introduced to support this feature:

"CSACT" — FCCS Activation confirmation announcement

"CSDCT" — FCCS Deactivation confirmation announcement

After assigning the CS Feature Access Codes and Feature Actions in the IDP, the new announcements are assigned an activation/deactivation index and are recorded with the desired messages by the switch owner.

3. FEATURE ASSIGNMENT

For 5E14 and later, to enable this feature, the ACT field for SFID 526 on the SFSYS form (5713-1 Record) must be set to "Y". Refer to Figure 1 for FCCS provisioning form flow.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFWFD	5614-2	4	15A	12.12
CFWLPA	5614-3B	4	15B	1.22
CFWMPPA	5614-4	4	15C	1.22
FIXRT	5301	3	3G	10.1
IDPDCA	5601-1, 5601-2	4	2B	9.13
LINEFA	5112	3	1L	1.8, 1.11, 1.12
MLHLNFA	5113	3	1M	1.8, 1.11, 1.12
OFCOPT	5509	3	5I	8.1
PDIT	5300-2	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22

CFWFD form (5614-2 Record) - This form contains the feature options and default parameters needed to construct a Call Forwarding feature. For 5E14 and later, the FCCS OPT field was added to this form.

CFWLPA form (5614-3B Record) - This form is used to define individual line parameter information for a Call Forwarding feature. For 5E14 and later, the FCCS OPT field was added.

CFWMPPA form (5614-4 Record) - This form is used to define the MLHG (MultiLine Hunt Group) parameter information for a Call Forwarding feature. For 5E14 and later, the FCCS OPT field was added as display only.

IDPDCA form (5601-1 and 5601-2 Record) - This form is used to define the dial codes associated with an IDP (Individualized Dialing Plan). For 5E14 and later, two values, "CSACT" and "CSDCT" were added for the ACTION field.

LINEFA form (5112 Record) - This form is used for BRCS (Business and Residence Custom Service) feature assignment. It is keyed by telephone number. For 5E14 and later, data rules were added.

MLHLNFA form (5113 Record) - This form is used for BRCS (Business and Residence Custom Service) feature assignment. It is keyed by MLHG group and member numbers. For 5E14 and later, data rules were added.

OFCOPT form (5509 Record) - This form defines all of the global parameters used in the office. For 5E14 and later, the T SCREEN and CS MONITOR fields were added.

PDIT form (5300-2 Record) - This form is used for defining and modifying prefix, operator and feature access dialing codes. For 5E14 and later, two values, "CSACT" and "CSDCT", were added for the ACTION field.

FIXRT form (5301 Record) - This form is used to define routing and charging treatment of fixed route types in a 5ESS Switch. For 5E16 and later, to support the Forwarded Call Screening with Announcements feature (99-5E-7614), two fixed route values, "CSACT" and "CSDCT" were added.

SFSYS form (5731-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field to "Y" for SFID 526.

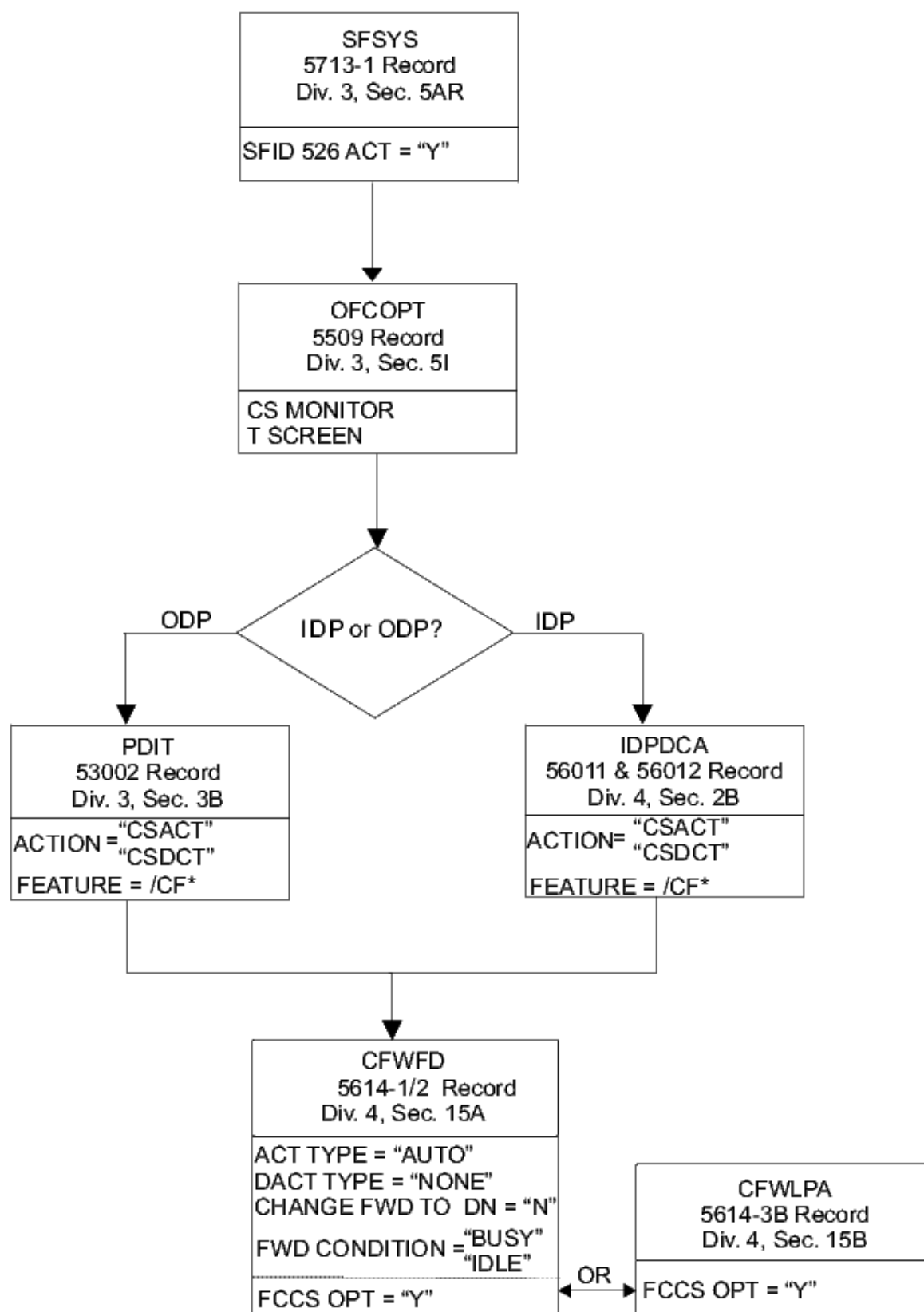


Figure 1 Forwarded Call - Call Screening**SEC. 4A527: VERIFY OFFICE CAPABILITY FOR LONG DISTANCE PLATFORM****1. FEATURE DESCRIPTION**

The Verify Office Capability for LDP (Long Distance Platform) feature is available as a 5E14 FR1 (Feature Release 1) and with the 5E15 Software Release. This is a secured feature, SFID 527, which must be activated prior to use. The feature number for this feature is 99-5E-4284.

This feature provides LDP switch owners with the ability to verify provisioned routing information for LDP and MINT (Multi-farious Intra-Network Trunk) trunks. This feature allows a technician to enter a "VFY:OFC" command at the MCC (Maintenance Control Center) specifying a LDP or MINT trunk as the incoming trunk along with dialed digits to generate an output message containing routing information on the ROP (Read Only Printer) and the MCC for the simulated call. As with other verify office operations, this operation does not generate an actual call. If an SCP (Service Control Point) query is encountered for the verify request on a LDP/MINT trunk, the trigger number and trigger type are output without executing the actual query. If a LNP query is encountered on the LDP/MINT trunk, the query is processed and post-query information is output. To provide the new functionality, several new input and output parameters were added to the verify office input and output messages function. See the Input/Output Manuals.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate this feature, the ACT field for secured feature 527 must be "Y". This capability is invoked on an office-wide basis. If the SFID 527 has been activated, the "VFY:OFC" command will process the new parameters for the LDP platform. SFID 527 must be active in order to enter or receive any of the new input/output parameters. If the SFID 527 is not active, a verify request on LDP/MINT trunks will result in an error message.

SEC. 4A528: ASP TOLL FREE SERVICE INTERACTION WITH FLEXIBLE ANI**1. FEATURE DESCRIPTION**

The ASP (Advanced Services Platform) Toll Free Service Interaction with Flexible ANI (Automatic Number Identification) feature is a secured feature (SFID 528) that is being deployed on the 5ESS Switch in a Software Update for 5E14 and in the 5E13 Software Release. The feature number for this feature is 99-5E-7302.

Prior to this feature, the "Flexible ANI" features on the 5ESS Switch were not interacting with ASP. If customers are choosing to implement "Toll Free" service using ASP triggers (or AIN Toll Free Service), Toll Free calls from Pay Phones must be allowed.

This feature provides the functionality required for Pay Phone Compensation for Toll Free Calls and Enhancements to the Flexible ANI feature (SFID 332). For more information on this feature, see Division 2, Section 4A322.

This feature will interact with the following "Flexible ANI" features:

Flexible ANI Information Digits Assignment (SFID 38). For more information on this feature, see Division

2, Section 4A38.

Flexible ANI Enhancements (SFID 142). For more information on this feature, see Division 2, Section 4A142.

Tollfree Calling Enhancement for Flexible ANI and Pay Phone Compensation for Toll Free Calls (SFID 332).

1.1 Call Processing Impacts

AIN Toll Free Calls:

When an ASP TF (Transparency Features) routing response (e.g., Analyze Route message) is received without a CPST (Charge Party Station Type) parameter, indicating the SCP (Service Control Point) has not translated the dialed Toll Free number, then if this feature is unlocked (SFID 528) and the AIN TF Pay Phone Compensation TFOS (Transparency Feature Optioning System) bit (OFID 745) is set to yes, the switch invokes feature 99-5E-4847 (Toll Free Calling Enhancement for Flexible ANI) (SFID 142). Invoking this feature, derives Flexible ANI II and perform Default II Pay Phone Compensation mapping. The result will be the new ANI II/OLI (Originating Line Identity) digits which will be used in outgoing signaling.

When an ASP TF routing response (Analyze Route message) is received with a CPST parameter set to "24", an indication that the SCP has translated the dialed Toll Free number, then if this feature is unlocked (SFID 528) and the AIN TF Pay Phone Compensation TFOS bit (OFID 745) is set to yes, the 5ESS Switch will invoke feature 99-5E-4868 (Pay Phone Compensation for Toll Free Calls) (SFID 332). Invoking this feature, derives Flexible ANI II digits, and then performs Pay Phone Compensation mapping. In this case, however, if the Flexible ANI II digits are not mapped, the switch will use a value of 24.

When an ASP routing response (Analyze Route message) is received with a CPST parameter set to a value other than 24, the 5ESS Switch will not derive Flexible ANI II digits or perform Pay Phone Compensation. In this case, the switch is assuming that the Flexible ANI and Pay Phone Compensation feature functionality has been incorporated into the SCP application logic.

Non-Toll Free AIN Calls:

For non-Toll Free AIN calls, the 5ESS will NOT invoke the Flexible ANI feature if the SCP returns a CPST parameter in the routing message. If no CPST parameter is included, then the switch will invoke the Flexible ANI feature if this feature (ASP Toll Free with Flexible ANI) is unlocked (SFID 528) and the TFOS bit (OFID 744) is set to "Yes".

2. FEATURE ASSIGNMENT

The provisioning of this feature is as follows:

Set the ACT fields for SFID 126, SFID 332, and SFID 528, on the SFSYS form (5713-1 Record) to "Y".

Set the ACT fields for OFID 744 and OFID 745, on the FOSYS form (5713-2 Record) to "Y".

No other forms are impacted by this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. For 5E9(1) and later, these TFOS IDs (Transparency Feature IDs) are called OFS IDs (Optioned Feature System IDs). Transparency Features have been developed to replicate features that exist on the 1A ESS Switch. To activate the ASP Toll Free with Flexible ANI feature for an office, the ACT fields for OFID 744 and OFID 745, must be set to "Y" on this form.

SFSYS form (5713-1 Record) - This form is used to enable secured features. To activate the ASP Toll Free with Flexible ANI feature, the ACT fields for SFID 126, SFID 332, and SFID 528, must be set to "Y" on this form.

SEC. 4A529: CALEA PHASE III LAES DIALED DIGIT EXTRACTION CAPABILITY

1. CALEA PHASE III

1.1 FEATURE DESCRIPTION

The feature number for the CALEA (Communications Assistance for Law Enforcement Act) Phase III Feature is 99-5E-4920. This secured feature (SFID 529) is available for the 5E14 release.

The CALEA - Core feature provides compliance to the Communications Assistance for Law Enforcement Act of 1994 for 5ESS Switches providing service to wireline subscribers. CALEA requires that a telecommunications service provider be able to support lawful surveillance of the traffic in its network.

A LEA (Law Enforcement Agency), in the course of normal operations, may have the need to conduct a lawfully authorized surveillance of the communications service subscriber, known as a subject. Once a court order authorizing the surveillance is issued, the LEA, with cooperation of the telecommunications service provider, may use a specified unobtrusive means of monitoring calls to and from the subject. Prior to this feature a loop around trunk was used as the means to monitor a AMPS (Advanced Mobile Phone Service) subject's call as if it were a wireline subject's call. However, as telecommunications services become more sophisticated, it becomes more difficult to provide some desired capabilities using traditional methods such as loop around trunks. Compared to loop around trunks, voice/conversion CCC (Call Content Channel) monitoring using TSI (Time Slot Interchange) bridging provides a much more flexible approach to monitor a call. CALEA's immediate need for the bridging capability prompts this upgrade of the current surveillance capability. This feature provides the 5ESS Switch DCS (Digital Cellular Switch) bridging capability for monitoring of a subject's circuit switched voice call content which is sent over a 5E trunk, call content channel, to an external hardware delivery facility. The CCC interface is used to carry the subject and the non-subject call content via the bridge in the speech-path. The delivery facility delivers the call contents to the monitoring agency. Since CCC interface is a trunk interface, the hardware requirements are the same as regular outgoing trunks. For DLTU (Digital Line Trunk Unit), DFI (Digital Facilities Interface) and DNU (Digital Network Unit), the standard procedures shall be followed. Through ECP/DCS (Digital Cellular Switch) data link protocol, the ECP directs the 5E DCS how to apply bridging on a per call basis to a particular subject's call. The bridge is setup, moved and torn down at different stages of a monitored call. This feature has a dependency on the call content monitoring capabilities of the 5ESS Switch Wireline "CALEA-Core (99-5E-4275)" feature.

1.2 FEATURE ASSIGNMENT

Procedures necessary to provision CALEA Wireless are available in the "5ESS Switch FLEXENT/AUTOPLEX

System 1000 Wireless Applications" manual (235-100-200) document.

To enable this feature, the ACT field for SFID 529 must be set to "Y" on the SFSYS form (5713-1 Record).

1.3 TRANSLATION REQUIREMENTS

Calea Core Capability				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - The 5713-1 Record is used to activate secured features. This feature is activated by setting the ACT field for SFID 529 to "Y".

TKGRP form (5202 Record) - The 5202 Record is used to define each Trunk Group in a 5ESS Switch. The CALEA field Data Rules are modified to support this feature.

2. LAES DIALED DIGIT EXTRACTION CAPABILITY

2.1 FEATURE DESCRIPTION

The feature number for the LAES (Lawfully Authorized Electronic Surveillance) Dialed Digit Extraction Capability Feature is 99-5E-7623. This feature is made available with 5E15 FR 3.

LAES DDE (Dialed Digit Extraction) Capability allows the FBI to monitor the digits dialed by a subject after the call is cut through. It enhances the capabilities of the CALEA Phase III feature. CALEA Phase III allowed for call content monitoring, and DDE adds the capability to monitor any digits entered after the call is cut through. The DCS (Digital Cellular Switch) will report the collected digits to the ECP (Executive Cellular Processor) via a new message, LAES_DIGITS_X.

Digit extraction can be used by itself, which is called "level 1" surveillance, or it can be used in conjunction with a "level 2" surveillance, which would be content monitoring and digit extraction. It is also possible to have a "level 2" without DTMF (Dual Tone Multi-Frequency) extraction, which would be just plain content monitoring. This feature provides this functionality which complies with the CALEA Third Report and Order (FCC 99-230).

This feature is turned on via a proprietary Recent Change View.

3. GLOSSARY

AMPS	Advanced Mobile Phone Service
CALEA	Communications Assistance for Law Enforcement Act
CCC	Call Content Channel
DCS	Digital Cellular Switch
DFI	Digital Facilities Interface
DLTU	Digital Line Trunk Unit
DNU	Digital Network Unit
LEA	Law Enforcement Agency

SFID

Secured Feature ID

SEC. 4A530: 1000 Block Number Pooling Using Number Portability**1. FEATURE DESCRIPTION**

Available with 5E14 and later Software Releases, the 1000 Block Number Pooling Using Number Portability feature, feature number 99-5E-7210, builds upon the existing 5ESS Switch implementation of the Number Portability feature. In a number portability environment, thousand block number pooling allows for sharing of CO (Central Office) NXX codes among multiple SPs (Service Providers) serving the same rate area. All ten thousand TNs within each NXX Code continue to be associated with the same rate area designation, but can be distributed among multiple SPs at the thousand block (NXX-X) level. Examples of uses for thousand blocks include POTS (plain old telephone service), Centrex, DID (Direct Inward Dialing), wireless service, facsimile, and coin phones.

In a pooling environment, sharing of CO NXX codes is accomplished by designating one SP as the code holder for that CO code. Any other SP sharing that office code is designated as a block holder. There may be many block holders but only one code holder per office code (NPA-NXX) and the code holder may also be a block holder. This feature provides a mechanism by which an SP can designate a switch as a code holder, a block holder or both. This feature also provides a method for an SP to designate, per switch, which blocks can be used for number assignment (RESERVED) and which blocks cannot be used (PORTED OUT). Further, with this feature, an SP can designate hundreds groups and individual TNs as RESERVED or PORTED OUT. These lower level designations are used in providing the correct terminating treatment for misrouted LRN (Local Routing Network) calls to a hundreds group.

This feature is secured with feature ID 530, which is dependent upon SFID 174. In order to provision this feature, the ACT field for SFIDs 530 and 174 must be "Y". There are two OFIDs (optioned feature IDs) associated with this feature: OFID 955 and OFID 956. In order to enable the call processing capabilities, OFID 955, on the FOSYS form, must be activated. If it is desired to override the ported restriction, OFID 956 must be activated.

2. FEATURE ASSIGNMENT

Refer to the "PROVISIONING FORM FLOW FOR 1000 BLOCK NUMBER POOLING USING NUMBER PORTABILITY" diagram for feature assignment procedures.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDTN	5631	4	32A	6.10
EQCORE	5701	8	3	17.14
FOSYS	5510-1	2	4B0	8.31
		3	5AS	
HGRPAS	5115	3	1O	4.14
NOC	5501	3	5A	8.2
NPOOL	5177	3	1AF	1.7
SFSYS	5713-1	2	4A0	8.22
		3	5AR	

ACDTN form (5631 Record) - This form is used by the ACD/BRCS (Automatic Call Distributor/Business and Residential Custom Services) feature to define the ACD directory number or the DAA (Direct Agent Access)

directory number. A cross check was added for the TN field.

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments in a 5ESS Switch office such as the Message Interface Control Unit, the Time Multiplexed Switch and the Message Interface Control Unit Subunits. Cross checks have been added for the VCDX and DRM fields.

FOSYS form (5510-1 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate this feature, the ACT field for OFID 955 must be set to "Y". When suppression of the ported out restriction is desired, then the ACT field for OFID 956 must be "Y".

HGRPAS form (5115 Record) - This form is used to assign a routing module and/or a route index for a hundreds group. The PORTED OUT field was added to this view.

NOC form (5501 Record) - This form is used to associate a NOC (Normalized Office Code) with each OFFICE CODE and NPA (Numbering Plan Area) code. The OFFICE CODE is commonly referred to as the "NXX" which is the three digits after the NPA (commonly referred to as the "area code"). In addition, this form is used to assign Routing and Charging Intercept Treatment. The NOT CODE HOLDER field and the THOUSANDS GROUP STATUS field group, including the PORTED OUT 0 through PORTED OUT 9 fields, were added.

NPOOL form (5177 Record) - This form is allows the craft to insert, review, update, and delete ported or reserved individual TNs. This view is new for this feature.

SFSYS form (5713-1 Record) - This form is used to enable secured features. SFID 530 has been implemented to secure this feature. The ACT must be "Y" for this SFID in order to provision this feature.

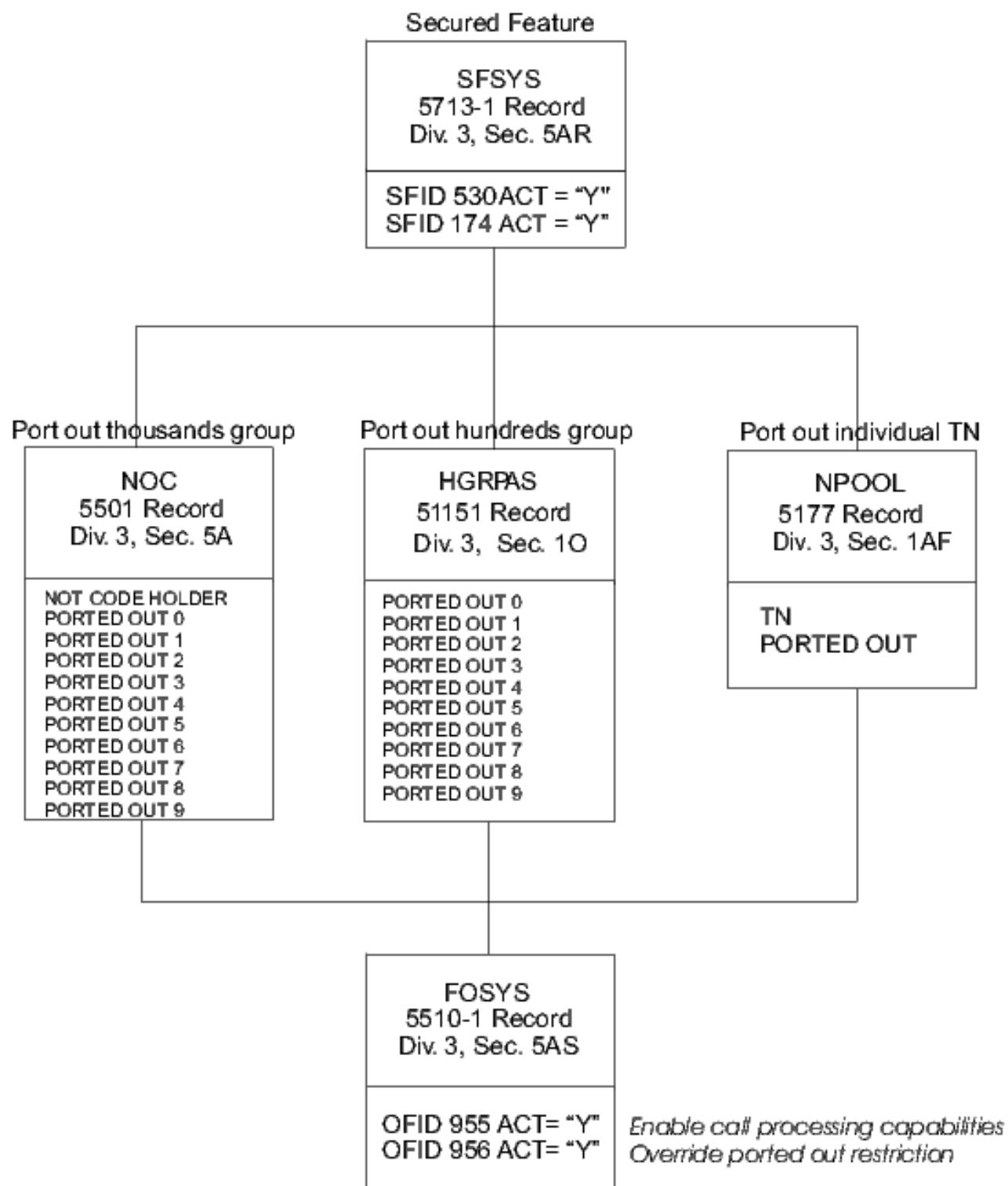


Figure 1 PROVISIONING FORM FLOW FOR 1000 BLOCK NUMBER POOLING USING NUMBER PORTABILITY

SEC. 4A532: TCP/IP INTERFACE FOR TRAFFIC MEASUREMENTS

1. FEATURE DESCRIPTION

The feature number for the TCP/IP Interface for Traffic Measurements feature is 99-5E-7133. This feature is controlled by SFID (Secured Feature ID) 532 and is being deployed for the BMI (Beginning Managed Introduction) of the 5E15 Software Release.

This feature introduces the NM (Network Management) and TRFM (Traffic Measurements) data transfer over the TCP/IP (Transmission Control Protocol/Internet Protocol) link and is an optional feature for offices where the customer wants to reduce the time it takes to teleprocess (download) the Network Management and Traffic Measurements data off the 5ESS Switch to an OSS (Operational Support System) processing center.

This feature provides the following:

- Enable TCP/IP transfer of Traffic Measurement and Network Management data from the switch to remote systems - NDC OS (Network Data Collection Operations System) and NTM OS (Network Traffic Management Operations System).

- BX.25 (Bell System Version of X.25 Protocol) transfer of traffic measurement and network management data from the switch to a remote system (NDC and NTM OS) is also supported.

- For Network Management, extend the scheduling of trunk groups from 500 to 2000 when a direct link exists.

- Allow a direct link to the NTM OS, separate from the NDC link.

- Modified message header for messages between the SPCS (Stored Control Program System) and NTM-OS/NDC-OS sent only via TCP/IP link.

The NM and TRFM data from the holding buffers located in the 3B21D AM (Administration Module) is transmitted via the ASM (Administrative Services Module) to the OSSes via the TCP/IP connection. TCP/IP connectivity to the ASM combined with the ASM's high speed DCI (Dual Channel Interconnect) to the 3B21D is used to transfer the Network Management and Traffic Measurements data outside the 5ESS Switch. The data transfer is performed over an Ethernet Link. The TRFM and NM data related to the DRM (Distinctive Remote Module) are transferred to the OSS via the ASM. Customers who need to use the "old connection" over the BX.25 Protocol will be able to do so.

The format of the overall header of the traffic data to be transmitted over TCP/IP link must contain SPCS (Stored Program Control System) CLLI (Common Language Location Identifier) Code. This format remains unchanged for BX.25 link. SPCS CLLI Code is the overall header field and contains the 11-character ASCII (American Standard Code For Information Interchange) CLLI code that is unique to a SPCS. The following Traffic Measurements Report types are transmitted:

- TRFC30 report,

- Hourly data, and

- Daily data (plant measurements).

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID 532 on the SFSYS form (5713-1 Record) must be set to "Y".
- The TRFM RNM OPT field on the OFCOPT form (5509 Record) can then be changed from "NONE" to "TRFM" or "RNM" or "BOTH".
- The TRFM RNM OPT field on the ECDOPT form (5706 Record) can then be changed from "NONE" to "TRFM" or "RNM" or "BOTH".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	NA
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

ECDOPT form (5706 Record) - This form is applicable to (and required for) all offices. It is required to translate all options in the AM (Administration Module) for initial offices. For 5E15 and later the new field TRFM RNM OPT was added.

OFCOPT form (5509 Record) - This form is used to define miscellaneous office options and parameters. For 5E15 and later two fields, TRFM RNM OPT and LOC IDENT CODE were added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 532 to "Y".

SEC. 4A533: CNA CC720 MODIFICATION

1. FEATURE DESCRIPTION

The feature number of the CNA (Connecting Network Access) CC720 Modification feature is 99-5E-7486. This feature is a secured feature with SFID 533 and is available with the 5E14FR2 and later Software Releases.

This feature provides an option for recording a CIC (Carrier Identification Code) in Table 57 of the CNA AMA (Automatic Message Accounting) records. With this feature active, when a CNA CC720 record is generated, the IC (Interexchange Carrier)/INC (International Carrier) Prefix (reference LSSGR Table 57) is populated with the CIC present in the TNS (Transit Network Selector) parameter received in the incoming SS7 (Signaling System 7) ISUP (ISDN User Part) IAM (Initial Address Message) message for an incoming call. This feature is optioned on a per-switch basis.

2. FEATURE ASSIGNMENT

The CNA CC720 Modification feature depends on the NP - Basic AMA feature (99-CP-3667, SFID 180). For more information on this feature, see Division 2, Section 4A180.

To provision this feature:

activate the NP - Basic AMA feature by setting the ACT field for SFID 180 to "Y" on the SFSYS form.

activate the CNA CC720 Modification feature by setting the ACT field for SFID 533 to "Y" on the SFSYS form.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used by the SEE (Lucent Technologies System Equipment Engineer) to enable Secured Features for an entire 5ESS Switch or for selected Switching Modules.

SEC. 4A534: ASP AMA RECORDING FOR ABANDONED STOR CONNECTIONS

1. FEATURE DESCRIPTION

The feature number of this feature is 99-5E-7404. This feature is a secured feature with SFID 534 and is available with the 5E13FR3, 5E14FR2 and later Software Releases. The AMA Recording for Abandoned STOR Connections fASP eature is a Billing/ASP feature that supports the recording of the duration of the interactions between the IP (Intelligent Peripheral) and the caller on calls abandoned by the caller during the STOR connection. This feature allows the switch to create an AMA record for calls that allow the caller to interact with an IP, but do not actually route.

When this feature is activated, the 5ESS Switch will create a "special" AMA Structure Code (SC) 220 record for the Originating Call State Model or an AMA SC 221 record for the Terminating Call State Model to record the IP duration in a Module 290 when a local or remote STOR connection is established due to a STOR message containing an AMAMeasure parameter indicating "destinationSSP" and either one of the following conditions is satisfied:

1. the caller abandons while the STOR connection is established and before the Resource_Clear message is sent to the SCP (Service Control Point).
 2. the caller abandons after a Resource_Clear has been sent to the SCP but before the reply from the SCP is received.
- or
3. the caller abandons after a Resource_Clear message has been sent and the T1 timer expires without receiving a reply from the SCP.

In general, this record is generated whenever the call has not advanced to a state where the SCP was able to respond with an AMAslpID parameter.

Since the call for which this record was produced did not complete, the Elapsed Time field is set to zeros as is the Terminating NPA and Terminating Number field of the SC 220. The Service Logic Identification field is set to 900000050 as an indicator that this record was forced out by this feature. The Call Type of this record is 047. All other fields are populated according to normal billing practices. The Resource Timing Module (290) is appended to the record. All fields of the 290 module are populated according to normal billing practices.

If this feature is not activated, the IP duration time would not be contained in an AMA billing record for those calls which established either a local or remote STOR connection, but did not advance beyond the Resource_Clear message.

2. FEATURE ASSIGNMENT

AMA Recording for Abandoned STOR Connections is a secured feature having SFID (Secured Feature ID) 524. This feature depends on the AIN (Advanced Intelligent Network) SSP (Service Switching Point) STOR (Send To Outside Resource (Local)) secured feature. For more information on this feature, see Division 2, Section 4A229.

Before the AMA Recording for Abandoned STOR Connections feature can be activated, the AIN SSP STOR (Local) feature must be active by setting the ACT field for SFID 229 to "Y" on the SFSYS form. The AMA Recording for Abandoned STOR Connections feature is then activated by setting the ACT field for SFID 534 to "Y" on the SFSYS form.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used by the SEE (Lucent Technologies System Equipment Engineer) to enable Secured Features for an entire 5ESS Switch or for selected Switching Modules. To activate the ASP AMA Recording for Abandoned STOR Connections feature, the ACT field for SFID 229 and 534 must be set to "Y" on the SFSYS form.

SEC. 4A535: MDR/CW/CF INTERACTION ENHANCEMENT (FAX RING)

1. FEATURE DESCRIPTION

1.1 Feature Overview

Available with 5E14 and later Software Releases, the MDR (Multi-Distinctive Ringing)/CW (Call Waiting/CF (Call Forwarding) Interaction Enhancement (FAX Ring) feature is assigned feature number 99-5E-4923.

This feature allows subscribers with both the MDR feature and the CWT (Call Waiting Terminating) feature to better manage their incoming calls. MDR subscribers with two DN's (Directory Numbers) often associate a "FAX line" with one of the DN's. When an incoming call is made to the FAX line, subscribers do not want call waiting tones applied for the duration of that call. The call waiting tone will interfere with the FAX transmission and can possibly cause the call to disconnect or garble the FAX transmission. Similarly, subscribers do not want calls to the FAX line DN to cause the switch to apply call waiting if there is an active call up on the subscribers line. The current switch operation for MDR and CWT does not allow an option to suppress call waiting tones based on the called DN. This feature allows the switch to suppress call waiting for incoming calls based on the DN that was called. The subscriber can designate either the Master or the Dependent(s) DN such that when there is an active call to that DN, the switch will not apply call waiting tone treatment even though CWT is assigned to the subscriber.

MDR subscribers with FAX line service on one of the DN's, often subscribe to a voice mail service as well. To prevent FAX calls from being forwarded, via CFBL (Call Forwarding Busy Line) and CFDA (Call Forwarding Don't Answer), to the voice mail system, this feature provides an option to restrict calls to either the Master DN or all Dependent DN's from being forwarded via CFBL or CFDA.

2. FEATURE ASSIGNMENTS

To enable this feature, the ACT field for SFID 535 must be set to "Y" on the SFSYS form (5713-1 Record). See

figure 1 illustrates the form flow for this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
BFG	5625	4	26A	12.9
CWTFD	5603-1A/B	4	4A	12.15
CWTLPA	5603-2	4	4B	1.24
CWTMPA	5603-3	4	4C	3.24
CFWFD	5614-1/2	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22
CFWMPA	5614-4	4	15C	1.22
SFSYS	5713-1	3	5AR	8.22

BFG form (5625) - This form is used to specify and construct BFGs (BRCS Feature Group) for use when assigning subscriber features to analog lines or ISDN terminals. BFG is designed to assist the switch owner in the conservation of Switching Module memory and the improvement of Recent Change response time, and it cannot be used with trunks. For 5E14, added new fields INH CW MASTER and INH CW DEPEND. For 5E15, added new field INHIBIT MDNL CW.

CWTFD form (5603-1A/B) - This form is used to define a number of separate features by selecting various feature options for Call waiting. For 5E14, added new fields INH CW MASTER and INH CW DEPEND. For 5E15, added new field INHIBIT MDNL CW.

CWTLPA form (5603-2) - This form is used to define specific parameters assigned to every non-Multi-Line Hunt line assigned with a specific constructed Call Waiting feature. For 5E14, added new fields INH CW MASTER and INH CW DEPEND. For 5E15, added new field INHIBIT MDNL CW.

CWTMPA form (5603-3) - This form is used to define specific parameters assigned to every Multi-Line Hunt line associated with a specific constructed Call Waiting feature. For 5E14, added new fields INH CW MASTER and INH CW DEPEND. For 5E15, added new field INHIBIT MDNL CW.

CFWFD form (5614-1/2) - This form is used to allow calls completing to a customer's Directory Number to be redirected to another number. It is used to define a number of separate, but related features, by selecting various feature options for Call Forwarding. For 5E14, added new fields INH CF MASTER and INH CF DEPEND. For 5E15, added new field INHIBIT MDNL CF.

CFWLPA form (5614-3) - This form is used to define parameters for a constructed Call Forwarding Feature that will be assigned to lines (which are not multi-line hunt group lines). For 5E14, added new fields INH CF MASTER and INH CF DEPEND. For 5E15, added new field INHIBIT MDNL CF.

CFWMPA form (5614-4) - This form is used to define specific parameters assigned to every Multi-Line Hunt Line assigned a specific constructed Call Forwarding feature. It is required only if the default parameters assigned on the CFWFD form are inappropriate. For 5E14, added new fields INH CF MASTER and INH CF DEPEND. For 5E15, added new field INHIBIT MDNL CF.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 535 to "Y".

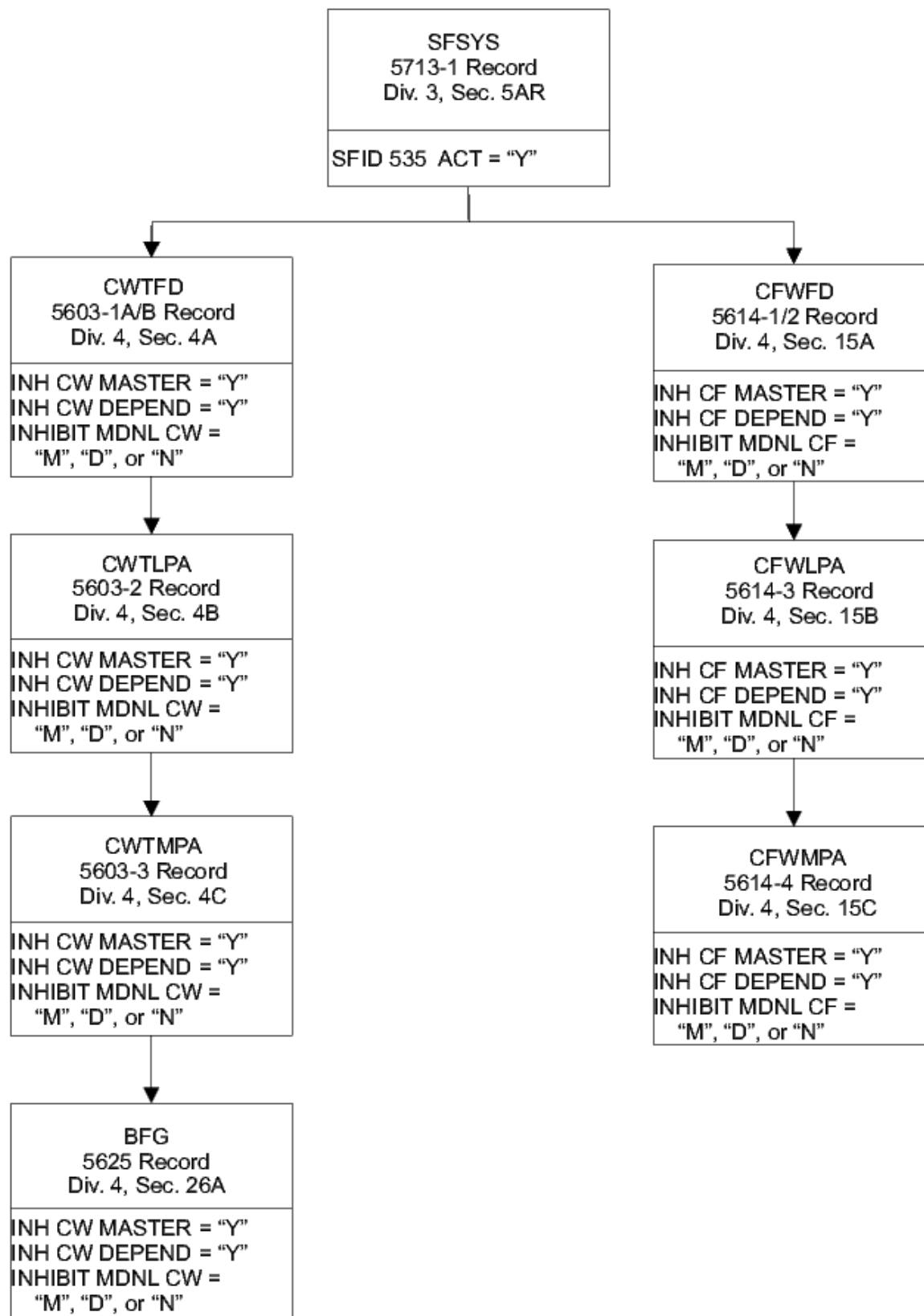


Figure 1 FEATURE ASSIGNMENT**SEC. 4A537: 60 Minute Traffic Reporting Option****1. FEATURE DESCRIPTION**

The feature number for the 60 Minute Traffic Reporting feature is 99-5E-7112. This is a secured feature (SFID 537) that is being deployed for the BMI (Beginning Managed Introduction) of the 5E14 Software Release.

TRFC30 (30-minute Traffic) Section 12 Report provides the Switch Administration with all the data relating to the trunk group's performance. The standard interval for TRFC30 report is 30 minutes. With the introduction of feature 99-5E-7112, the customer will be able to change the interval for collection of data to 60 minutes. The ACT field for SFID 537 must be set to "Y" before this interval can be changed.

This feature adds two new measurements to the TRFC30 Section 12 Report:

- the number of trunks that have In-Service status during the interval,
- and the number of trunks that have Out-of-Service status during the interval.

A new field for the trunk group name is also added to this report. This additional information on the TRFC30 report gives administration an easy way for identifying trunk groups not only by numbers, but also by the names. The two new measurements and the Trunk Group Name field added to the Section 12 report will not be secured.

This feature depends on two features - Release Link Trunk-Toll (99-5E-4687) and Flexible Alerting (99-5E-4572A) for the report layout. There is also a dependency between this feature and the TRFC30 30 to 60 Minute Collection (SFID 164) feature. If one of the SFIDs (537 or 164) is "Y", the other has to be "N".

2. FEATURE ASSIGNMENT

To provision this feature:

- The 60 Minute Traffic Reporting Option feature can be activated by setting the ACT field for SFID 537 to "Y", and the ACT field for SFID 164 to "N".
- Once this feature is activated the length of the interval can be changed via the MSTMCI field on the Measurements Parameters (MSPAR) Recent Change View 13.1.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 537 to "Y".

SEC. 4A538: TYPE 1/2A/2B CMC ID ENHANCEMENT**1. BACKGROUND**

CMC (Cellular Mobile Carrier) IDs are used to identify CMCs for billing purposes. Prior to the introduction of this feature, the AMA Capabilities For Type 2A CIs (Cellular Interconnections) feature supported a maximum of 60 CMC IDs. Because LECs (Local Exchange Carriers) are using the AMA Capabilities For Type 2A CIs feature not only when connecting to CMCs, but also when connecting to CLECs (Competitive LEC), a need for an increased maximum of supported CMC IDs has resulted.

2. FEATURE DESCRIPTION

Available with 5E14 and later Software Releases, the Type 1/2A/2B CMC ID Enhancement feature, feature number 99-5E-7381, extends the capabilities of the following features:

AMA Capabilities For Type 2A CIs - 99-5E-1081, see Division 2 Section 4A128 for details of this feature.

AMA Capabilities for Type 2A CMC Interconnectons via SS7 - 99-5E-2540, see Division 2 Section 4A160 for details of this feature.

AMA Capabilities For Type 1 Cellular Access - 99-5E-2725, see Division 2 Section 4A167 for details of this feature.

by supporting a maximum of 1,023 CMC IDs. This increased number of CMC IDs allows greater flexibility in efficiently recording accurate access charges for usage of CMC interconnections over SS7/ISUP trunks, Type 2A and Type 2B trunks.

This feature, along with the three features mentioned previously, supports up to 1,023 CMC IDs for:

Type 1 WSP (Wireless Service Provider) AMA recording over PF (Private Facilities) trunks

Type 2A and 2B Cellular Interconnections for MF trunks

Type 2A and 2B Cellular Interconnections for SS7 trunks

3. FEATURE ASSIGNMENT

Since this is a secured feature which builds on previously released secured features (as mentioned in the FEATURE DESCRIPTION section), the SFIDs for those features along with the SFID for this feature must all be enabled by setting the ACT field to "Y" on the SFSYS form (5713-1 Record). Please refer to the following table for SFID settings:

SFID	FEATURE
538	99-5E-7381
128	99-5E-1081
160	99-5E-2540
167	99-5E-2725

There is no special provisioning for this feature other than setting up the SFIDs as shown. This feature simply allows CMC ID values of up to 1,023 for the other three features mentioned in this document. Please refer to the footnotes for documentation sections of the other features to find specific provisioning information.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 538 must be set to "Y" along with SFIDs 128, 160, and 167.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on this record is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

SEC. 4A539: PROXY DATABASE PHASES I AND II - PROXY DATABASE

1. FEATURE DESCRIPTION - PROXY DATABASE PHASE I - PROXY DATABASE

Available with 5E15 and later Software Releases, the Proxy Database component of the Proxy Database Phase 1 feature (99-5E-7127) provides faster 5ESS database access by supporting a full copy of the 5ESS Switch SODD (Static Office Dependent Data) on the ASM (Administrative Services Module). This feature does not impact ODA or Recent Change operations. Proxy Database Phase 1 - Proxy Database is secured with SFID 539 which is dependent on SFID 297, the ASM Base feature. For information on the ASM Base feature, refer to Division 2, Section 4A297.

2. PROXY DATABASE PHASE I FEATURE ASSIGNMENT

This feature cannot be assigned using ODA. Assignment can only be done by activating SFID 539 using Recent Change. This feature is dependent upon the ASM Base feature (99-5E-4237), which is secured by SFID 297.

3. PROXY DATABASE PHASE I TRANSLATION REQUIREMENTS

There are no ODA translation requirements for this feature.

4. FEATURE DESCRIPTION - PROXY DATABASE PHASE II - PROXY DATABASE

Available with the 5E16(2) FR2 (Feature Release 2) and later Software Releases, the Proxy Database Phase II - Proxy Database feature (feature number 99-5E-8401) enhances the capabilities of the Proxy Database Phase I - Proxy Database feature (feature number 99-5E-7127). The Proxy Database Phase II feature allows update type of operations (i.e., insert, update, and delete) on "high runner" RC (Recent Change) views being performed on the ASM (Administrative Services Module) against the Proxy database, and then syncing the data modifications to the 5ESS-2000 Switch. This significantly increases the RC/V throughput possible for these views, in addition to the RC/V read performance obtained for all RC/V views provided by the Proxy Database II feature (99-5E-8401).

The Proxy Database Phase II - Proxy Database feature (99-5E-8401) introduces the initial environment to support a copy of the 5ESS ODD (Office Dependent Data) on the ASM processor.

This feature provides a high speed access to RC data which in turn, enables the service provider to both process more recent changes and submit more verifies to the switch. Up to sixty percent of the recent change activity can be attributed to verify activity. Increasing the verify ability of the switch leads to the following:

- a better shadow database for those customers having CONNECTVU-ATP (Automatic Translation and Provisioning)

- service providers being allowed to extend verify abilities further into their internal processing organizations.

- Due to the bottleneck that may occur in the RC processes, most service providers only allow a select

group of people to verify the switch data. Removing the bottleneck, more verify operations can be performed allowing better accuracy of data that had previously not been checked against the actual data in the switch.

Specifically, for CONNECTVU-ATP users, the accuracy of the shadow database improves due to the ability to issue verifies to synchronize the database for views related to the view when Recent Change is performed.

5. PROXY DATABASE PHASE II FEATURE ASSIGNMENT

This feature cannot be assigned using ODA. Assignment can only be done by activating SFID 539 using Recent Change. The Proxy Database Phase II feature is dependent on the ASM Base feature (99-5E-4237), which is secured by SFID 297 and Recent Change on the ASM which is secured by SFID 322 (99-5E-4095).

6. PROXY DATABASE PHASE I TRANSLATION REQUIREMENTS

There are no ODA translation requirements for this feature.

SEC. 4A540: EASY ACCESS TO VOICE MAIL

1. FEATURE DESCRIPTION

The EAVM (Easy Access to Voice Mail) feature is a secured feature (SFID 540) that is available with the 5E15 Software Release. The feature number for this feature is 99-5E-7284.

This feature allows MSS (Message Service System) and ISVM (Interswitch Voice Messaging) subscribers to retrieve messages at their home telephone line by simply dialing an access code (a number between 1 to 7 digits long (usually 2 digits)), determined by the provider of the service, instead of a 7 or 10 digit access number. The feature will automatically be available to all MSS/ISVM subscribers once it has been enabled for the office. Service providers have the ability to deny the EAVM feature on a line or feature basis.

1.1 Call Processing Impacts

The EAVM access code will only be defined in the ODP (Office dialing Plan) as such lines with an IDP (Individualized Dialing Plan) and lines that are members of a terminal group will not receive EAVM service. Although the EAVM ALW parameter on the MSLPA form (5962-3 Record) or RC/V (Recent Change and Verify) view 1.37 may be set to "Y" for lines with IDPs, or lines in terminal groups, no EAVM service will be received by these lines. There will be no RC (Recent Change), ODA (Office Data Administration), PRL (Population Rule Language), or Call Processing checks to prevent the EAVM ALW parameter from being set to "Y" for lines with IDP or lines in terminal groups.

2. FEATURE ASSIGNMENT

The provisioning of this feature is as follows:

- Set the ACT field for SFID 540 on the SFSYS form (5713-1 Record) to "Y".

- Set the ACT field for OFID 954 on the FOSYS form (5713-2 Record) to "Y".

- Create or update the MSS/ISVM feature on the MSFD form (5962-1 Record).

- Define an access code on the PDIT form (5300-2 Record) for the wild card feature, /MS*, with the

ACTION set to "EAVMUSE".

Assign CFDA (Call Forwarding Don't Answer or CFBL (Call Forwarding Busy Line) feature via LINEFA form (5112 Record).

Set the EAVM ALW field to "Y" on the MSLPA form (5962-3 Record) for lines, and on the MSMPA form (5962-4 Record) for MLHGs (Multiline Hunt Groups).

See Figure 1 for a form flow of the feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
MSFD	5962-1	6	5A	12.37
MSLPA	5962-3	6	5C	1.37
MSMPA	5962-4	6	5D	1.37
PDIT	5300-2	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. For 5E9(1) and later, these TFOS IDs (Transparency Feature IDs) are called OFS IDs (Optioned Feature System IDs). Transparency Features have been developed to replicate features that exist on the 1A ESS Switch. To activate the Easy Access to Voice Mail feature for an office, the ACT field for OFID 954 on this form must be set to "Y".

MSFD form (5962-1) - This form is used to define the various combinations of options associated with the MSS (Message Service System). Added the EAVM ALW field.

MSLPA form (5962-3) - The 5962-3 Record contains information needed to describe the Message Service line parameters. Added the EAVM ALW field.

MSMPA form (5962-4) - This form is used when assigning MSS (Message Service System) features to Multi-Line Hunt lines, and to assign MSS feature parameters to the lines if the default parameters of the MSFD form are inappropriate or unspecified. Added the EAVM ALW field.

PDIT form (5300-2 Record) - This form defines the PDIT (Prefix/Feature Digit Interpreter) in a 5ESS Switch. It provides information defining feature and operator access, and prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). Digit analysis for all line originated calls in a 5ESS Switch starts in PDIT. At least the first digit of every valid dialable code must be represented in PDIT. Added a new enumeration (EAVMUSE) to the ACTION field.

SFSYS form (5713-1 Record) - This form is used to enable secured features. To activate the Easy Access to Voice Mail feature, the ACT field for SFID 540 on this form must be set to "Y".

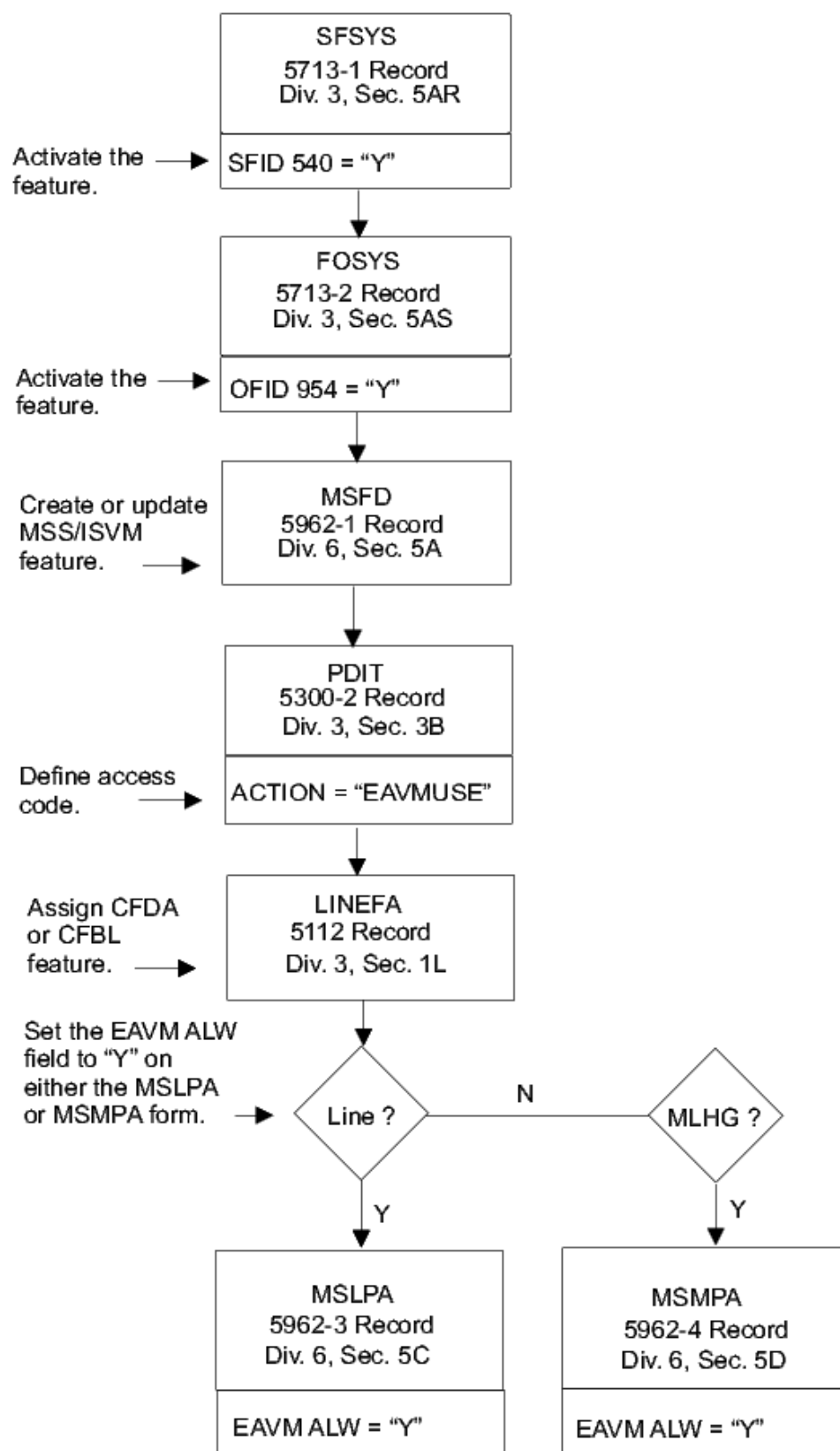


Figure 1 FORM FLOW FOR EASY ACCESS TO VOICE MAIL**SEC. 4A542: 64KBPS X.75/X.75 TRUNK GROUP****1. BACKGROUND**

Prior to the introduction of this feature, the 5ESS Switch supported 56kbps data rate service for X.75 (Inter-LATA)/X.75 (Intra-LATA) ISDN (Integrated Services Digital Network) trunk groups. The SF (Superframe) was used for the DS1 (Digital Signal Level 1 (1.544mbps)) signal. When the SF was used, the 8th bits of the 6th and 12th frames of each SF were robbed to be used for loop-testing/signaling purposes. Therefore, all the 8th bits were not used for data transmission. The data rate was 56kbps.

2. FEATURE DESCRIPTION

The 64kbps X.75/X.75 Trunk Group feature is available as 5E13 and 5E14 Software Updates, and in the Beginning Managed Introduction of the 5E15 Software Release. The feature number is 99-5E-7021. This feature allows the 5ESS Switch to increase the ISDN X.75/X.75 trunk data rate from 56kbps to 64kbps in accordance with the GR-301-CORE standards. In order to achieve 64kbps, the ESF (Extended Superframe) DS1 signal is implemented via the B8ZS signal, which provides the clear channel.

To set the data rate to 64kbps for the trunk groups and all features that use the robbed 8th bits of the trunks for signaling and/or any other OA&M purpose is rearranged by using other channels/trunks. To realize the 64kbps trunk transmission between the 5ESS Switch and another end equipment, if the other end equipment is not the 5ESS Switch, it must comply with the X.75 and GR-301-CORE standards.

3. FEATURE ASSIGNMENT

For 5E13 and later, to activate this feature:

- set the ACT field for SFID 542 on the SFSYS form (5713-1 Record) to "Y".
- on the TKGRP form (5202), for a TRKCLS of "X75" or "X75P", set the DATA RATE field on the TKGRP form to "64K". The DATA RATE field on the TKGRP form is used by the 64Kbps X.75/X.75 Trunk Group feature which is a special feature that must be activated before the DATA RATE field may be set to "64K".

4. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate the 64Kbps X.75/X.75 Trunk Group feature, the ACT field for SFID 542 must be set to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. For 5E13 and later, data rules associated with the "X75" valid entry were added for the TRKCLS field, and data rules were added for the DATA RATE field.

TRUNK form (5204 Record) - This form is used to define each Trunk Group in a 5ESS Switch. For 5E13 and later, data rules were added for the TGN field.

SEC. 4A543: DA Custom Branding by Account Owner

1. FEATURE DESCRIPTION

The DA Custom Branding by Account Owner feature is being deployed on the 5ESS Switch in a Software Update for the 5E13 Feature Release 3, 5E14 Feature Release 2, and in the BMI (Beginning Managed Introduction) of the 5E15 Software Release. The feature number for this feature is 98-5E-7232. This feature is controlled by SFID (Secured Feature ID) 543 and OFID (Optioned Feature ID) 970.

This feature builds on the original DA (Directory Assistance) Custom Branding feature (98-5E-2056) where calls requesting DA for a distant city are usually transported by an IC (Interexchange Carrier) to a LEC (Local Exchange Carrier) for listing, retrieval and announcement. Some ICs request that the LEC play an IC branding announcement at the beginning of the call. The original feature allows a LEC to front-end brand the DA call.

The DA Custom Branding by Account Owner feature will provide the OSPS (Operator Services Position System) owner with the ability to specify which announcement header will be played to brand a call that has arrived at an OSPS providing DA service. This is done according to the AO (Account Owner), if any, received in the OLNS (Originating Line Number Screening) reply on the calling number.

There is no impact on the switch until this secure feature has been purchased and activated.

If an Account Owner has been returned in an OLNS (Originating Line Number Screening) reply on a call that has arrived at an OSPS performing DA, the OSPS plays a branding announcement to the caller. The OSPS uses the Account Owner on the call to look up which announcement header should be played as the branding announcement in a new table that relates the Account Owner to the announcement header. That announcement header is played to brand the call.

If an Account Owner is not returned in the OLNS reply or no OLNS query was made, this feature does not play a branding announcement. This allows the original DA Custom Branding feature to be used as it works today to play a branding announcement.

If an Account Owner is returned in an OLNS reply and the Account Owner is not present in the new table, the OSPS prints an assert and does not play a branding announcement. This allows the original DA Custom Branding feature to be used as it works today to play a branding announcement.

2. FEATURE ASSIGNMENT

To provision this feature, set the AOWNER and HEADER ID fields on the AOWNER form (6446 Record).

The ACT field for SFID (Secured Feature ID) 543 on the SFSYS form (5713-1 Record) must be set to "Y".

The ACT field for OFID (Optioned Feature ID) 970 on the FOSYS form (5713-2 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
AOWNER	6446	3	4ES	21.28
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

AOWNER form (6446 Record) - The AOWNER form (6446 Record) provides DA (Directory Assistance) custom branding by account owner information. Two new fields, ACCOUNT OWNER AND HEADER ID are added for 5E13 and later.

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for special and transparency Features. To activate this feature, the ACT field for OFID 970 must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 543 to "Y".

SEC. 4A544: Usage Sensitive Call Forwarding (USCF)

1. BACKGROUND

Prior to the introduction of this feature, the only option for call forwarding usage available to customers was to subscribe in advance and pay a flat rate. With this option, the feature remained assigned to the line whether it was activated or not. The rate charged for the service was the same for all subscribers regardless of usage frequency.

2. FEATURE DESCRIPTION

Available with 5E15 and later Software Releases, the USCF feature, feature number 99-5E-7082, provides another option for call forwarding usage which accommodates on demand requests for the service. This feature allows a customer to activate and deactivate the BRCS (Business and Residence Custom Services) CFV (Call Forwarding Variable) feature on their analog line as needed. The customer is charged per use of the USCF feature. When the feature is deactivated, it is removed from the line.

3. FEATURE ASSIGNMENT

Follow these steps to assign this feature:

On the SFSYS form (5731-1 Record) set ACT to "Y" for SFID 544.

On the CFWFD form (5614-1/2 Record), define a USCF feature setting the following fields as indicated:

FWD COND = "BOTH"
 ACT TYPE = "CDDNCA" or "CDCA1A"
 DACT TYPE = "CODE"
 CFPF ALW = "N"

On the OFCOPT form (5509 Record):

- set USCF FEAT to the name of the feature (FEATURE NAME) defined on the CFWFD form
- set USCF CFV ALERT to "Y" or "N" according to whether or not the base station should receive "recall Dial Tone" when going off-hook when USCF is active.

On the LINE form (5109 Record):

— set USCF ALW to "Y" or "N" to allow or disallow the use of the USCF feature for a specified line

NOTE: When this field is left blank, it is defaulted to "Y", provided the criteria, as set forth by the data rules, is met. See Division 3 Section 11 for USCF ALW data rules.

NOTE: The CFV ALERT attribute on the CFWFD form (RC View 12.12) does not invoke Distinctive Alerting for the USCF feature. For more information on the Distinctive Call Forwarding Alert feature (99-5E-7090) feature, see Division 2, Section 4A341.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFWFD	5614-1/2	4	15A	12.12
LINE	5109	3	11	1.6
OFCOPT	5509	3	51	8.1
SFSYS	5713-1	3	5AR	8.22

CFWFD form (5614-1/2 Record) - This form is used to define call forwarding features. New cross checks were added for fields FWD CONDITION, ACT TYPE, DACT TYPE and CFPF ALW. Refer to Section 3 and Division 4, Section 15A for details.

LINE form (5109 Record) - This form is used to define office equipment numbers and features for each TN (Telephone Number) in a 5ESS Switch. The USCF ALW and USCF ACT fields were added to this form.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. The USCF FEAT and USCF CFV ALERT fields were added to this view.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To enable this feature, the ACT field for SFID 544 must be set to "Y".

SEC. 4A545: PACKET DRIVER SOLUTION SUMMARY ALARM STATUS

1. FEATURE DESCRIPTION

Available with 5E14FR2, the Packet Driver Solution Summary Alarm Status feature is a secured feature with SFID 545 and feature number 99-5E-7332. The Packet Driver Solution Summary Alarm Status feature allows the office maintenance personnel to see the summary alarms generated from both the 5ESS circuit switch and the Packet Driver by accessing a common high level status page. On the ASM graphical user interface page, this feature displays the cause of the alarm and the alarm level for the 5ESS Switch or Packet Driver Solution. On the 5ESS AM (Administrative Module) MCC (Master Control Console), this feature displays critical indicators and audible alarms. The operations user can use the high level status page to transfer to the native display of the system causing the alarm condition. Once connected to the circuit or packet system, the user can access the alarm reporting capabilities of that system, gather further details of the resource that is causing the alarm, and initiate procedures that lead to clearing the alarm. The alarm also causes a message to be printed on the 5ESS ROP. For an alarm initiated in the 5ESS Switch, the ROP message indicates the cause of alarm and alarm level. If the alarm is initiated on the packet driver, the alarm message indicates that it was originated on the packet driver and will give the alarm level, but it will not indicate the source of the alarm. The ROP message is monitored by the fault operations systems and is used to trigger the alarm remotely. This feature is a secured feature and is available with 5E14F2 and later Software Releases.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used by the SEE (Lucent Technologies System Equipment Engineer) to enable secured features for an entire 5ESS Switch or for selected Switching Modules. To activate the Packet Driver Solution Summary Alarm Status feature, the ACT field for SFID 545 must be set to "Y" on the SFSYS form.

SEC. 4A546: ASP TERMINATING TRUNK GROUP TRIGGER

1. BACKGROUND

The Terminating Trunk Group Trigger secured feature is controlled by Secured Feature ID 546, and is being deployed on the 5ESS Switch in a software update for the 5E15 Software Release and in the Beginning Managed Introduction of the 5E16 Software Release. The Lucent Technologies feature number for Terminating Trunk Group Trigger is 99-5E-7588.

2. FEATURE DESCRIPTION

This section defines the capabilities of the ASP Terminating Trunk Group Trigger feature that is enabled by SFID ID 546. The ASP R0.1B (SFID 126) secured feature must be enabled before SFID 546 can be activated.

The ASP Terminating Trunk Group Trigger feature allows the 5ESS to provide an ASP trigger for calls terminating to designated Private Facility and Primary Rate Interface trunk groups.

Before this feature, there were no ASP triggers that could be assigned to PF (Private Facility) and PRI (Primary Rate Interface) trunk groups and be encountered when calls try to terminate to the trunk group. There are of course ASP originating triggers, such as DNTs (Dialed Number Trigger), that could be defined against the digits associated with the PF or PRI trunk group. A DNT can provide a triggering mechanism to an SCP (Service Control Point) database, but a DNT does not provide terminating trigger functionality to a PF or PRI trunk group, that a TAT provides for line terminations. A TAT on a line can provide services such as Call Screening and Calling Name that cannot be provided by a DNT. Since PF and PRI trunk groups represent terminations on the switch (their digits are defined as NOCs (Normalized Office Code) in digit analysis and they terminate to line views), Call Screening and Calling Name services could be extended to this type of terminating interface. But, TATs (Termination Attempt Trigger) can only be assigned to lines and be encountered when a termination is attempted to the line.

The TGT (Trunk Group Trigger) is the terminating trigger for PF and PRI trunk groups and provides TAT-like functionality.

The "ASP Terminating Trunk Group Trigger" feature provides incremental functionality to that provided in Advanced Services Platform 0.1B with the Terminating Attempt Trigger (TAT). Existing functionality allows the assignment of the TAT trigger only to DNs (Directory Numbers) associated with equipped lines.

This feature extends that capability to private trunk groups (for example, PBX's) with the new TGT which is assignable to private facility and PRI trunk groups.

When a call is routed and encounters a trunk group on which the new TGT is assigned, a Termination Attempt query is sent to the SCP, thus enabling invocation of services on behalf of the PBX.

This feature also provides the ability to monitor for NetworkBusy, TBusy, T_NoAnswer, T_Answer and Term_Resource_Available conditions when an Authorize_Termination is received in response to the Termination_Attempt query for TGT triggers. And it provides the ability to monitor for NetworkBusy, T_NoAnswer, T_Answer, and Term_Resource_Available conditions when an OfferCall is received in response to a T_Busy message.

3. OPERATION OF THE ASP TERMINATING TRUNK GROUP TRIGGER FEATURE

3.1 Overview

The ASP TGT represents another step in controlling the terminating interface with ASP functionality. Prior to the development of this feature, ASP control of the terminating interface was provided through:

TAT. Part of base ASP 0.1, TATs are assignable to line and MLHG (Multi Line Hunt Group) terminations. The trigger is detected prior to seizing the line or hunting for a MLHG member.

NBE (ASP Network Busy Event), a secured feature. A NBE is armed through an SCP NEL (Next Event List) on behalf of an originating portion of the ASP call. A NBE is detected when the terminating facilities attempting to complete the call are determined to be either remotely or locally "busy".

EACR (ASP Enhanced Alternate Routing), a secured feature. The EACR functionality enhances the base ASP Alternate Routing functionality. The base ASP Alternate Routing functionality occurs during post-query processing of an ASP call, and uses the routes supplied in the ASP routing message or overflows to switch-based carrier selection. If a remote network busy condition occurs, the call would not be routed. EACR allows a continuation through the available routes when a remote network busy is detected.

- **NOTE:** that NBE and EACR can be combined to further enhance post-query facility selection.

ASP OBLNA (Originating Busy Line NoAnswer), two secured features. The OBLNA features provide allowed lines in the SSP; 1. switch-based Office-wide and individual subscriber Busy and No Answer triggers 2. SCP controlled NEL events that can monitor for Busy, No Answer, Answer, and Seizure. The OBLNA functionality is monitoring for events (such as, busy) on behalf of the originating line or the redirecting party.

ASP TBLNA (Terminating Busy Line NoAnswer), a secured feature. The TBLNA feature provides switch-based Busy and No Answer triggers and SCP controlled NEL events for allowed line terminations. The SCP NEL events can monitor the terminating line interface for Busy, No Answer, Answer, and Resource Available. The TBLNA functionality is applied on behalf of the terminator of the call.

The following summarizes the above list:

TAT - line trigger. Provisioned on, and encountered on behalf of, the terminator prior to termination

NBE - SCP requested event. Armed on behalf of a trigger detected on the originating side of the call or redirecting leg.

EACR - enhancement to the existing ASP Alternate Routing mechanism

OBLNA - switch-based and office-wide triggers, and SCP requested events provisioned for the office or on an origination line, or armed on behalf of the originating line or redirecting party.

TBLNA - switch-based triggers and SCP requested events provisioned

The new TGT provides TAT-like control to terminating PF, PRI, and PBXDID trunk groups.

The Terminating Trunk Group Trigger (TGT) is detected in the Null state of the Terminating Call Model prior to determining the physical port to which the incoming call will be connected. Like TAT triggers, the TGT trigger is considered an office trigger in the sense that the originator need not be provisioned (subscribe) to the TGT to encounter it. However, it is considered a subscribed trigger in the sense that the party (ie, PBX) associated with the TGT will subscribe to the service provided by the TGT.

4. FEATURE ASSIGNMENT

The ASP Terminating Trunk Group Trigger Feature (SFID 546) is activated on SFSYS form. The activation of this feature is dependent on SFID 126 (ASP R0.1B) being active. The TGT trigger can be assigned to trunks with the following Classes of Service: "PF", "PFITT", "PFLASH", "EDSL", "EDSLHM" and "PBXDID". The feature is provisioned by assigning a /ASPTERM feature to member 1 of the trunk group using TRUNKFA form. On the ASPTPA form, set the TGT TRIG NBR to an ASP R0.1 trigger and set TRIG ACT equal to "Y". Set DFLT ROUTE to "Y" or "N", depending on whether or not you want default routing to be activated.

5. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPFD	5632-1	4	31A	12.64
ASPOPT	5670	4	31G	8.49
ASPTPA	5632-4	4	31D	5.64
SFSYS	5713-1	3	5AR	8.22

ASPFD form (5632-1) - The 5632-4 Record is used to define various combinations of options available with the ASP (Advanced Services Platform) feature. The TGT TRIG NBR, TGT TRIG ACT, and TGT DFLT ROUTE fields are added.

ASPOPT form (5670) - The 5670 Record is used to set the ASP office parameters for the office. the OHI OHD TAT TGT and CRIT OHI OHD TAT TGT fields are added.

ASPTPA form (5632-4) - The 5632-4 Record is used to assign ASP feature parameters to trunks if the default parameters of the ASPFD form (5632-1 Record) are inappropriate or unspecified. The TGT TRIG NBR, TGT TRIG ACT, and TGT DFLT ROUTE fields are added.

SFSYS form (5713) - The 5113 Record is used to enable secured features. Added SFID 546.

6. GLOSSARY

ASP	Advanced Services Platform
DN	Dialed Number Trigger
EACR	Enhance Alternate Routing
MLHG	Multi Line Hunt Group
NBE	Network Busy Event
NEL	Next Event List

NOC	Normalized Office Code
OBLNA	Originating Busy Line No Answer
PF	Private Facility
PRI	Primary Rate Interface
SCP	Service Control Poin
TAT	Termination Attempt Trigger
TBLNA	Terminating Busy Line No Answer
TGT	Trunk Group Trigger

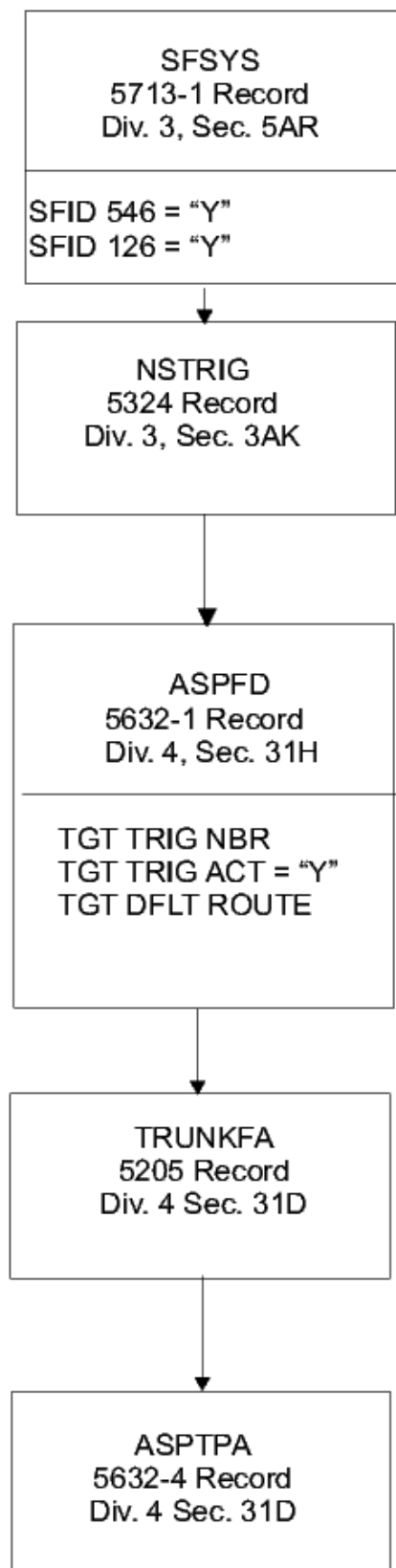


Figure 1 FORM FLOW FOR TERMINATING GROUP TRIGGER**SEC. 4A549: AUDIBLE CALLING NAME ON *69 (AUTOMATIC CALLBACK)****1. FEATURE DESCRIPTION**

The Audible Calling Name on *69 (Automatic Callback) feature is a secured feature (SFID 549) that also uses OFS ID 971. This feature is being deployed on the 5ESS Switch in a Software Update for the 5E14 Feature Release 3 and in the BMI (Beginning Managed Introduction) of the 5E15 Software Release. The feature number is 99-5E-7495.

This feature modifies the existing 2-Level AC (Automatic Callback) feature. When the Audible Calling Name on *69 feature is active and an end-user with access to 2-Level AC dials the 2-Level AC access code or depresses the ISDN (Integrated Services Digital Network) feature button for AC, the user hears the name associated with the last incoming call, followed by the existing initial 2-Level AC announcement. The name is provided by an IP (Intelligent Peripheral). All 2-Level AC invocations, for which the last calling DN (Directory Number) would be included in the initial DSU2-RAF/SAS (Digital Service Unit Model 2 - Recorded Announcement Frame/Service Announcement System) announcement (i.e., not applicable when the DN is marked private or is not present), result in the switch initiating a call to the IP DN with the DN of the last incoming call (from the Incoming Line History Block) as the calling party number. This call results in a talk path being set up to an IP, which has a Calling Name feature assigned and which speaks the name (received in an incoming message from the switch over the BRI or PRI) associated with the DN of the last incoming call, and then immediately releases the call. After the release is detected, 2-Level AC proceeds with the existing 2-Level initial announcement followed by the existing 2-Level AC processing.

If the Audible Calling Name on *69 feature is active when the user activates the AC feature, the switch initiates a call to an IP. The switch also sends that IP the calling name of the last incoming call to the user. Using that information, the IP does a text-to-speech conversion, so that when the talk path is established between the user and the IP, the IP can send an announcement to the user that includes a spoken version of the calling name. The IP then disconnects, and the user receives the existing AC treatment. During the call to the IP, the switch keeps track of an answer timer (i.e., the amount of time the switch should wait for the IP to answer) and a disconnect timer (i.e., the amount of time the switch should wait for the IP to disconnect).

2. FEATURE ASSIGNMENT

For 5E14 and later, to provision the Audible Calling Name on *69 (Automatic Callback) feature:

activate the feature by setting the ACT field for SFID 549 to "Y" on the SFSYS form (5713-1 Record).

enable the feature for the office by setting the ACT field for OFID 971 to "Y" on the FOSYS form (5713-2 Record).

define Audible Calling Name by populating the following fields on the LASSOP form (5945 Record) in the order listed:

IP DN

IP SCR

IP DAS

adjust timer values by populating the following fields on the LASSOP form:

IP ANS TIMER

IP DISC TIMER

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LASSOP	5945	5	5F	8.21
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

LASSOP form (5945 Record) - This form is used to supply global office options and parameters for the LASS features. The IP DN, IP DAS, IP SCR, IP ANS TIMER, and IP DISC TIMER fields and related data rules were added to support this feature.

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency features. This feature is enabled for the office by setting the ACT field for OFS ID 971 to "Y".

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 549 to "Y".

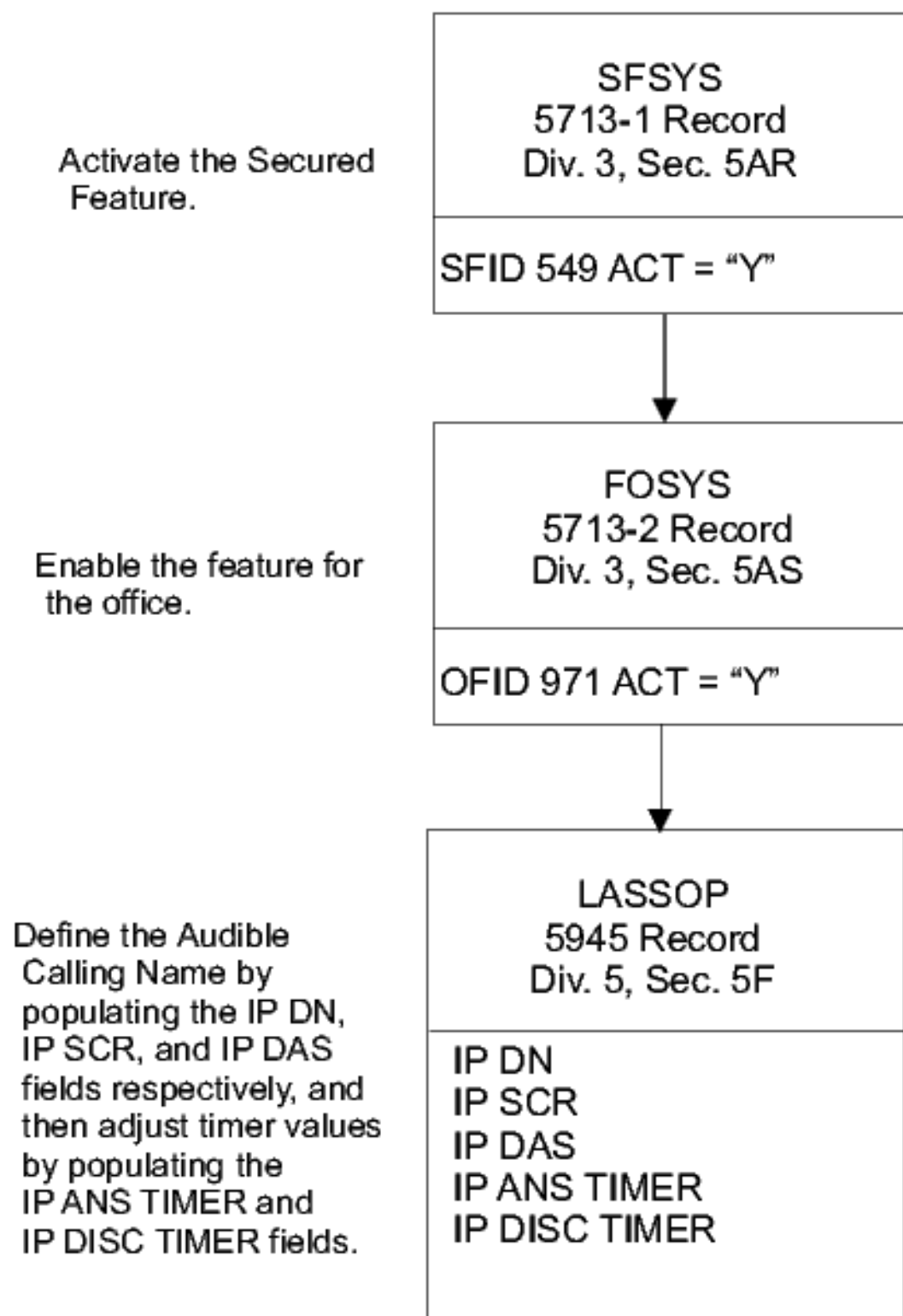


Figure 1 FORM FLOW FOR AUDIBLE CALLING NAME ON *69 (AUTOMATIC CALLBACK)

SEC. 4A550: PBX CALLING ID

1. FEATURE DESCRIPTION

The PBX (Private Branch Exchange) Calling ID feature is a secured feature (SFID 550) that is available in 5E14 FR3 (Feature Release 3) and 5E15 BMI (Beginning Managed Introduction). The feature number for this feature is 99-5E-7431.

Currently, there is no CPN (Calling Party Number) associated with a call origination from a PF (Private Facility) MF/DTMF (Multifrequency/Dual Tone Multifrequency) trunk.

The PBX Calling ID feature permits the use of the (existing) MAIN DN field on the TKGRP form (5202 Record) (Recent Change view 5.1), which is currently only used for PRI originations, to also be used as the CPN for originations from an associated Private Facility MF/DTMF Trunk Group.

This CPN is used for delivery to Calling Number Delivery subscribers, and to be placed in the Calling Party Number parameter in an outgoing SS7 trunk, and for all feature interactions where a Calling Party Number is used (e.g., ASP and LASS features). Existing PRI (Primary Rate Interface) procedures for determining whether the Presentation of the CPN is Restricted or Allowed will be used. These procedures are summarized as follows:

If the CPNP (Calling Party Number Presentation) feature is not active, the PRIVACY field on the TKGRP form or the DN PRIVACY field (if set to YES) on the OFCOPT form (5509 Record), or RC (Recent Change) view 8.1, is used.

If the CPNP feature is active, the privacy can be set using a Screening Index assigned to the Trunk Group along with the PRIVACY field on the SCRIDXPA form (5543 Record), or RC view 8.24, or if the PRIVACY field is not set, the DN PRIV field on the OFCOPT form is used.

If the MAIN DN field is not populated for a Private Facility Trunk Group, no Calling Party Number will be associated with call originations from that Trunk Group (PBX Calling ID feature that has no impact on call originations from the Trunk Group).

NOTE: When the call goes out over an SS7 ISUP trunk, (e.g., to a E911 tandem (see Division 2, Section 1BD for information on the Enhanced 911 Emergency Service feature) population of the Calling Party Number parameter is covered by the following: When the PBX Calling ID feature is enabled, using SFID 550, and a call is originated from a Private Facility trunk (PF, PFLASH, PFITT) with a non-blank MAIN DN, and the call is routed out of the switch on an outgoing SS7 trunk, a Calling Party Number parameter is included in the outgoing IAM message with the MAIN DN coded in the Address signal subfield. For more complete information, see the *LASS Feature Document 235-190-130*.

2. FEATURE ASSIGNMENT

For 5E14 and later, to provision this feature:

Activate the feature by setting the ACT field for SFID 550 on the SFSYS form (5713-1 Record) to "Y".

To provision the PBX Calling ID feature for a Private Facility trunk (having trunk class of "PF", "PFLASH", or "PFITT") connected to a PBX:

- On the TRGRP form, assign the PBX DN (Directory Number) at the MAIN DN field with NPANXXXXXX format, where NPA is a Numbering Plan Area code (N is 2-9 and A,P,X is 0-9).

To mark the assigned PBX DN as "public":

- If the CPNP feature is not active

Set the DN PRIVACY field to "N" on the OFCOPT form.

Set the the PRIVACY field to "N" on the TKGRP form.

- If the CPNP feature is active:

Set the PRIVACY field to "N" on the SCRIDSPA form (for screening index corresponding to the given trunk group), or

If the PRIVACY field on the SCRIDSPA form is not set (or no form entry exist for the screening index corresponding to the given trunk group), the DN PRIVACY field on the OFCOPT form should be set to "N".

To mark the assign PBX DN number to "private":

- If the CPNP feature is not active

Set the DN PRIVACY field to "Y" on the OFCOPT form, or

Set the the PRIVACY field to "Y" on the TKGRP form.

- If the CPNP feature is active:

Set the PRIVACY field to "Y" on the SCRIDSPA form (for screening index corresponding to the given trunk group), or

If the PRIVACY field on the SCRIDSPA form is not set (or no form entry exist for the screening index corresponding to the given trunk group), the DN PRIVACY field the OFCOPT form should be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 550 must be set to "Y" on this form in order to enable this feature.

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch.

Data rules were added to the TRK CLS field.

SEC. 4A551: FLEXIBLE DIALED NUMBER INFORMATION SERVICE

1. FEATURE DESCRIPTION

Available with the 5E14 Feature Release 3, the Flexible DNIS (Dialed Number Information Service) feature is a secured feature (SFID 551) and is dependent on DNIS II (Transport of Original Dialed Number) feature (SFID 271). For more information concerning this feature, see Division 2, Section 4A271. For additional information also refer to the Lucent Technology document number *235-200-110 Long Distance Platform Document*.

The Flexible DNIS feature enhances the Phase II DNIS feature known as "Transport of Original Dialed Number" (Feature Number 99-5E-4208.A). The Flexible DNIS feature works with the AIN 0.1 protocol to expand AIN Toll-Free services. The feature allows the LDP (Long Distance Platform) switch to identify the contents of a AIN 0.1 GAL (Generic Address List) parameter value contained in an SCP (Service Access Point) TCAP (Transaction Capabilities Application Part) response message as DNIS digits. These DNIS digits are then forwarded through the network and delivered to its associated PBX (Private Branch Exchange). The Flexible DNIS feature is not available for NS800 triggers and its associated AIN 0.0 protocol.

A call reaches the originating LDP switch over a trunk specified to handle DNIS calls. The call is discovered to be an AIN Toll Free and DNIS call (ASP TOLLFREE = "Y" and DNIS = "Y" on the NSTRIG form ((Record 5324) (Recent Change view 9.35)). An AIN 0.1 query is launched and the original dialed number is preserved while the switch awaits a response from the SCP. The SCP performs a lookup in its database and finds the routing number and associated DNIS value. The database DNIS value may be one of the following:

- Original Dialed Number used in query.

- Portion of the Original Dialed Number.

- Entire replacement of Original Dialed Number.

- Nothing, (i.e. No value to be returned in the response).

If the SCP obtains a non-blank DNIS value, it will place the DNIS value in a Generic Address List GAP with a Type of Address of "00000000". Then along with the routing number, the SCP will send these parameters in an Analyze Route message to the querying switch. The 5ESS-2000 receives the Analyze Route message and if the Generic Address List GAP containing DNIS is present in the message, the 5ESS will use this value as the DNIS digits. If the Generic Address List GAP for DNIS is not included in the message, the previously stored Original Dialed Number will be used as the DNIS digits.

If DNIS USER = "Y" on the TKGRP form ((Record 5202) (Recent Change view 5.1)) for the outgoing trunk, the originating switch is also the terminating switch and the DNIS digits are outpulsed to the PBX. If desired, the DNIS digits may be modified using the RTIDX form ((Record 5303) (Recent Change view 10.2)) Prefix/Delete fields before signaling to the PBX.

If DNIS USER = "N" on the TKGRP form ((Record 5202) (Recent Change view 5.1)) for the outgoing trunk, the DNIS digits are stored in the Generic Address Parameter (GAP) with Type of Address = "00000000" and passed to the next switch. This happens in succession until the final switch is reached. Once the final outgoing trunk is selected at the final switch, if DNIS USER = "Y", the DNIS digits are copied into the Called Party Number (CdPN) and outpulsed to the PBX. If desired, the DNIS digits may be modified by using the RTIDX form ((Record 5303) (Recent Change view 10.2)) Prefix/Delete fields before signaling to the PBX.

2. FEATURE ASSIGNMENT

For 5E14 and later, to provision this feature:

Activate the DNIS II (Transport of Original Dialed Number) feature by setting the ACT field for SFID 271 on the SFSYS form (5713-1 Record) to "Y".

Activate the Flexible DNIS feature by setting the ACT field for SFID 551 on the SFSYS form (5713-1 Record) to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to enable secured features. Before this feature can be activated, the DNIS II (Transport of Original Dialed Number) feature must be activated by setting the ACT field for SFID 271 to "Y" on this form. The ACT field for SFID 551 must be set to "Y" on this form in order to enable the Flexible DNIS feature.

SEC. 4A552: ECHO CANCELLATION FOR CDMA

1. FEATURE DESCRIPTION

The Echo Cancellation for CDMA (Code Division Multiple Access) feature is a secured feature (SFID 552) that is available with the 5E15 Software Release. The feature number for this feature is 99-5E-7183.

This feature provides echo cancellation functionality for EVRC (Enhanced Variable Rate Coding) and 13Kbps vocoders on PHV4 (Protocol Handler for (packetized) Voice - Version 4). The need to equip external echo cancellers is eliminated with this feature. Echo Cancellation for CDMA will only be activated on PHV4s that support CDMA 13K and EVRC calls.

The EC (Echo Canceller) on a PHV4 is designed to the ITU-T G.168 Recommendation. It supports up to a 64ms echo path delay. It does not support tone disabling or acoustic echo control.

This feature also provides service providers a capability to set the value gain or loss of the PCM (Pulse Code Modulation) input, and/or output of the vocoder on a per office basis for CDMA 13K and EVRC calls. The gain or loss of the PCM input and/or output is basically the volume level of the voice in a receive or send direction from the vocoder. The volume level can be provisioned in a range of +12db to -12db and is independent of Echo Cancellation being on or off.

2. FEATURE ASSIGNMENT

The provisioning of this feature is as follows:

Set the ACT fields for SFID 221, and SFID 552 respectively, on the SFSYS form (5713-1 Record) to "Y".

Use the CDMAOPT form (5599 Record) to update any of the CDMA Tuning Parameters.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
CDMAOPT	5599	8	80	8.75
SFSYS	5713-1	3	5AR	8.22

CDMAOPT form (5599 Record) - This view controls the parameters for the echo cancellation feature. New form for this feature.

SFSYS form (5713-1 Record) - This form is used to enable secured features. To activate this feature the ACT field for SFID 552 must be set to "Y" on this form.

SEC. 4A553: USAGE SENSITIVE SIX-WAY CALLING

1. FEATURE DESCRIPTION

The USSWC (Usage Sensitive Six-Way Calling) feature is a secured feature using SFID (Secured Feature ID) 553. This feature is being deployed on the 5ESS Switch for the BMI (Beginning Managed Introduction) of the 5E15 Software Release. The feature number is 99-5E-7598.

The USSWC feature is operationally identical to the Multiway Conference Calling Six-Way line feature. This feature allows customers to activate and deactivate the BRCS (Business and Residence Custom Services) Six-Way Calling feature when needed without having to subscribe in advance. End users who decide they have a need to engage more than one party on a call can use this feature to activate conferencing for a single call. The activation involves entering the USSWC access code either right after going off-hook before dialing the first party or after engaging the first party by flashing, and then entering the USSWC access code.

The end users of this feature are residential or small business analog customers who do not typically have a need for the Multiway Conference Line feature, but do on occasion have a need to use conferencing on a sporadic or spur-of-the-moment basis. This feature meets the needs of the target end user who is familiar with the USTWC (Usage Sensitive Three-Way Calling) feature, but who also has a need to control adding more than one party to a call without resorting to call chaining.

This is a usage sensitive calling feature provisioned as an office feature with associated control over AMA (Automatic Messaging Accounting) recording similar to the USTWC feature. The office is provided with sufficient six-port conference circuits to meet the combined traffic of USSWC and other features using six-port conference circuits during the busy hour.

2. FEATURE ASSIGNMENT

For 5E15 and later, to provision the Usage Sensitive Six-Way Calling feature:

Activate the feature by setting the ACT field for SFID 553 to "Y" on the SFSYS form (5713-1 Record).

Set the ACTION field to "MWSOH" on the PDIT form (5300-2 Record) for the dial code action used by the feature. Other valid dial code actions used by this feature are "MWITD" and "MWSPL".

Activate the feature on the OFCOPT form (5509 Record) to turn the feature on or off for the entire office in the order listed:

set the USSWC FEAT (Usage Sensitive Six-Way Calling Multiway feature name) field to "/MWUSSWC". This field stores the USSWC Multiway feature name if the feature is enabled in the office. If left blank, the feature is not active in the office.

set the USSWC ACT (Usage Sensitive Six-Way Calling AMA (Automatic Message Accounting) activation record) field to "Y" if USSWC AMA activation records should be made in the office when

USSWC calls are made.

set the USSWC CHRG (Usage Sensitive Six-Way Calling AMA charge record) field to "Y" if USSWC AMA charge records should be made in the office when USSWC calls are made.

On either the LINE form (5109-4 Record) or the MLHLN form (5111-4 Record), activate or deactivate the feature for an individual line.

- NOTE:** The feature can be activated or deactivated for an entire office or for an individual line. The OFCOPT form is used to turn the feature on or off for the entire office. The USSWC ALW field on the LINE or MLHLN form is used to activate or deactivate the feature for an individual line. Therefore, if the feature for the entire office is turned off, a value of "Y" in the USSWC ALW field will not activate the feature.

See Figure 1 for provisioning form flow.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26A	12.9
CFGGRP	5964	6	7A	12.5
CLUSTR	5600	4	1A	12.2
LINE	5109-4	3	1I	1.6
MLHLN	5111-4	3	1K	1.6
MWFD	5602-1/2	4	3A	12.19
OFCOPT	5509-4	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22
TKGRPFA	5206	3	2E	5.4
TRUNKFA	5205	3	2D	5.11

BFG form (5625 Record) - This form is used to specify and construct BFGs (BRCS (Business and Residence Customer Service) Feature Groupings) for use when assigning subscriber features to analog lines or ISDN terminals. For 5E15 and later, a data rule was added to the FEATURE field to support this feature.

CFGGRP form (5964 Record) - This form is used to assign BRCS feature actions to CPE (Customer Premises Equipment) terminal buttons. For 5E15 and later, a data rule was added to the FEATURE field to support this feature.

CLUSTR form (5600 Record) - This form allows the terminal group to be assigned to the attendants and/or source party by grouping features together under a CLUSTER NAME. For 5E15 and later, a data rule was added to the FEATURE field to support this feature.

LINE form (5109-4 Record) - This form is used to define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch office. For 5E15 and later, the USSWC ALW field and related data rules were added to support this feature.

MLHLN form (5111-4 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG (Multi-Hunt Line Group). For 5E15 and later, the USSWC ALW field and related data rules were added to support this feature.

MWFD form (5602-1/2 Record) - This form is used to define many of the Add-On and conferencing features and to define how call processing is affected by customer attempts to flash or disconnect while holding,

adding, or transferring calls. For 5E15 and later, to support this feature, data rules were added to the FEATURE NAME, HOLD ORIG PTY, HOLD ADDED PTY, 3WAY ORIG PTY, 3WAY ADDED PTY, XFER ORIG PTY, XFER ADDED PTY, XFER PTYS PRES fields and to the MULTIWAY CONTROL field for the "3WAY" and "NWAY" valid entries.

OFCOPT form (5509-4 Record) - This form is used to supply various miscellaneous office options and parameters. The USSWC FEAT, USSWC ACT, and USSWC CHRG fields and related data rules were added to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 553 to "Y".

TKGRPFA form (5206 Record) - This form is used to assign the terminal group to a trunk group (source party). For 5E15 and later, a data rule was added to the FEATURE field to support this feature.

TRUNKFA form (5205 Record) - This form defines information for Feature Assignment keyed by TRKGRP and TKMEMB. For 5E15 and later, a data rule was added to the FEATURE field to support this feature.

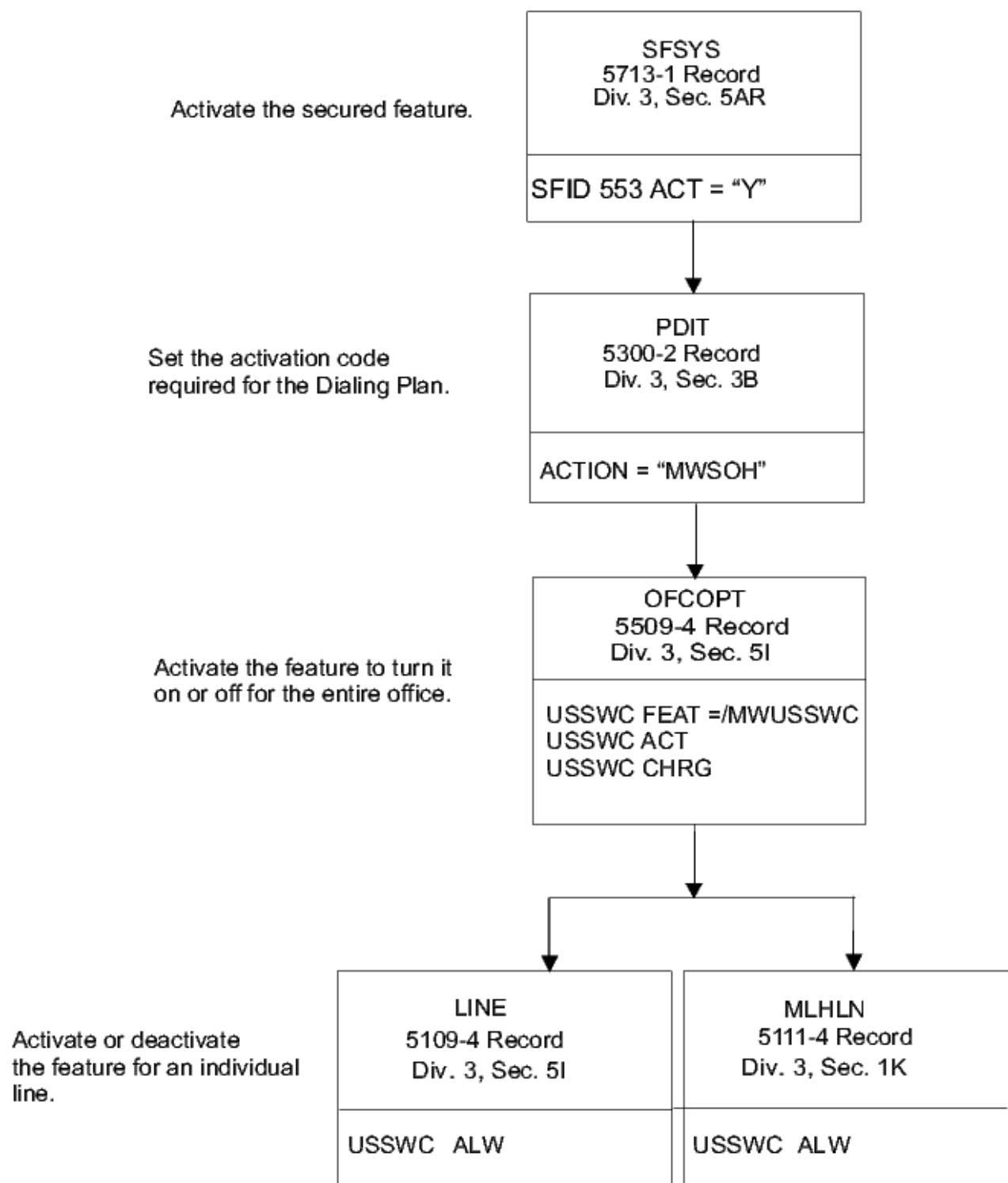


Figure 1 FORM FLOW FOR USAGE SENSITIVE SIX-WAY CALLING

SEC. 4A555: DIAL CODE TERMINAL MAKE BUSY FOR MLHGs

1. FEATURE DESCRIPTION

The Dial Code Terminal Make Busy for MLHGS (Multiline Hunt Groups) feature is a secured feature using SFID (Secured Feature ID) 555. This feature is available with the 5E15 Feature Release 1 and later Software Releases. The feature number is 99-5E-7116.

This feature allows analog MLHG members to use dial codes to activate and deactivate the following huntkeys without having to assign scan points (hardware):

MMB (Member Make Busy) huntkey - Allows a MLHG member to make itself unavailable for calls that would otherwise terminate to that member. MMB huntkeys allow members to make themselves unavailable for calls to hunted DNs only, or for calls to their individual nohunt DNs only, or for calls to both hunted and nohunt DNs.

GMB (Group Make Busy) - Allows an entire MLHG (all members) to be made unavailable for calls to hunt DNs that would otherwise terminate to members within the MLHG.

STH (Stop Hunt) - Allows additional control over which members of a MLHG are hunted. When a call to a hunt DN encounters a member with a STH huntkey active, the switch offers the call to that member if idle, but does not hunt beyond that member.

With this feature, an analog MLGH member can either use the ODP (Office Defined Dial Codes) to activate/deactivate the MMB, GMB, and STH huntkeys or they can set up their own IDPs (Individual Dial Codes) to activate or deactivate these three huntkeys. The function of the GMB for a MLHG, and the MMB and STH huntkeys for a MLHG member is the same whether the huntkey is activated/deactivated via scan points or dial codes. The Dial Code Terminal Make Busy for MLHGs feature allows activation/deactivation of these three huntkey types by either scan point or dial code, and not both at the same time. This feature does not allow an analog MLHG member to be in a MMB or subgroup if it uses dial codes to change the activation state of the MMB huntkey.

2. FEATURE ASSIGNMENT

For 5E15 and later, to provision the Dial Code Terminal Make Busy for MLHGs feature:

activate the feature by setting the ACT field for SFID 555 to "Y" on the SFSYS form (5713-1 Record).

set the DC MKB field to "Y" on the MLHLN form (5111 Record) to allow Dial Code Make Busy.

set the CALL TERM TYPE field on the MKBCTT form (5119 Record) to "HUNT", "NONHUNT", or "BOTH" to set the call termination type.

to provision the feature action, set the ACTION field to one of the following values on either the IDPDCA form (5601 Record) or the PDIT form (5300 Record):

"ACTGMB"

"ACTMMB"

"ACTSTH"

"DCTGMB"

"DCTMMB"

"DCTSTH"

set the ACTION field on the IDPDCA form (5601-1/2 Record) or the PDIT form (5300 Record) to one of the values listed for the PDIT form in order to provision the feature action for an IDP.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
IDPDCA	5601	4	2B	9.13
MLHLN	5111-2	3	1K	1.6
PDIT	5300	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22

IDPDCA (5601 Record) - This form defines the dialed codes associated with IDPs. For 5E15 and later, six valid entries were added to the ACTION field to support this feature.

MLHLN form (5111-2 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG (Multi-Hunt Line Group). For 5E15 and later, the DC MKB field and related data rules were added to support this feature.

PDIT form (5300 Record) - This form defines the Prefix/Feature Digit Interpreter in a 5ESS Switch. It provides information defining feature and operator access, and prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table). For 5E15 and later, data rules and six valid entries were added to the ACTION field to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 555 to "Y".

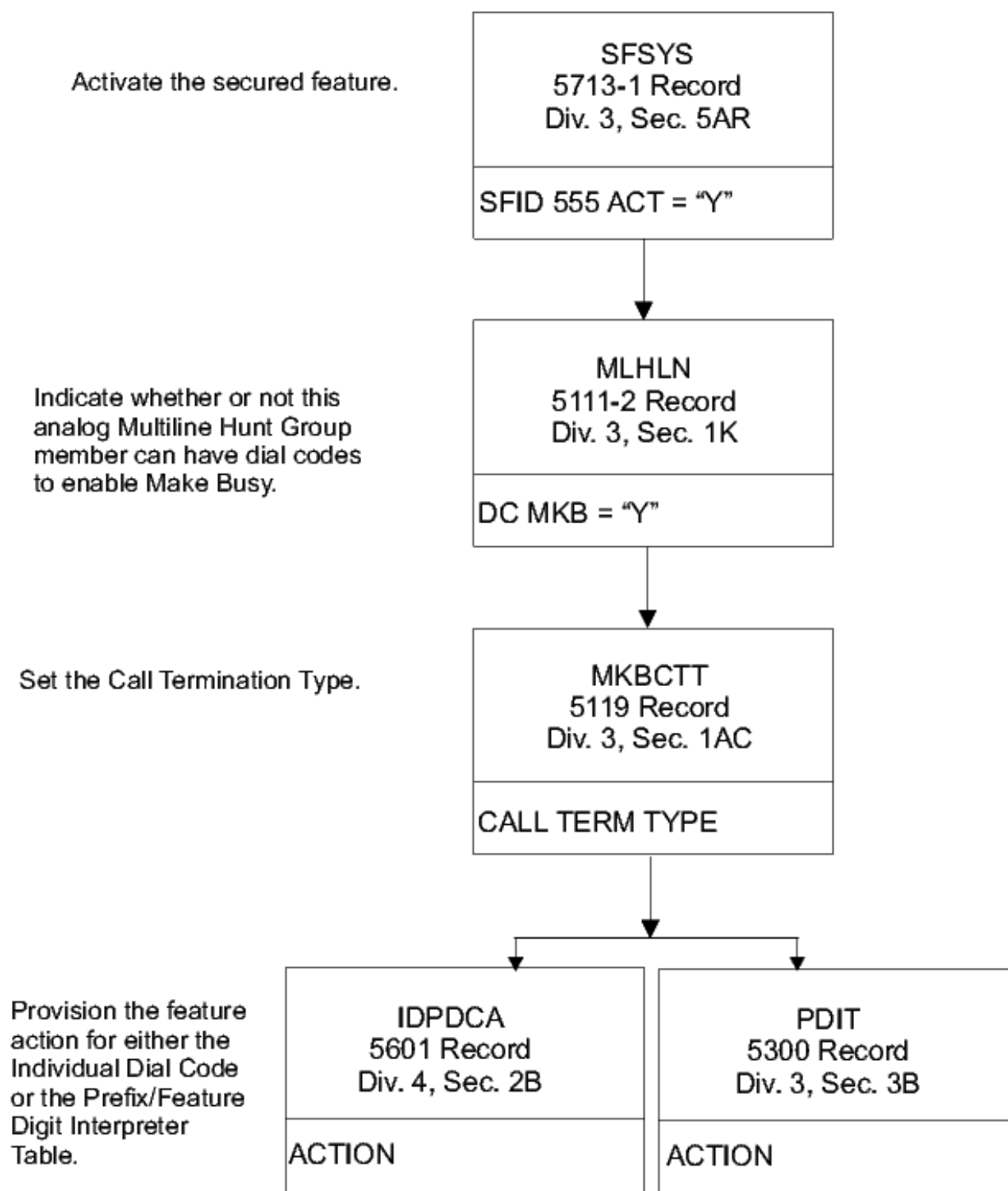


Figure 1 DIAL CODE TERMINAL MAKE BUSY FOR MLHG

SEC. 4A556: II (Interexchange Identification)/OLI (Originating Line Identifier) Delivery for National ISDN PRI (Primary Rate Interface)

1. BACKGROUND

Prior to the introduction of this feature, PrePaid Card platforms were connected to the 4ESS Switch via Proprietary AT&T PRI. In order to keep up with the demand for this PrePaid Card service, the platforms were migrated to the 5ESS Switch. Upon doing so, it was also determined that the II/OLI information needed to be passed from the 5ESS to its PrePaid Card platform.

2. FEATURE DESCRIPTION

Available with 5E14 and later Software Releases, this feature provides the ability for the 5ESS Switch to send the II/OLI information to an external platform that is connected to it by a National PRI trunk group. Although this feature was initially planned to be used with the PrePaid Card service, it can be used by any terminating CPE with a PRI interface to receive the OLI on a call by call basis. The feature number for this feature is 99-5E-7469 and is only for terminating PRI. In order to utilize this functionality, SFID 556 must be activated.

3. FEATURE ASSIGNMENT

Set the ACT field to "Y" for SFID 556 on the SFSYS form. Set PASS OLI to "Y" on the TKGRP form.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202-7	3	2A	5.1
SFSYS	5713-1	3	5AR	8.22

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on this form is information that is common to the entire group. The PASS OLI field was added to this form.

SFSYS form (5713-1 Record) - This form is used to enable secured features. SFID 556 has been implemented to secure this feature. The ACT field must be "Y" for this SFID in order to provision this feature.

SEC. 4A557: CDP TRIGGER ON PRI TRUNKS

1. FEATURE DESCRIPTION

The CDP (Customized Dialing Plan) Trigger on PRI (Primary Rate Interphase) Trunks feature is a secured feature with SFID (Secured Feature ID) 557 and feature number 99-5E-7578.

The CDP access code trigger is a digit string defined with a trigger number and an ASP (Advanced Services Platform) action. The trigger number is necessary to define query protocol information while the ASP action identifies the ASP digit collection method. When an IDP (Individualized Dialing Plan) customer goes off-hook and dials the CDP access code, depending on the digit collection method defined (normal, variable, immediate), a normal number of digits are collected and verified, a variable amount of digits are collected without verification, or no digits are collected before the query is launched. Analog lines and PF (Private Facility) trunk groups can be assigned CDP trigger functionality.

This feature extends this functionality to allow assigning CDP to PRI (Primary Rate Interphase) trunks.

2. FEATURE ASSIGNMENT

This feature is a secured feature (SFID 557) which depends on SFID 254 or 255 (for more information, see Division 2, Section 4A254).

To provision this feature:

- On the SFSYS form (Record 5713-1)

set ACT SFID 254 or 255 to "Y"

set ACT SFID 577 to "Y".

- Assign an ASP CDP feature to a PRI trunk group that has no member yet from the TKGRPFA form (Record 5206). The ASP feature will be assigned to all members added to this trunk group from the TRUNK form (Record 5204).
- or
- Assign an ASP CDP feature to an individual PRI trunk member from the TRUNKFA form (Record 5205).
- Update the ASP CDP feature by modifying or adding the CDP trigger from the ASPTPA form (Record 5632-4).

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 524 must first be set to "Y" before this feature is enabled by setting the ACT field for SFID 557 to "Y" on this form.

SEC. 4A558: TCW - INTER-LATA CALL ENHANCEMENTS

1. BACKGROUND

The TCW (Talking Call Waiting) feature is an option on the terminating call waiting features that modifies the call waiting operation so that:

- when CIDCW (Calling Identity Delivery on Call Waiting) is not assigned, rather than having the switch provide the call waiting tone, the switch briefly connects the TCW subscriber to an IP (Intelligent Peripheral) for an announcement, and
- when CIDCW is assigned, in addition to the switch providing the SAS (Subscriber Alerting Signal) plus CAS (CPE (Customer Premise Equipment) Alerting Signal) tones, the switch also briefly connects the TCW subscriber to an IP (Intelligent Peripheral) for an announcement if an acknowledgment signal from the CPE is not received. The announcement provides the TCW subscriber with the name of the call waiting party. If CIDCW is not assigned, the call waiting tone is provided by the IP as part of the announcement.

For the Call Waiting features with distinctive call waiting tones, since an IP provides the call waiting tone, and the IP is not notified that the encountered feature is one of the distinctive call waiting features, the distinctive tones are not provided by the IP. In this case, only the single call waiting tone is expected for the first TCW alert. However, for the re-alert, the TCW subscriber receives switch based distinctive call waiting tones.

If the subscriber with TCW also has the CIDCW and/or CWD (Call Waiting Deluxe) feature, the switch provides these features with the CW tone, which then provides a visual display on the subscriber's CPE. If the switch does not receive an indication that the CPE is ready to receive the display information, the TCW feature is invoked and the name is spoken to the TCW subscriber. Since the switch has already provided the call waiting tone as part of the SAS+CAS signal offering the display information to the CPE, when the switch connects to the IP it is expected that the IP will speak only the name of the waiting party rather than providing a call waiting tone followed by the spoken name of the waiting party.

These requirements assume the DNs (Directory Numbers) on the terminating switch directly providing access to the IP, are provisioned with the appropriate terminating Calling Name Delivery feature.

2. FEATURE DESCRIPTION

The TCW (Talking Call Waiting) - Inter-LATA (Local Access and Transport Area) Call Enhancements feature (99-5E-7604) allows Inter-LATA IP calls to be routed to an office wide carrier and/or suppresses the billing record generation for all calls to the IP.

It is a secured feature (SFID (Secured Feature ID) 558) that is available as a 5E14 FR3 (Feature Release 3) and 5E15 BMI (Beginning Managed Introduction). This feature is dependent upon the base feature, Talking Call Waiting (99-5E-4605). For more information on the base feature, see Division 2, Section 4A331.

3. FEATURE ASSIGNMENT

For 5E14 and later, to provision this feature:

Activate secured feature by setting the ACT field for SFID 331 on the SFSYS form (5713-1 Record) to "Y".

Activate secured feature by setting the ACT field for SFID 558 on the SFSYS form (5713-1 Record) to "Y".

On the OFCOPT form (5509 Record):

- Set the TCW SUPPRESS AMA field to "Y".
- Set the TCW CARRID field to any valid value.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	51	8.1
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509) - The 5509 Record provides the office option global parameters residing in the Central Processor. Added the TCW SUPPRESS AMA and TCW CARRID fields and associated data rules.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 331 and 558 must be set to "Y", respectively, on this form in order to enable this feature.

SEC. 4A559: DA AUTOMATIC POSITION RELEASE

1. FEATURE DESCRIPTION

The DA (Directory Assistance) Automatic Position Release feature is a secured feature (SFID 559) that also

uses OFS ID 977. This feature is being deployed on the 5ESS Switch in a Software Update for 5E14 Feature Release 3. The feature number is 98-5E-7188.

This feature provides for automatically releasing an LS (Listing Services)/DA operator position in the case when a calling party hangs up while connected to a LS/DA operator position.

NOTE: This functionality does not apply to calls involving Listing Services call completion.

1.1 Scenarios

The following are scenarios for this feature:

A listing services call comes up at an operator position. The caller decides to go on-hook. The operator position is automatically released.

A listing services call comes up at an operator position. The operator is then conferenced with another operator. The caller decides to go on-hook. The operator position is not automatically released. The operator has to manually release the position.

2. FEATURE ASSIGNMENT

For 5E14 and later, to provision the DA Automatic Position Release feature:

activate the feature by setting the ACT field for SFID 559 to "Y" on the SFSYS form (5713-1 Record).

enable the feature for the office by setting the ACT field for OFID 977 to "Y" on the FOSYS form (5713-2 Record).

3. TRANSLATION REQUIREMENTS

Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency features. This feature is enabled for the office by setting the ACT field on this form for OFS ID 977 to "Y".

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field on this form for SFID 559 to "Y".

SEC. 4A560: ADVANCED SERVICES PLATFORM EXTENDED TSTRC TIMER

1. FEATURE DESCRIPTION

The feature number for the ASP (Advanced Services Platform) Extended TSTRC Timer feature is 99-5E-7568. This feature is controlled by SFID (Secured Feature ID) 560 and is being deployed for the BMI (Beginning Managed Introduction) of the 5E15 Software Release on the 5ESS, CDX (Compact Digital Exchange), and VCDX (Very Compact Digital Exchange) platforms.

With the ASP (Advanced Services Platform) STOR (Send To Outside Resource) features, a timer called TSTRC (Timer, Send to Resource Connection) controls the length of time that a caller may be connected to an AIN (Advanced Intelligent Network) IP (Intelligent Peripheral). This timer currently takes its value from a single 5ESS office option field, which can range up to 60 minutes.

Service providers would like the ability to extend the length of the TSTRC timer to a maximum of 300 minutes, and would also like the ability to have the timer value for a given IP connection be specified by a parameter in the STR (Send To Resource) message.

This feature extends the length of the TSTRC timer to a maximum of 300 minutes. The new range of the parameter is 1 to 300 minutes, with the default of 6 minutes. The value of zero is allowed, indicates no timing is to be done, and is used effectively to disable the timer.

This new functionality is controlled by SFID 560. The Recent Change and Verify crosschecks prohibit the provisioning of the TSTRC value to greater than 60 when this feature is locked, and also ignores the valid TSTRC parameter in the STR message if this feature is locked. SFID 560 depends on the original STOR local feature SFID 229.

This feature is not directly visible to the end user, except that it can be used to shorten or lengthen the total duration of an STR connection.

This feature provides the following two capabilities:

The maximum value of the TSTRC field on the ASPOPT form (5670 Record) is increased to a maximum of 300 minutes (the current value is 0 - 60).

Allow the addition of a new TCAP (Transaction Capabilities Application Part) parameter, TSTRCTimer, in the STR message. When the STR message contains a DestinationAddress parameter (indicating that an IP connection is to be established) and when the TSTRCTimer parameter is also present, then the TSTRC timer value used for the connection is that of the TSTRCTimer parameter.

If the TSTRCTimer parameter is not present in an STR message which contains a DestinationAddress parameter, or if it is present but out of range, then this error shall be treated as a fatal "Unexpected Data Value" error, and shall be reported to the SCP according to existing practice, and the call is killed.

If the valid TSTRCTimer parameter is included in an STR message which does not contain a DestinationAddress parameter, then it is ignored.

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT fields for SFIDs 229 and 560 on the SFSYS form (5713-1 Record) must be set to "Y".
- The TSTRC field on the ASPOPT form (5670 Record) can then be changed to a value between 0 and 300.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASPOPT	5670	4	31G	8.49

SFSYS	5713-1	3	5AR	8.22

ASPOPT form (5670 Record) - This form is applicable to (and required for) all offices. It is required to translate all options in the AM (Administration Module) for initial offices.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 229 and 560 to "Y".

SEC. 4A561: RATE AREA EXCHANGE INCREASE

1. FEATURE DESCRIPTION

1.1 Feature Overview

Available with 5E15 and later Software Release, the RAX (Rate Area Exchange) Increase feature is assigned feature number 99-5E-7473.

NAR customers, CLECs (Competitive Local Exchange Carriers) and ILECs (Incumbent Local Exchange Carriers), are using 5ESS Switches to service lines in broader areas than originally designed, areas that diverge in how dialed digits are processed. As a result, the number of RAXs allowed in the ODD (Office Dependent Data) must increase from the current value of 99 to 999 to support this growth. The RAX, in conjunction with the LCC (Line Class Code), determines the DAS (Digit Analysis Selector) and screening information used to interpret dialed digits for routing and charging phone calls.

2. FEATURE ASSIGNMENTS

To enable this feature, the ACT field for SFID 561 must be set to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
AMLBDL	5447	3	4AV	21.34
BFG	5625	4	26A	12.9
DFLTRV	5974	6	17A	23.15
DSL	5907	5	1H	23.2
DSLUSR	5908	5	1I	23.2
LCC	5306	3	3S	4.1
LINE	5109	3	1I	1.6
MLHG	5110	3	1J	3.5
MLHLN	5111	3	1K	1.6
NOC	5501	3	5A	8.2
SFSYS	5713-1	3	5AR	8.22
XAT	5909	5	1J	23.40

AMLBDL form (5447 Record) - This form is used to collect data for OSPS/CACD (Centrex Automatic Call Distribution) packet switching DSL (Digital Subscriber Lines). Increased the RAX field enumeration from 99 to 999.

BFG form (5625 Record) - This form is used to specify and construct BFGs for use when assigning subscriber features to analog lines or ISDN terminals. BFG is designed to assist the switch owner in the conservation of Switching Module memory and the improvement of Recent Change response time, and it cannot be used with trunks. Increased the RAX field enumeration from 99 to 999.

DFLTRV form (5974 Record) - This form allows unknown CPE (Customer Premises Equipment) on a DSL (Digital Subscriber Line) subscribing to Default Service to originate ACSR, BRI Test Line, BRIV (Basic Rate

Interface Verification), Repair (611), Access to 108 Test Line, Business Office (811), and Emergency (911) calls. Increased the RAX field enumeration from 99 to 999.

DSL form (5907 Record) - This form has two major purposes: 1) it defines the attributes of a DSL, and 2) it defines the attributes of the B1 and/or B2 channel of the DSL. New data rules apply to Standard BRIs where "STD" is entered in the DSL CLS field. Increased the RAX field enumeration from 99 to 999.

DSLUSR form (5908 Record) - This form is used to define the TN and other information for a DSL user. This includes circuit switching (voice and data) attributes. Two new fields were added to support PCS. The PASC (PCS Access Service on a C-Interface) field was added to indicate if ISDN/PCS Interworking is allowed by entering "PCSI" (PCS/ISDN Interworking). The second field added for ISDN/PCS Interworking is ALT to indicate whether the DSL user is allowed to comply with a request for an ALT. Increased the RAX field enumeration from 99 to 999.

LCC form (5306 Record) - This form is used to define each LCC (Line Class Code) in a 5ESS Switch. A Telephone Number and a Line Equipment Number provide an LCC and Rate Area number. These two inputs are used to access routing and service information contained on this form. Increased the RAX field enumeration from 99 to 999.

LINE form (5109 Record) - This form defines the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch. Increased the RAX field enumeration from 99 to 999.

MLHG form (5110 Record) - This form is used to define Multi-Line Hunt Group information. The 5110-2 Record is used to define MUPH (Multiple Position Hunt) for nondata link attendant console positions. Increased the RAX field enumeration from 99 to 999.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular MLHG. Each MLHG/Terminal Number must be assigned an equipment number and specific options and features. Every MLHG Number assigned on the MLHLN form must be defined on the MLHG form (5110-1/2/3 Record). Increased the RAX field enumeration from 99 to 999.

NOC form (5501 Record) - This form is used to associate a NOC (Normalized Office Code) with each OFFICE CODE and NPA (Numbering Plan Area) code. The OFFICE CODE is commonly referred to as the "NXX" which are the 3-digits after the NPA (commonly referred to as the "area code"). In addition, this form is used to assign Routing and Charging Intercept Treatment. Each type of Intercept (Regular, Blank Number, Out-of-Service and Deny Termination) is assigned a Route Index and Charge Index per NXX. Increased the RAX field enumeration from 99 to 999.

SFSYS form (5713 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 561 to "Y".

XAT form (5909 Record) - This form is used to provision T1 facilities (digital lines and trunks) with X.25 Packet Switching services on a subscription basis using Q.931 signaling. When this form is entered, ports are defined for each channel of the T1 facility selected for packet switching. Increased the RAX field enumeration from 99 to 999.

SEC. 4A563: ASP MONITOR FOR BRI AND MULTILINE HUNT GROUP

1. FEATURE DESCRIPTION

The ASP Monitor for BRI (Basic Rate Interface) and MLHG (MultiLine Hunt Group) feature is a secured feature (SFID 563) that is available with the 5E15 FR1 (Feature Release 1) and later Software Releases. The feature number for this feature is 99-5E-3158.

This feature allows the user to monitor idle/busy status for BRI lines and MLHGs. It is an enhancement of the base ASP feature (for more information, see Division 2, Section 4A51 and/or Division 2, Section 4A126) which monitors the idle/busy status for the analog lines.

The ASP Monitor for BRI and MLHG feature also allows for existing Monitor operations on individual analog lines to accept terminating features such as CWT (Call Waiting Terminating) and SC (Series Completion) when the OFID (Optioned Feature System ID) 973 is set.

2. FEATURE ASSIGNMENT

For 5E15 FR1 and later, to activate this feature, the ACT field for SFID 563 on the SFSYS form (5713-1 Record) must be set to "Y". Also, the ACT field for the OFID 973 on the FOSYS form (5713-2 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFIDs (Optioned Feature System IDs) for Special and Transparency Features. The ACT field for OFID 973 must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 563 must be set to "Y" on this form in order to enable this feature.

SEC. 4A564: DAS INCREASE

1. FEATURE DESCRIPTION

The DAS (Digit Analysis Selector) Increase feature is a secured feature (SFID 564) that is available with the 5E15 and later Software Releases. The feature number for this feature is 99-5E-7475.

The purpose of this feature is to provide the ability for the 5ESS Switch to support multiple rate centers.

In order to do this, the DAS value on the forms, where used, was increased. Currently, the DAS values are 0-99, or 1-99. This feature increases these values to 0-254, or 1-254.

2. FEATURE ASSIGNMENT

For 5E15 and later, to activate this feature, the ACT field for SFID 564 on the SFSYS form (5713-1 Record), must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACDTN	5631-1	4	32A	6.10
ASPOPT	5670	4	31G	8.49
CONV	5300-4	3	3D	9.4
DAS	5300-1	3	3A	9.1
ESN	5540	3	5AN	9.40
IIDIGTBL	5573	3	5BN	8.57
LASSOP	5945	5	5F	8.21

LCC	5306	3	3S	4.1
LDPCTBL	5562	3	5BF	8.52
LDPTNSC	5568	3	5BI	8.53
LOCSCRN	5545	3	5AU	8.26
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1,8.15
OSPSDSL	5411	3	4L	21.30
OSPSOPT	5424	3	4Y	8.9
PFASFG	5609-3	4	10C	7.3
RASRTI	5538	3	5AL	10.19
SFSYS	5713-1	3	5AR	8.22
STINFO	5402	3	4C	21.2
TGATTD	5611	4	12A	4.4
TKGRP	5202	3	2A	5.1
TODCL	5610-2	4	11B	4.5

ACDTN form (5631-1 Record) - This form is used by the ACD/BRCS (Automatic Call Distributor/Business and Residential Custom Services) feature to define the ACD directory number or the DAA (Direct Agent Access) directory number. For more information on this secured feature, ACD/BRCS and ACD/BRCS Interworking II, see Division 2, Section 4A121. Modified the valid entry for the DAS field.

ASPOPT form (5670 Record) - This form is used to set the ASP (Advanced Services Platform) office parameters for the office. Modified the valid entry for the SCP DAS field.

CONV form (5300-4 Record) - This form is used to associate an LDIT (Local Digit Interpreter Table) call type with a code conversion number. Modified the valid entry for the DAS field.

DAS form (5300-1 Record) - This form is used as an office record and as a source document for data entry into the DAS form. Modified the valid entry for the DIGIT ANALYSIS SELECTOR field.

ESN form (5540 Record) - This form serves two purposes. First, it is used to define an ESN (Emergency Service Number), a set of telephone numbers for the emergency services a 911 caller may require. Second, it is used to define SM (Switching Module) standalone data, and serves as a set of emergency numbers for a 911 call that arrives at an SM unable to communicate with the CMP (Communication Module Processor). Modified the valid entry for the DAS field.

IIDIGTBL form (5573 Record) - This form contains information needed to route a call. Modified the valid entry for the DAS field.

LASSOP form (5945 Record) - This form is an ODA (Office Data Administration) input form that is used to supply global office options and parameters for the LASS (Local Area Signaling Services) features. Modified the valid entry for the IP DAS field.

LCC form (5306 Record) - This form is used to define each LCC (Line Class Code) in a 5ESS Switch. Modified the valid entry for the DIGIT ANALYSIS SELECTOR field.

LDPCTBL form (5562 Record) - This form provides an LDP (Long Distance Platform) Carrier Table and Default Carrier Table. Modified the valid entry for the DAS field.

LDPTNSC form (5568 Record) - This form provides the capability for specifying or verifying a TNSC (Terminating Network Selection Code), and its associated DAS (Digit Analysis Selector), and screening index information. Modified the valid entry for the LRN DAS, and the DAS fields.

LOCSCRN form (5545 Record) - This form is used to screen the NPA (Numbering Plan Area) and Office Codes (NXX) for long distance calls. Modified the valid entry for the DAS field.

NSTRIG form (5324 Record) - This form identifies a network service application. It contains alternate STP

(Service Transfer Point) network addressing, and information for the switch owner's selectable service key. Modified the valid entry for the POST QUERY DAS field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Modified the valid entry for the DAS, E911 DAS, LTP DAS, RDTA DAS, CST DAS, SCP DAS, SCP 800 DAS, and the TCW DAS fields.

OSPDSL form (5411 Record) - This form assigns OSPS (Operator Services Position System) circuits to line card ports. Modified the valid entry for the DAS field.

OSPLOPT form (5424 Record) - This form defines the OSPS (Operator Services Position System) office option global parameters. Modified the valid entry for the AIS DAS, SDN DAS, and the BLV DAS fields.

PFASFG form (5609-3 Record) - This form is used to define SFG (Simulated Facility Groups) which allow controlling access to physical groups such as lines, trunks, and special circuits. Modified the valid entry for the LINE DAS and the TRK DAS fields.

RASRTI form (5538 Record) - This form is used to define the routing used by RAS (Remote Access Service) from an RADN (Remote Access DN) to the DSU2-RAF-DTA that corresponds with a specified home switch. Modified the valid entry for the DAS field.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT field for SFID 564 must be set to "Y" on this form in order to enable this feature.

STINFO form (5402 Record) - This form provides information about a serving team. Modified the valid entry for the DIG ANALYSIS SEL and the SEC DIG ANALYSIS SEL fields.

TGATTD form (5611 Record) - It is used to define information (such as attendant DN, Source Billing, and SDN DAS) on a Terminal Group basis. Modified the valid entry for the SDN DAS field.

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. Modified the valid entry for the DAS, LRN DAS, SDN DAS fields.

TODCL form (5610-2 Record) - This form is used to define the TOD (Time Of Day) activities that will occur on a particular line, terminal, or trunk group at a specified time. Modified the valid entry for the DAS field.

SEC. 4A565: AMA MODULE 104 DIRECTION INDICATOR

1. BACKGROUND

Local provider's tariffs needed to be changed due to the Telecommunications Act of 1996 that endorsed local competition and a significant increase in the number of service providers in various markets.

Prior to this feature, AMA (Automatic Message Accounting) recording capability for operator calls such as 0- , 0+ and directory assistance were blocked from the local end office. Since an alternative routing to multiple operator services can be provided in the end office, there existed a need to provide AMA recording for these type of calls.

A set of billing options is necessary to record calls from one network to another network in order to identify calls on which mutual compensation is owed. The additional trunk information on the AMA recording will assist the compensation settlement.

The Local Trunk Billing Enhancements feature (99-5E-4498 (SFID 278)) appended a trunk module to the

existing AMA records for inter-office calls but did not have the direction indicator in the trunk module 104.

2. FEATURE DESCRIPTION

Available with the 5E14FR3 software update and 5E15 BMI (Beginning Management Introduction), the AMA Module 104 Direction Indicator feature is a secured feature with SFID (Secured Feature ID) 565 and feature number 99-5E-7500. This feature depends on feature 99-5E-4498 (SFID 278). For more information concerning this feature, see Division 2, Section 4A278.

The AMA Module 104 Direction Indicator feature adds the incoming and outgoing direction indicator to the trunk module 104. Table 244 is Incoming/Outgoing trunk facility identification where the first character in this table is used for the trunk direction indicator. The value 1 indicates incoming trunk group and 2 indicates outgoing trunk group.

3. FEATURE ASSIGNMENT

This feature is a secured feature (SFID 565) which depends on the Local Trunk Billing Enhancements feature (99-5E-4498 (SFID 278)).

To provision this feature:

- On the SFSYS form (Record 5713-1)

set ACT SFID 278 to "Y" to enable the Local Trunk Billing Enhancements feature.

set ACT SFID 565 to "Y" to enable the AMA Module 104 Direction Indicator.

set ACT SFID 281 to "Y" to enable the Operator and Directory Assistance Billing for Unbundled Local Switching feature.

- On the OFCOPT form (Record 5509):

set OPER to "Y" to turn on the AMA recording for operator services and directory assistance calls.

set TRUNK to "Y" to turn on appending the trunk module to the AMA recording for inter-office calls.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. To enable this feature, the ACT field for SFID 565 must be set to "Y" after the ACT field for SFID 278 is to "Y" on this form.

SEC. 4A566: CUSTOMER RECENT CHANGE INPUT FOR CRITICAL TRANSLATIONS PROTECTION

1. FEATURE DESCRIPTION

Please see Division 2, Section 1BY - RC TRANSLATIONS PROTECTION FOR HIGHLY CRITICAL ELEMENTS.

SEC. 4A567: VOICE TELEPHONY OVER ATM FEATURES

1. ATM GLOBAL ROUTING AND SIGNALING

1.1 FEATURE DESCRIPTION

The feature number for the ATM Global Routing and Signaling feature is 99-5E-8018 (originally 99-5E-7554). This feature is controlled by SFID (Secured Feature ID) 567 and is made available with the 5E15 Feature Release 1.

The ATM Global Routing and Signaling feature is one of the component features for the 7R/E Packet Solutions 3.0n ATM Transport Solution to provide VTOA (Voice Telephony over ATM (Asynchronous Transfer Mode)) in the North American Region.

This feature provides enhancements to the circuit switched routing functionality at the OPS (Originating Packet Switch) to support the following connectivity:

- IC trunk to ATM Packet.

- LTOLL trunk to ATM Packet.

- TTOLL trunk to ATM Packet.

- LATA trunk to ATM Packet.

This feature also provides enhancements to the circuit switched routing functionality at the TPS (Terminating Packet Switch) switch to support the following connectivity:

- ATM Packet to IC trunk.

- ATM Packet to LTOLL trunk.

- ATM Packet to TTOLL trunk.

- ATM Packet to LATA trunk.

- ATM Packet to ANNCMT trunk.

- ATM Packet to RAFDTA trunk.

- ATM Packet to INTRCPT trunk.

One of the significant components of feature 99-5E-7554 is the capability to allow independent call control for ATM packet calls using the PSU, or CNI (SS7 and/or CCS7) platform. To provide this functionality, the new BICC (Bearer Independent Call Control) protocol is supported by the PSU (Packet Switch Unit) and DLN (Direct Link Node) message delivery subsystems. In addition, independence between the IWG (Inter-Working Gateway) TP (Terminal Process) (also referred to as BRR, or Bearer TP) and the call control TP is provided. This feature also administers the hunting status of CICs (Call Instance Codes) for all originating and terminating ATM packet calls.

NM (Network Management) allows assignment and application of TGCs (Trunk Group Controls) to BICC groups and disallows TGCs for service groups. A new NM control, Immediate ReRoute, is introduced by this

feature and is applicable to BICC and circuit trunk groups. NM also provides one new H-interval measurement report for BICC groups (BICCMEAS). A BICC group is a trunk group that uses the BICC protocol. A BICC group has a unique TG identifier in the range, 7000 to 7999.

This feature also provides the initialization and recovery of the new CMP (Communication Module Processor) dynamic data for ATM packet calls.

The 99-5E-8018 (originally 99-5E-7554) feature interfaces with the following features:

- DNU-S STS1e interface using the Sapphire protocol (99-5E-7556),
- BICC Call Processing (99-5E-7555.A) , and
- Terminal Maintenance and SS7 and/or CCS7 Signaling (99-5E-7555.C).

All of the above features (Core VTOA) are defined and controlled by SFID 567.

1.2 FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID 567 on the SFSYS form (5713-1 Record) must be set to "Y".
- Enable the SM-2000s in the office for CIC block distribution on the CICDIST form (5217 Record). It is important for the service provider to allow as many SM-2000s as possible before any BICC group is inserted. This may improve performance though it is not required for feature assignment.
- Define a BICC group on either the TKGRP form (5202 Record) or the BICCGRP form (5216 Record). For a BICC Group defined the TGN key field and the BICC GRP field should be equal and in the range of 7000 to 7999. The BICCGRP form can also be used to provision a BICC service group.
- Define a Service TGN on the TKGRP form (5202 Record) that points to a BICC GRP. The Service TGN has no members and is defined solely for the purpose of providing the ability to differentiate services when routing over the BICC GRP.
- On the RTIDX form (5303 Record) or the MCRTIDX form (5304 Record), define a Route Index to point directly to the BICC GRP (7000 - 7999) or a Service TGN (1 - 4000) which points to a BICC GRP. There can be multiple Service TGNs pointing to the same BICC GRP. By defining multiple RTIs that point to multiple Service TGNs that point to the same BICC GRP, service providers are able to attach services to BICC Groups that are currently attached to Circuit TGNs.
- As long as there is one SM-2000 provisioned with IWG resources, the CICs can be distributed to a SM-2000 on this switch.
- The service provider determines how many CICs are needed to be inserted for each BICC GRP created on the BICCGRP form or the TKGRP form. The TOTAL CICs and a BASE CIC are specified on the CICDEF form (5218 Record). CICs are stored in blocks of 128, and are evenly distributed across the CIC enabled SM-2000 modules, specified earlier on the CICDIST form (5217 Record).

1.3 TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
BICCGRP	5216	3	2S	5.71
CICDEF	5218	3	2U	5.72
CICDIST	5217	3	2T	5.70
MCRTIDX	5304	3	3Q	10.4
RTIDX	5303	3	3P	10.2
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

BICCGRP form (5216 Record) - The Bearer Independent Connection Control Group form is used to insert, update, review and delete BICC Group translations. The BICCGRP form is added as of 5E15 Feature Release 1 to support the ATM Global Routing and Signaling feature.

CICDEF form (5218 Record) - The BICC Group CIC Definition form is used to insert, update, review and delete Packet Call Instance Codes (CICs). This form internally associates a CIC block index to the PCI (Packet Point Code Index) of the BICC GRP. In addition, a BASE CIC is provisioned for each BICC GRP. The CICDEF form is added as of 5E15 Feature Release 1 to support the ATM Global Routing and Signaling feature.

CICDIST form (5217 Record) - The Call Instance Code Distribution form is used to specify SM-2000 modules in an office for CI block distribution. The CIC Distribution form is added as of 5E15 Feature Release 1 to support the ATM Global Routing and Signaling feature.

MCRTIDX form (5304 Record) - The MCRTIDX (Modular Customization Route Index) is similar to the Route Index defined on the RTIDX form (5303 Record). The MCRTIDX form (5304 Record), however, allows additional information that is required for ARS (Automatic Route Selection) and sometimes used for PFA (Private Facility Access).

RTIDX form (5303 Record) - The RTIDX form (5303 Record) is used to define each Route Index in a 5ESS Switch. The record is intended to be used as an office record and as a source document for data entry into the RTIDX form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 567 to "Y".

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. BICC GRP field was added for 5E15 and later.

2. 7R/E PACKET SOLUTIONS 3.0n ATM TRANSPORT SOLUTION - BICC CALL PROCESSING

2.1 FEATURE DESCRIPTION

The feature number for the 7R/E Packet Solutions 3.0n ATM Transport Solution - BICC Call Processing feature is 99-5E-8018 (originally 99-5E-7555.A). This feature is made available in the 5E15 Feature Release 1 and in the BMI (Beginning Managed Introduction) of the 5E16 Software Release. Although the feature number has been changed, only the hardware used has changed. The signaling has changed from IPDC (Internet Protocol Device Control) to Sapphire.

This feature, along with features 99-5E-8018, 99-5E-8020, and 99-5E-8019 (originally 99-5E-7554, 99-5E-7556, 99-5E-7555.C, and 99-5E-7555.B) allows the switch owner to use ATM packet technology for bearer paths between switches.

SFID (Secured Feature ID) 567 is used to secure the VTOA Base functionality. When this SFID is off, outgoing BICC calls are not allowed in the routing software of the OPS (Originating Packet Switch). At the TPS (Terminating Packet Switch), SFID 567 must be on before incoming BICC IAMs (Initial Address

Messages) are processed.

The ISUP7 (ISDN User Part (SS7 trunk signaling)) Circuit Trunk is a base line (or reference point) for the functionality that is duplicated by the ATM (Asynchronous Transfer Mode) packet connection. The ATM packet connection can be set up with TRK CLASS values of either LTOLL or TTOLL.

Calls may come in on an IC trunk and go out towards another ES (Edge Switch). Other calls are routed directly from the OPS to the TPS. Interactions with query responses at the OPS may result in an IAM message going out with specialized parameter contents.

Calls coming into an EO (End Office) can be routed directly to another EO/AT (Access Tandem) switch. The ATM Packet connectivity duplicates an LTOLL circuit trunk.

For EA (Equal Access) calls, the TPS may be an Access Tandem switch. From the TPS, the call can go to the carrier on an IC trunk. This trunk configuration uses GR-394 signaling specifications on the BICC connection.

When a call is rejected by the TPS, the cause may be armed by Reroute on Release. The route chain is advanced and another far destination is chosen for the new route attempt.

The 99-5E-7555.A feature provides signaling enhancements to basic ISUP for the BICC protocol call processing functionality at the OPS switch for the following connectivity:

- IC trunk to ATM Packet.

- LTOLL trunk to ATM Packet.

- TTOLL trunk to ATM Packet.

- LATA trunk to ATM Packet.

Call processing functionality is provided at TPS switch for the following connectivity:

- ATM Packet to IC trunk.

- ATM Packet to LTOLL trunk.

- ATM Packet to TTOLL trunk.

- ATM Packet to LATA trunk.

- ATM Packet to ANNCMT trunk.

- ATM Packet to RAFDTA trunk.

- ATM Packet to INTRCPT trunk.

This feature provides UNI (User to Network Interface) 4.0 Control of ATM Packet Bearer Path where the Connection SM is different from the Control SM. The IWG software will implement the UNI 4.0 finite state machine and protocol stack. When failure events occur, causes will be sent in the BICC REL message showing the nature of the failure. Failure events may or may not involve the ATM packet. When they do, the UNI 4.0 RELEASE cause is mapped to the BICC cause.

Call processing supports Reroute on Release functionality at the OPS switch. The first attempt may go out on

an ATM Packet, but the next attempt may or may not involve an ATM packet. Call processing supports Reroute on Release functionality at the TPS switch. The first attempt is used to get the IWG SM to correspond with the chosen circuit, but the second route attempt will not have a choice for the connection SM.

An interface is provided for NM (Network Management) controls applied to BICC ATM calls. Playing an announcement for NM treatment, is done at the TPS switch. Some NM functionality applied to the call is part of feature 99-5E-7554.

Measurements are provided for BICC call processing related events. This includes collection of the counts in a 15 minute, 30 minute, and 24 hour interval. BICC related events are identified and implemented in measurements.

The 99-5E-7555.A feature provides for the BICC process to own a call record in the control SM and interface with billing software to generate the desired AMA (Automatic Message Accounting) records at the TPS switch. AMA software is enhanced to reference the ATM packet connections instead of the trunk group/member number in the AMA output. This enhancement assures that the following are done:

Charge index driven billing records at OPS or TPS switch.

Billing records specified by LATA (Local Access And Transport Area) trunks at the TPS.

Enhanced fields in CNA/CMC (Customer Name And Address Records/Customer Measurements Collection) billing records for LTOLL or TTOLL trunks.

The Call Trace mechanism describes ATM Packet connectivity when a trace is requested for the circuit end of an ATM Packet call. At the OPS switch, the circuit side will be specified and traced to the ATM bearer appearance in the IWG. At the TPS switch, the outgoing circuit side will be specified and traced to the ATM bearer path on the IWG.

The ISUP protocol monitor is enhanced to support BICC and BICC specific parameters and to display the larger values for BICC CICs.

The vfy:ofc mechanism is enhanced to report routing results for a BICC call origination. It also allows for reporting that a circuit call origination routed to a BICC Group.

This feature provides for both intra-processor and inter-processor audit operations of call processing related dynamic data. Overload and recovery actions accommodate BICC call activity.

2.2 FEATURE ASSIGNMENT

There are no special steps required to provision this feature.

2.3 TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9

MEASSUM form (5563 Record) - The MEASSUM (Measurement Collection Summary) form (5563 Record) is available with 5E11 and later Software Releases. It is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Components are defined as the entity to be measured; components can be at the end product level (AIU, DNU-S, SS7 PSU, etc.) or subassemblies (i.e.,

packs, lines, DPIDB, etc.).

3. 7R/E PACKET SOLUTIONS 3.0n ATM TRANSPORT SOLUTION - BICC TERMINAL MAINTENANCE AND CCS7 SIGNALING

3.1 FEATURE DESCRIPTION

The feature number for the BICC Terminal Maintenance and CCS7 Signaling feature is 99-5E-8019 (originally 99-5E-7555.C). This feature is available as a Software Update to the 5E15 FR2.5PSAX Software Release and is part of the 7R/E Packet Solutions 3.0n ATM Transport Solution Software Release. Feature number 99-5E-8019 retests this feature in the 7R/E 5ESS Switch environment.

This feature, along with features 99-5E-8018 (originally 99-5E-7554, 99-5E-7555.A), 99-5E-7555.B, and 99-5E-8010 (originally 99-5E-7556) allow the switch owner to use ATM packet technology for bearer paths between switches. SFID (Secured Feature ID) 567 is used to secure the VTOA Base functionality.

Unlike ISUP, BICC CICs (Call Instance Codes) do not correspond to specific hardware ports on a switch. A Call Instance Code is a software mechanism used to manage ATM packet calls that are BICC signaled. An idle CIC is allocated for use by each VTOA call, so a unique CIC is associated with each outgoing/incoming call routed via an IWG. 7R/E Packet Solutions 3.0n ATM Transport Solution only supports a maximum of 65K CICs per BICC group.

The BICC CIC maintenance feature provides the interface between the BICC protocol and BICC CIC maintenance in the 7R/E Packet Solutions 3.0n ATM Transport Solution PSM (Packet Switching Module). This feature provides the majority of the maintenance functions that currently exist on ISUP (ISDN User Part) trunks.

This feature provides the TM (Terminal Maintenance) functionalities that are needed to support the initial offering of VTOA. The TM functionalities provided are:

BICC CIC Status Administration which includes the following:

1. RMV/RST of BICC CIC. Unlike ISUP, BICC RMV/RST sends no signaling to the far-end. Additional qualifiers, other than ucl, are not allowed in the BICC RMV/RST command. The OOS (Out of Service), CADN (Circuit Administration) state is the default state for all manually removed BICC CICs. OOS, CCSINIT (CCS Initialization Process) is the state of manually restored BICC CICs until a reset message is sent. CICs are then marked IS (In-Service).
2. Query status of a BICC CIC or a group of BICC CICs.
3. Stop/Query information on BICC groups.
4. RMV/RST of BICC CIC to and from CADN.

BICC Signaling Maintenance.

1. BICC can receive group messages that contain up to 256 individual messages and send group messages that contain 128 individual messages.
2. Process incoming group messages (CGB (Call Instance Code Group Blocking Message), CGU (Call Instance Code Group Unblocking Message), GRS (Group Reset)) , RSC (Reset Circuit) messages, and unequipped CIC (UCIC) messages.

3. Send GRS messages and RSC messages.
4. Included is the maintenance functionality to enable the product to send blocking during SM (Switching Module) impairment scenarios where a large number of BICC CICs are not reachable. BICC does not support single block/unblock messages. Sends CGU when recovering from the SM impairment events.

BICC MDII (Machine Detected Inter-Office Irregularities) Reporting. BICC uses the existing MDIIs.

BICC Test Calls.

IWG Loopback Test.

Call Monitoring of BICC Groups. This includes the ability to monitor the BICC call processing messages.

4. 7R/E CCS MAINTENANCE TOOLS FOR BICC TERMINAL MAINTENANCE

4.1 FEATURE DESCRIPTION

The feature number for the 7R/E CCS Maintenance Tools for BICC Terminal Maintenance feature is 99-5E-7555.D. This feature is made available with 5E15 Feature Release 3.

This feature enhances the CCS maintenance capabilities of VTOA to include the following:

Incoming BICC circuit query.

Outgoing demand BICC CIC query.

Outgoing periodic BICC CIC query.

Provide mechanism to send blocking/unblocking messages for BICC CICs.

End-to-end and IWG loopback test calls.

Bearer Independent Call Control CIC Query is a BICC inter-office auditing mechanism that is used to check and correct (if needed) the status of one or both ends of a set of BICC CICs. It can be run periodically or on demand. BICC CIC Query (BQ) is analogous to ISUP CQ (Circuit Query Request) for BICC.

In 5E15 FR3, the BICC CIC Query provides the following enhanced BQ capabilities:

By an entire office - manually.

By a OPC/DPC - manually.

By a BG (BICC Group) - manually.

By a BGMN (BICC Group Member Number) or BGMN Range - manually.

By an entire office scheduled once daily - automatic.

There are also two ways that a running outgoing BQ can be halted:

By stopping a currently running request.

By aborting the process of the currently running task.

The automatic BICC CIC Query mechanism may be turned on and off. It is possible to query which BICC CIC Query requests are currently being run using the command, OP:JOBSTATUS. Incoming CQM (Circuit Query Message) requests are expected from the CNI and PSU. The expected reply is a CQR (Circuit Query Response) message containing the current CIC states.

4.2 FEATURE ASSIGNMENT

There are no special steps required to provision this feature.

4.3 TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1, 8.15
TKGRP	5202	3	2A	5.1

OFCOPT form (5509 Record) - This form must be completed for a 5ESS Switch and is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The subheading ISUP CKT QRY OPTIONS has been renamed ISUP/BICC QRY OPTIONS. The field, CQ START TIME has been renamed CQ/BQ START TIME for 5E15 and later.

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The field TRUNK QUERY, has been renamed CQ/BQ ALW for 5E15 and later.

5. 7R/E PACKET SOLUTIONS 3.0N ATM TRANSPORT SOLUTION VTOA CAUSE VALUE MAPPING

5.1 FEATURE DESCRIPTION

The Cause Value Mapping feature is being made available with the 5E15 Feature Release 3 Software Update. The feature number for this feature is 99-5E-7942.

Currently when a UNI (User to Network Interface) release cause value is received, its value is mapped to one of five fixed BICC cause values; due to a change in protocol standards this feature provides the following functionality:

Expands the number of BICC categories from five to six.

Provides customers the flexibility to provision UNI release cause values to specific BICC values via recent change. The default values shall be the UNI-to-BICC mapping values as they currently exist.

5.2 FEATURE ASSIGNMENT

The UNI cause values and BICC categories are mapped to the BICC cause values.

If no entry is specified by the customer, then the default values hard coded in a Call Processing code are assigned. A tuple in the relation is created when the craft assigns a non default value to one of 6 BICC categories or performs UNI-to-BICC mapping.

5.3 TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
UNI2BCAU	5589	3	5CF	8.43

UNI2BCAU form (5589 Record) - This form provides the customer with the capability to enter the desired BICC causes from the UNI release cause categories. This form is newly created to support the Cause Value Mapping feature.

6. PROCESSING BICC USER PART UNAVAILABLE

6.1 FEATURE DESCRIPTION

The feature number for the Processing BICC User Part Unavailable feature is 99-5E-7905. This feature is made available in the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

This feature allows support of the UPU (User Part Unavailable) indication from the MTP (Message Transfer Protocol) for BICC. This does not directly apply to UPU support for ISUP (ISDN User Part).

The BICC UPU feature provides the following functionalities at the 7R/E 5ESS Switch:

Send a BICC UPU in response to a BICC message received, if BICC is not provisioned - PSU (Packet Switch Unit) only.

Process a BICC UPU received, marking the remote point code unavailable for any subsequent call attempts.

If the 7R/E 5ESS Switch receives a BICC UPU indication from a point code P and later receives a valid BICC message from point code P, the BICC user part shall be marked available. The first valid BICC message and subsequent messages from point code P shall be processed appropriately by the 7R/E 5ESS Switch.

If an unsolicited UPU indication is received from a point code P, either while the 7R/E 5ESS Switch is not provisioned for BICC or while point code P is not provisioned for BICC, the UPU indication shall be dropped.

Stable calls between point code P and the 7R/E 5ESS Switch shall remain up after receipt of a BICC UPU MTP message from point code P until the call is released.

Transient calls between the 7R/E 5ESS Switch and a point code P shall be handled normally after receipt of a BICC UPU MTP message from point code P.

Unacknowledged maintenance messages and in-progress test calls between the 7R/E 5ESS Switch and a point code P shall be handled normally after receipt of a BICC UPU MTP message from point code P.

If the system has received a BICC UPU indication from a point code P, the system shall not attempt to route subsequent calls to point code P via any BICC group(s) until the user part has been marked

available.

Terminal Maintenance Interaction:

BICC CIC statuses shall not change upon receipt of a BICC UPU message from point code P.

Once a BICC UPU message has been received from a point code P, all pending and subsequent circuit query messages shall be denied until the user part is again available. Each denied message shall be reported on to the customer appropriately.

Input/Output Messages:

A ROP message shall be printed if a BICC UPU MTP message is received from point code P along with a major alarm.

A ROP message shall be printed when a point code P notifies the 7R/E 5ESS Switch that the BICC user part is available at point code P.

An input message shall be provided to display the BICC user part status to a point code P (for example, OP:UPART:PC=P;). The displayed statuses shall include normal/available, and unavailable.

An input message shall be provided to clear the BICC user part status to a point code P (for example, CLR:UPART:PC=P;), therefore marking the point code available.

6.2 FEATURE ASSIGNMENT

There are no special steps required to provision this feature.

SEC. 4A568: COMMERCIAL CREDIT CARD ALTERNATE ACCESS METHODS

1. BACKGROUND

With existing OSPS (Operator Services Position System) features, a customer desiring to bill their call to a card can provide the card number and PIN (Personal Identification Number) or 4-digit expiration date to the OSPS through either automated or operator handling. The OSPS then sends this information, along with other call information, to a database for card validation using a TCAP (Transaction Capability Application Part) query. The database responds to the OSPS with a TCAP reply containing information about the validity of the card and potentially other information. If the card is valid, the OSPS completes the call, provides an AMA (Automatic Message Accounting) record for the call, and provides sequence call handling. If the card is not valid, the OSPS provides appropriate error handling.

At least some commercial credit card vendors or card issuing banks require that additional information for card validation be obtained from the customer. The OSPS, with either automated or operator handling, collects the card number and 4-digit expiration date, and then routes the call to a card verification platform. The platform and/or other network switches complete all further processing on the call, including card validation and call routing.

2. FEATURE DESCRIPTION

The Commercial Credit Card Alternate Access Methods feature is available with the 5E14 FR3 (Feature Release). The feature number for this feature is 98-5E-7680.

This feature provides an alternative method for validating commercial credit cards. It is an alternative to the existing methods of validation using a SS7 (Signaling System 7) TCAP (Transaction Capability Application Part) query or using manual validation. This feature is not related to alternative methods of accessing an OSPS.

This feature does not affect initial OSPS call handling. Calls are routed to OSPS automated or operator handled the same as they would be without this feature. And, billing information is collected the same as it would be without this feature. This includes collection of card numbers and associated PINs or expiration dates.

If the caller requests billing of the call to a card that is type designated in OSPS data, as requiring external routing for card verification, this feature provides the call routing. Such cards are referred to as ERV (External Routing for Verification) cards. The OSPS only allows commercial credit cards in OSPS data to be designated as ERV cards.

Once all call information is collected, if the call is billed to an ERV card, and the call is being handled by an automated position or by an operator, the automated position or operator transfers the call to the OSPS system and is released from the call.

Likewise, if the call is being handled by a SAS (Service Announcement System), the SAS is removed from the call. The OSPS then routes the call without card validation to a recent changeable toll-free routing number using SS7 ISUP (Integrated Service Digital Network User Part) signaling. The card number and PIN or expiration date and other call information are included in the signaling. During the routing, the calling party is split from the connection so that any network noise or announcements can not be heard.

The call is expected to be routed through a toll switch which passes the call information to a card verification platform using Q.931 signaling. When the platform receives the call, it is expected to return "answer". Upon receiving "answer", the OSPS unsplit the calling party. The platform then requests any additional required information from the caller and validates the card.

If the card is not valid, the platform provides appropriate error treatment including an announcement. If reprompting is provided, only card types that can be validated by the platform can be accepted. If the card is still not valid, the platform provides a billing record for an uncompleted call, if appropriate, and releases the call.

If the card is valid, the platform completes the call. The call is expected to remain "hairpinned" through the card verification platform.

If the called party disconnects first, the platform provides TRD (Timed Release Disconnect) timing. When TRD expires or the calling party disconnects, whichever occurs first, the platform provides the billing record for the call and releases the call back to the OSPS.

If the OSPS receives a "release" from the terminating connection after "answer", and prior to "calling party release", it does not do TRD timing but instead makes an AMA record for a completed call to the platform's toll-free routing number, and releases the originating connection. The same treatment is provided independent of the call disposition at the platform - invalid card, unanswered call, answered call(s), etc. The OSPS does not accept a "#" for a sequence call.

If the calling party disconnects first, the OSPS detects this, releases the terminating connection, and makes an AMA record for a completed call to the platform's toll-free routing number. The OSPS does not time for flashes even if the call is originated on an operator trunk with operator hold. Any calling party on-hook longer than a "hit", is treated as a disconnect. Upon receiving calling party release, the platform releases the connections and makes an appropriate billing record.

If sequence call handling is provided, it is provided by the card verification platform. That is, after the platform routes the call, it monitors for "#" while awaiting answer and also monitors for "#" during TRD timing. If the caller enters a "#", the platform collects a new called number, revalidates the card, and sets up a new call. The OSPS is unaware of the sequence call.

Because call control does not return to the OSPS after card validation, no features requiring OSPS service after call routing can be applied to the call. This includes personal service, T&C (Time and Charges) service, Quantum service, DACC (Directory Assistance Call Completion), and prompting or routing for VMS (Voice Messaging Service). The OSPS treats an ERV card as an unrecognized card type on automated Quantum calls and does not allow an operator to enter an ERV card on a Quantum call. It also specifically disallows a person and T&C service on calls billed to ERV cards. The OSPS does not indicate in the outgoing signaling that it is available for DACC and does not monitor for VMS service requests.

Also, because the call must be routed from the platform after card validation, the call cannot have been routed to a called party from the OSPS prior to routing to the platform. An operator is not allowed to enter an ERV card after the call has been routed to the called party. This situation could occur either because the operator manually routed the call or because the call was originally billed as collect and the called party requested an operator. Similarly, if the current billing method is an ERV card, the operator is not allowed to manually route to the called party.

Automated inward validation of commercial credit cards is not allowed even without this feature. This feature prevents operator entry of ERV cards on operator-handled inward seizures as well, because the call would not return to the operator if it were routed for external verification.

Because OSPS does not allow a transfer of an operator-initiated call, billing of operator-initiated calls to ERV cards is not allowed.

3. FEATURE ASSIGNMENT

The provisioning of this feature is as follows:

Set the ACT fields for SFID 568 on the SFSYS form (5713-1 Record) to "Y".

NOTE: If this feature is not active, calls are processed as it would without this feature, except if a card designated with an ERV signaling type is entered. If a card with an ERV signaling type is entered while the feature is inactive and all checks pass such that a validation query would be sent, no query shall be sent but instead the card shall be treated as if a "deny-ineligible CCC card" reply had been received in reply to a CAS validation query.

The craft can prevent this situation from occurring by activating the feature prior to specifying an ERV signaling type and, if it is necessary to deactivate the feature, by removing the ERV signaling type prior to deactivating the feature.

Set the ACT fields for OFID 974 on the FOSYS form (5713-2 Record) to "Y".

For 5E14 and later, on the FTPARM form (6424 Record), set the VER ROUTING NBR field to a valid value.

For 5E15 and later, on the TCCATTR form (5473 Record) or the FTPARM form, set the VER ROUTING NBR field to a valid value.

NOTE: The last two items are set when the SIGNALING TYPE is "ERV".

3.1 Call Scenario

1. Caller reaches an OSPS by dialing 1-800-CALLATT, 0+, 01+, 0-, 00-, appropriate number from overseas for a DIOR (Direct International Originations) call, etc.
2. OSPS, an ASP (Automated Position System), or an operator provides standard initial processing.
3. Caller/operator enters called number (if not entered during initial dialing as with a 0+ call) and enters a card number with a PIN or expiration date.
4. OSPS recognizes the card number entered as a card type requiring routing to an external platform verification.
5. If an operator or APS is handling the call, they transfer the call to the OSPS switch when the back number, called number, card number, and expiration date are available.
6. The OSPS splits the caller so they cannot hear or be heard.
7. The OSPS routes the call to the appropriate routing number for the card verification platform. Included in the outgoing IAM (Initial Address Message) are the back number, original called number, card number, and card expiration date.
8. The card verification platform interacts with the caller to collect any additional information required to validate the card, and then validates it.
9. If it is valid, the platform routes the call and provides the billing record.
10. Upon call completion OSPS generates a standard toll-free AMA record.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
FTPARM	6424	3	4DY	8.41
TCCATTR	5473	3	4BY	27.56
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) IDs for Special and Transparency Features. To activate this feature set the ACT field for OFID 974 to "Y".

FTPARM form (6424 Record) - This form provides the capability for specifying, updating, and/or verifying OSPS (Operator Services Position System) feature options. Added the VER ROUTING NBR field.

SFSYS form (5713-1 Record) - This form is used to enable secured features. To activate this feature the ACT field for SFID 552 must be set to "Y" on this form.

TCCATTR form (5473 Record) - This form defines the attributes for a card type. It is used to group a set of card attributes together so that particular groups of attributes can be associated with a particular card or cards that are identified via the Card Identification Tables. Added the VER ROUTING NBR field and associated data rules.

SEC. 4A569: VOICE TELEPHONY OVER ATM ASYNCHRONOUS TRANSFER MODE LOCAL SERVICES

1. FEATURE DESCRIPTION

The VTOA LS (Voice Telephony Over ATM Asynchronous Transfer Mode Local Services) feature, feature number 99-5E-8020, allows end-users to place voice calls over ATM packet networks. This feature is available with 5E15 and later software releases. It is transparent to end-users; end-users are given no indication that their calls are going over ATM packet networks. VTOA applies to public network inter-switch calls only; intra-switch calls are not affected. This feature extends the call processing capabilities provided by the VTOA Call Processing using PSAX as IWG (Inter Working Gateway) feature (99-5E-8018). This feature adds support for line and certain trunk originated calls.

A call originating from a circuit line or trunk first goes through existing 5ESS switch digit analysis which yields a route index. When this route index is marked with a BICC (Bearer Independent Call Control) trunk group number, the call is routed over ATM packet networks. When the route index is marked with a circuit trunk group number, the call is routed over a circuit trunk using the existing procedure.

Incoming ATM packet calls are also supported by the VTOA LS feature. These incoming packet calls are allowed to encounter terminating feature(s) on the VTOA. Incoming packet calls may terminate locally on the VTOA, or they may be redirected to another switch as a result of terminating feature invocation such as Call Forwarding, Call Transfer, or Terminating Access Trigger. Incoming ATM packet calls that are redirected to another switch by another feature may, in some cases, be allowed to complete over ATM packet networks (ATM-to-ATM routing) wherever possible, or they may go over circuit trunks (ATM-to-Circuit routing). This feature is secured with secured feature ID 569.

1.1 ORIGINATING LINE TREATMENT

The following originating line classes of service are supported by this feature:

10PTY	ten-party line
2PTY	two party MFR line
4PFS	four-party fully selective line
4PSS	four-party semi-selective line
4WIRE_INDV	four wire individual line
5PTY	five-party line
8PSS	eight-party semi-selective line
ATTENDANT	attendant line
CHGACALL	charge-A-call phone
COIN	coin phone
HOTMOTL	special line termination at hotel or motel equipment
INDVDL	individual line

ISATND	ISDN attendant line
ISDN	Integrated Services Digital Network line
PBX	line to a Private Branch Exchange
TWOPTY	two-party line
PBXHOTMOT	special PBX line termination to hotel or motel equipment

Calls originating from a line with an non-supported class of service utilize circuit routing.

1.2 ORIGINATING TRUNK TREATMENT

The following originating trunk classes of service are supported by this feature:

PF	BRCS Private Facility trunk
PFLASH	BRCS Private Facility Flash Repeating trunk
PFITT	BRCS Private Facility Inter-tandem trunk
EDSL	EDSL trunk
EDSLHM	EDSL trunk with hotel/motel to TSPS

Calls originating from a trunk with an non-supported class of service utilize circuit routing.

1.3 TERMINATING LINE TREATMENT

The following terminating line classes of service are supported by this feature:

10PTY	ten-party line
2PTY	two party MFR line
4PFS	four-party fully selective line
4PSS	four-party semi-selective line
4WIRE_INDV	four wire individual line
5PTY	five-party line
8PSS	eight-party semi-selective line
911	emergency bureau line
ATTENDANT	attendant line
CHGACALL	charge-A-call phone
COIN	coin phone

HOTMOTL	special line termination at hotel or motel equipment
INDVDL	individual line
ISATND	ISDN attendant line
ISDN	Integrated Services Digital Network line
PBX	line to a Private Branch Exchange
TWOPTY	two-party line
PBXHOTMOT	special PBX line termination to hotel or motel equipment

A call routing over an ATM attempting to terminate to a line with a non-supported class of service receives no circuits available treatment.

1.4 TERMINATING TRUNK TREATMENT

The following terminating trunk classes of service are supported by this feature:

AIS	Automatic Intercept System trunk
ANNCCMNT	Local announcement trunk
PF	BRCS Private Facility trunk
PFLASH	BRCS Private Facility Flash Repeating trunk
PFITT	BRCS Private Facility Inter-tandem trunk
EDSL	EDSL trunk
EDSLHM	EDSL trunk with hotel/motel to TSPS
PBXDID	Private Branch Exchange inward dialing

A call routing over an ATM attempting to terminate to a line with a non-supported class of service receives no circuits available treatment.

2. TRANSLATION REQUIREMENTS

To activate this feature, ACT must be "Y" for SFID 569 and 567. No further translations are required to provision this feature. This feature requires a BICC group. Please refer to Division 2, Section 4A567 for translation requirements of BICC groups.

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - The Secured Feature System Assignment form is used to activate secured features. This feature is activated by setting the ACT field for SFIDs 569 and 567 to "Y".

SEC. 4A570: Proxy Database Phase 1 - Recent Change and SQUAL

1. FEATURE DESCRIPTION

Available with 5E15 and later Software Releases, the Recent Change and SQUAL component of the Proxy Database Phase 1 feature (99-5E-7127) impacts the Recent Change interface only. It is secured with SFID 570 and along with the Proxy Database component, SFID 539, provides enhanced performance and increased speed of Recent Change operations, read, verify and query.

Also, a high speed generalized RC (Recent Change) query capability for the RC database using SQUAL is implemented. Further information can be found in the RC Procedures Manual, 235-118-251.

2. FEATURE ASSIGNMENT

This feature cannot be assigned using ODA. This feature can only be assigned by using Recent Change to activate SFID 570.

When SFID 570 is activated, the following SFIDs must also be activated:

297 - ASM (Administrative Services Module) Base feature (99-5E-4237). Refer to Division 2 Section 4A297 for further information on this feature.

539 - Proxy Database Phase 1 - Proxy Database (99-5E-7127). Refer to Division 2 Section 4A539 for further information on this feature.

322 - Recent Change Front End on the ASM (99-5E-4095). Refer to Division 2 Section 4A322 for further information on this feature.

3. TRANSLATION REQUIREMENTS

There are no ODA translation requirements for this feature.

SEC. 4A571: Proxy Database Phase 1 - User Defined Database

1. FEATURE DESCRIPTION

Available with 5E15 and later Software Releases, the User Defined Database component of the Proxy Database Phase 1 feature (99-5E-7127) enables data storage in a user defined database which resides on the ASM (Administrative Services Module). Access to user defined data is accomplished through the implementation of an SQL (Structured Query Language) interface over a TCP/IP based network. This component of the Proxy Database Phase 1 feature is secured with SFID 571. There is does no impact to ODA.

2. FEATURE ASSIGNMENT

This feature cannot be assigned using ODA. This feature can only be assigned by using Recent Change to activate SFID 571.

When SFID 571 is activated, SFID 297 for the ASM (Administrative Services Module) Base feature (99-5E-4237) must also be activated. Refer to Division 2 Section 4A297 for further information on this feature.

3. TRANSLATION REQUIREMENTS

There are no ODA translation requirements for this feature.

SEC. 4A572: ASP Unrestricted FCD Trigger

1. BACKGROUND

This feature applies to the 5ESS Switch, 5ESS Switch CDX (Compact Digital Exchange) and the 5ESS Switch VCDX (Very Compact Digital Exchange). It does not apply to the 5ESS LDP (Long Distance Platform). Before this feature, the existing FCD trigger is "restricted" in the sense that it can only be encountered from lines and PF (Private Facility) trunks that have an ASP originating feature assigned. It is beneficial for service providers to have, in addition to the existing restricted version of the FCD trigger, an "unrestricted" FCD trigger where assignment becomes unnecessary.

2. FEATURE DESCRIPTION

Available with 5E15 and later Software Releases, the ASP Unrestricted FCD Trigger feature, feature number 99-5E-7618, allows every line/PF-trunk in a Public Office Dialing Plan to access AIN services made possible by unrestricted FCD triggers. In addition, the feature provides the capability of blocking selected (unrestricted FCD) triggers by those users who show no interest in using specific services and do not want to access them by inadvertently dialing the trigger code. The types of line/PF-trunk that can originate calls to Unrestricted FCD triggers are the same as those that can be provisioned to originate calls to encounter the (existing restricted) FCD triggers. However, unlike the existing restricted FCD trigger, the Unrestricted FCD trigger will not be recognized if the protocol associated with the trigger is ASP Rel 0.

3. FEATURE ASSIGNMENT

For 5E15 and later, to enable this feature, the ACT field for SFID 572 on the SFSYS form (5713-1 Record) must be set to "Y".

SFSYS form:

- SFID 126 for ASP feature and SFID 572 must both be set to "Y".

PDIT form:

- FEATURE = /*
- CALL TYPE = FEATURE
- ACTION = ASPDNC, ASPNORM, or ASPVAR
- TRIG NUM must be entered and must match a corresponding TRIG NUM on the NSTRIG form where APPLICATION = ASP and AIN REL is ROD1

LINE form, MLHLN form, DSLUSR form, TKGRP form:

- If URT FCD BLK is set to "Y", then this TN, CKTTN, MLHG TN, or TGN cannot invoke an FCD code. If URT FCD BLK is set to N, then individual FCD codes can be blocked for this TN/CKTTN on the LNBLKCOD form and for the PF trunk group on TKBLKCOD form.
- In addition, TRKCLS on the TKGRP form must be set to "PF", "PFITT", or "PFLASH".

Refer to Figure 1 for provisioning form flow.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908	5	1I	23.2
LINE	5109	3	1I	1.6
LNBLKCOD	5649	4	31H	4.40
MLHLN	5111	3	1K	1.6
PDIT	5300-2	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22
TKBLKCD	5275	3	2X	5.65
TKGRP	5202	3	2A	5.1

DSLUSR form (5908) - The 5908 Record is used to collect data for digital subscriber lines. For 5E15 and later, added the URT FCD BLK and BLK LN CODE fields.

LINE form (5109-1) - The 5109-1 Record is used to create all line records with Telephone Numbers. For 5E15 and later, added the URT FCD BLK and BLK LN CODE fields.

LNBLKCOD form (6949) - The 6949 Record provides analog and ISDN circuit TNs the capability of blocking selected (unrestricted FCD) triggers by those users who show no interest in using specific services and do not want to access them by inadvertently dialing the trigger code. This is a new form for 5E15.

MLHLN form (5111) - The 5111 Record is used to create MLH Line Members. For 5E15 and later, added the URT FCD BLK and BLK LN CODE fields.

PDIT form (5300-2 Record) - This form is used for defining and modifying prefix, operator and feature access dialing codes. For 5E15 and later, changed the data rules that support the "ASPDNC", "ASPNORM", and "ASPNORM" enumerations for the ACTION field.

SFSYS form (5713) - The 5113 Record is used to enable secured features. Added SFID 572.

TKBLKCD form (5275) - The 5275 Record provides private facility trunk groups the capability of blocking selected (unrestricted FCD) triggers by those users who show no interest in using specific services and do not want to access them by inadvertently dialing the trigger code.

TKGRP form (5202) - The 5202 Record used to define each Trunk Group in a 5ESS Switch. For 5E15 and later, added the URT FCD BLK and field.

5. GLOSSARY

ASP	Advanced Services Platform
FCD	Feature Code Dialing
ISDN	Integrated Services Digital Network
PF	Private Facility
SFID	Secured Feature ID
TN	Telephone Number

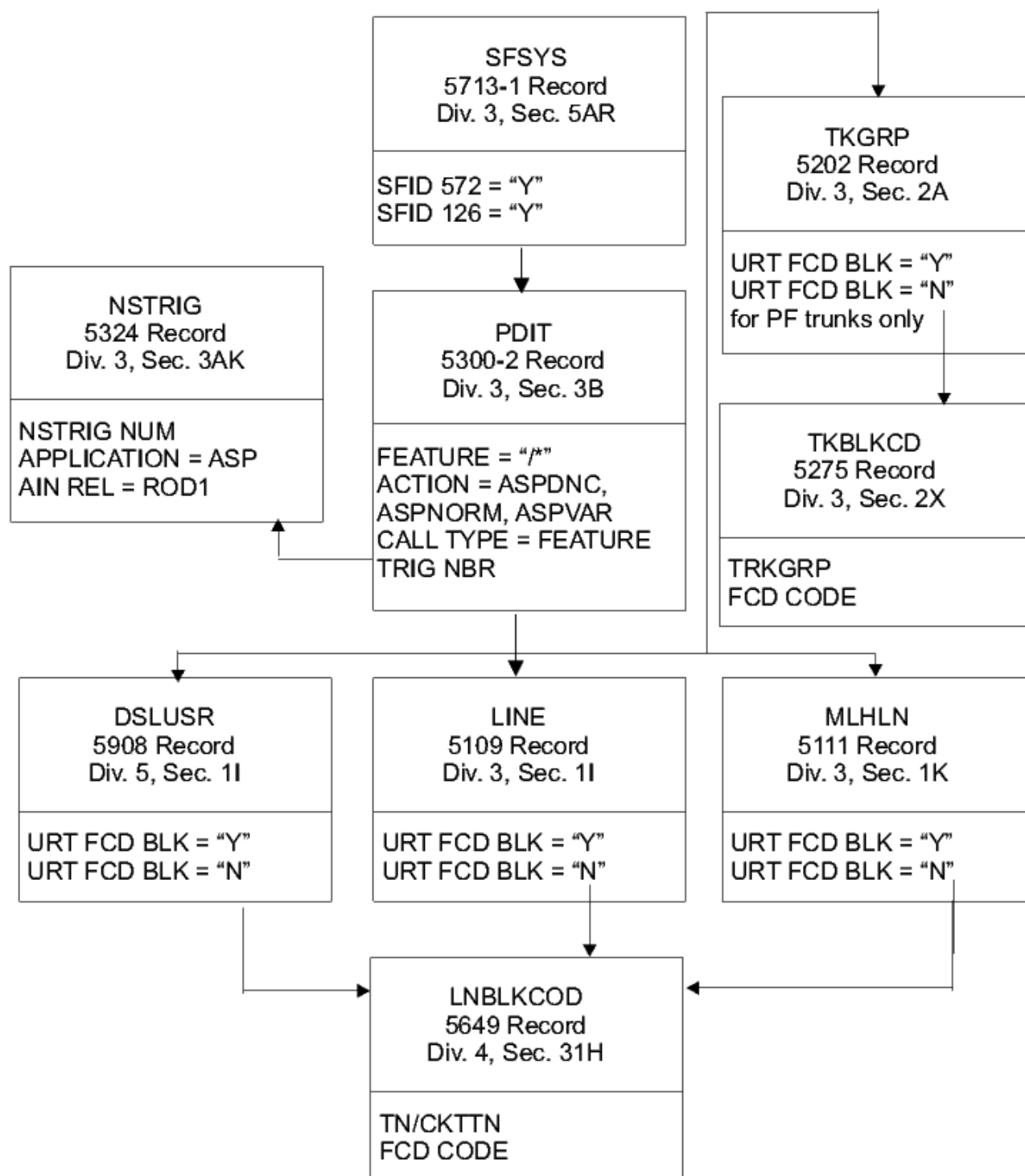


Figure 1 FORM FLOW FOR ASP UNRESTRICTED TRIGGER

SEC. 4A573: NON-RESTRICTIVE ANI OVER PRIVATE FACILITIES

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions*.

SEC. 4A575: LTSB INTERWORKING WITH HOME INTERCOM

1. FEATURE DESCRIPTION

The feature number for the LTSB (Line Time Slot Bridging) Interworking with Home Intercom feature is 99-5E-7178. This feature is controlled by SFID (Secured Feature ID) 575 and is made available with 5E15 Feature Release 2 and in the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

LTSB allows OTC (Operating Telephone Companies) to offer business and residential customers an off-premise extension for a single DN (Directory Number) (one-DN LTSB) or bridging of two DNs (two-DN LTSB).

The LTSB Interworking with Home Intercom feature allows either the lead or the non-lead line of a one-DN LTSB to invoke a Home Intercom/Single Line Variety Package service.

The Home Intercom/Single Line Variety Package includes:

Basic Home Intercom allows a user to dial their own DN and hang up after receiving the busy tone. After the phone is hung up, the switch applies the distinctive ringing pattern to the 1-DN LTSB extensions on both lines.

Home Intercom Code Dialing allows a user to dial a HI (Home Intercom) code instead of dialing their own DN to generate ringing on the 1-DN LTSB extensions on both lines.

Selective Intercom Dialing allows users to make a Home Intercom call with one of four distinctive ringing patterns (ringing pattern A, B, C, or G) by dialing a dial code which corresponds to the desired ringing pattern.

Selective Call Transfer allows a user with an established call to an outside party to alert another user on the same line to take the call.

Dialable Hold allows users to place an outside call on hold, go on-hook, and then retrieve it from the same or another extension on that same line.

The switch need only recognize flashes, for Home Intercom services, from either the LTSB Lead or Non-Lead line only when one of the lines is off-hook and the other is on-hook and idle.

If Dialable Hold has been invoked by either the Lead or Non-Lead line and either of these lines goes off-hook prior to the switch applying Dialable Hold ring-back, the following happens:

If the line that goes off hook is the line that invoked Dialable Hold, the switch establishes a connection between the held party and the LTSB line.

If the line that goes off hook is not the line that invoked Dialable Hold, the switch does not establish a connection between the held party and the LTSB line, but instead gives the line busy tone to indicate that the other line is busy and cannot be bridged on.

When an LTSB line answers the ringback from a SCT (Selective Call Transfer), it becomes the "controller" of the SCT. If the LTSB SCT controller, while in private consultation, is barged in on by the other LTSB line and the controller disconnects, the disconnect is treated as a flash leaving the LTSB line that barged into the call connected to the external party. In addition, only the LTSB SCT controller can end private consultation with a flash, a flash from the other LTSB line is ignored.

Recent Change allows an LTSB line to be assigned a Home Intercom feature. Recent Change also allows a line with a Home Intercom feature to be made an LTSB line(s). This feature is not available to two-DN LTSB lines.

This feature (99-5E-7178) depends on the IBDS (Internally Bridged Dual Service) Package 3 feature (99-5E-4184) (SFID 280).

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFIDs 280 and 575 on the SFSYS form (5713-1 Record) must be set to "Y".
- Activate/deactivate LTSB/HI feature for a line by assigning a Home Intercom feature to a line using either the LINEFA, BFG, or the CLUSTR form.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
BFG	5625	4	26A	12.9
CLUSTR	5600	4	1A	12.2
LINE	5109	3	1I	1.6
LINEFA	5112	3	1L	1.8,1.11
SFSYS	5713-1	3	5AR	8.22

BFG form (5625 Record) - The BFG (BRCS Feature Group Construction) form is used to specify and construct BFGs for use when assigning subscriber features to analog lines or ISDN (Integrated Services Digital Network) terminals. The BFG form is designed to assist the switch owner in the conservation of Switching Module memory and the improvement of Recent Change response time, and it cannot be used with trunks.

CLUSTR form (5600 Record) - The CLUSTR form defines a cluster of BRCS (Business and Residence Custom Services) feature names.

LINE form (5109 Record) - The LINE form defines the Office Equipment Number and features for each TN (Telephone Number) in a 7R/E 5ESS Switch.

LINEFA form (5112 Record) - The LINEFA form assigns up to 48 BRCS (Business and Residence Custom Services) Features to a specific customer Telephone Number.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFIDs 280, and 575 to "Y".

SEC. 4A577: PER USE TWC THREE WAY CALLING WITH CALL TRANSFER

1. BACKGROUND

The originator of a three way call controls the call. Without the Per Use TWC (Three Way Calling) With Call Transfer feature, when a three way call is established using a USTWC (Usage Sensitive Three Way Calling) feature, the originator must remain on the call in order to maintain the connection between the other two parties. Once the originator disconnects from the call, all parties are disconnected.

2. FEATURE DESCRIPTION

The Per Use TWC with Call Transfer feature, feature number 99-5E-7502, enhances the capabilities of existing USTWC features by providing a transfer option. This allows the controller of a per use or usage sensitive three way call to disconnect while leaving the other two parties connected on the call. Existing USTWC features which are supported include:

Access Code USTWC (99-5E-1230)

SUSTWC (Spontaneous USTWC) (99-CP-2530)

Access Code Option For Spontaneous USTWC (99-5E-4381)

These existing features provide Per Use Three Way Calling capability. The transfer option, provided by the Per Use TWC with Call Transfer feature, transfers call control from the originator to one of the remaining two parties when the originator disconnects during a Per Use Three Way call.

NOTE: The original controller continues to be billed until all parties disconnect.

End users for this feature would typically be residential or small business subscribers. Coin lines and Charge-A-Call lines are not supported by this feature. The end users' CPE must have switch hook flash capability. The controller can accomplish a transfer when:

at least one of the two remaining party's phone lines resides in the same 5ESS Switch as the controller's phone line, or

the controller was called by the first remaining party using an incoming trunk to the 5ESS Switch serving the controller's phone line.

Though, it cannot always be known whether remaining parties are connected using lines or trunks.

This feature enhancement is available with 5E15 and later releases. It is secured with SFID 577. This feature requires at least one other USTWC feature to be active.

3. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID 577 on the SFSYS form (5713-1 Record) must be "Y".
- The ACT field for either SFID 106 or SFID 156 on the SFSYS form must be "Y"
- Assign to an individual line using the LINE form (5109 Record):
 - USTWC ALW XFER must be "Y", and
 - USTWC ALW or SUBSCR USTWC must be "Y".
- Assign to a multiline hunt line using the MLHLN form (5111-1/2/3 Record):

USTWC ALW XFER must be "Y", and

USTWC ALW or SUBSCR USTWC must be "Y".

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.6
MLHLN	5111-1/2/3	3	1K	1.6
SFSYS	5713-1	3	5AR	8.22

LINE form (5109 Record) - The LINE form is used to define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch. The USTWC ALW XFER field has been added.

MLHLN form (5111-1/2/3 Record) - The MLHLN form is used to define the individual Terminal Numbers that are assigned to a particular MLHG (Multiline Hunt Group). The USTWC ALW XFER field has been added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 577 to "Y".

SEC. 4A578: VISUAL CALL PICKUP

1. BACKGROUND

Currently, the Call Pickup feature is provided by two separate modular features, CPUO (Call Pickup Originating) and CPUT (Call Pickup Terminating). A customer can subscribe to either one or both features.

The CPUO feature allows a station user to answer a call that has terminated (i.e., ringing/alerting) to another station in the defined call pickup group. A pickup group is a number of subscribers that share the same pickup queue. Here, the terms group and queue are synonymous. Both analog and ISDN (Integrated Services Digital Network) terminals can belong to the same pickup group. A call pickup is accomplished by dialing a pickup access code or pressing a call pickup feature button while the called station is being rung. If more than one station/call in the group is being rung, the call that has been ringing the longest is picked up first. Once a call is picked up, the ringing on the original called station stops and the call is dequeued from the call pickup queue. The CPUO is a per terminal feature. A terminal can subscribe up to a maximum of 4 pickup groups/queues each with its own access code or feature button.

The CPUT feature allows a call terminated to a station to be picked up by another station user in the same defined call pickup group. The CPUT is a per DN (Directory Number) feature. When a call terminates to a station with CPUT feature, the station starts ringing, as well as, the call is placed in the pickup queue so that other group members can pick up the call while the call is ringing. When the call is picked up by another member, the ringing stops and the call is dequeued from the pickup queue.

The CPUO feature is defined in PUOFD form. The CPUT feature is defined in the PUTFD form. The Call Pickup Line Parameters for both CPUO and CPUT are defined in PULPA and PUMPA forms. The CPUO and CPUT feature attributes for a line can also be defined in the DSL and DSLUSR forms and in the BFG form. The Call Pickup features (CPUO and/or CPUT) are assigned to a line on the LINEFA form.

The Visual Call Pickup feature is being implemented as an enhancement to the existing Call Pickup features.

2. FEATURE DESCRIPTION

The feature number for the Visual Call Pickup feature is 99-5E-2551. This feature is an ISDN only feature. This feature is controlled by SFID (Secured Feature ID) 578 and is made available with 5E15 Feature Release 2 and in the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

The Visual Call Pickup feature allows ISDN users with call pickup feature buttons to have their terminal notified whenever there are calls ringing in their pickup groups/queues that they are allowed to pickup. Once the terminal is notified, the pickup feature button lamp starts flashing at the ISDN station. The ISDN station user can then press the feature button or dial the access code to pickup the call. Once a call is picked up, the original called station for that call stops ringing.

When there are no calls ringing in the call pickup group/queue another de-notification is sent to the ISDN stations to turn the feature button lamp off.

The call pickup notifications will only be sent to the ISDN terminals (Custom and National) in the pickup group. No visual notification is sent to analog stations. However, visual notifications will be sent to ISDN stations for calls ringing on any other terminal (analog or ISDN), and visually notified calls can be picked up by any other terminals (analog or ISDN) within the pickup group.

Since an ISDN station can have up to 4 pickup feature buttons, up to 4 notification options may be assigned, one for each pickup group/queue that the station may pick up from. That is, notification messages to turn the feature button lamp on or off will be on a per pickup group/queue basis.

The Visual Call Pickup feature applies to Call Pickup Originating feature that has a Call Pickup Queue associated with it. The VCP feature does not apply to Directed Call Pickup with/without Barge-In features.

3. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID and 578 on the SFSYS form (5713-1 Record) must be set to "Y".
- The fields, NOTIFY 1, NOTIFY 2, NOTIFY 3, and NOTIFY 4 must be set to "Y" on the PULPA, or PUMPA forms.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PULPA	5605-3	4	6C	1.23
PUMPA	5605-4	4	6D	1.23
SFSYS	5713-1	3	5AR	8.22

PULPA form (5605-3 Record) - The PULPA form is used to define specific parameters assigned to every non-Multi-Line Hunt Group line associated with a specific constructed call pickup feature. The NOTIFY 1, NOTIFY 2, NOTIFY 3, and NOTIFY 4 fields have been added.

PUMPA form (5605-4 Record) - The PUMPA form is used to define specific parameters assigned to every Multi-Line Hunt Group line associated with a specific constructed call pickup feature. The NOTIFY 1, NOTIFY 2, NOTIFY 3, and NOTIFY 4 fields have been added.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 578 to "Y".

SEC. 4A579: TALKING CALL WAITING WITH CALLER ID

1. FEATURE DESCRIPTION

The feature number for the Talking Call Waiting with Caller ID feature is 99-5E-7728. This feature is controlled by SFID (Secured Feature ID) 579 and is being deployed in the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

This feature is an enhancement to the base Talking Call Waiting feature (99-5E-4605) that is controlled by SFID 331. For more information on the base feature see Division 2, Section 4A331.

This capability (99-5E-7728) provides the subscriber the voiced name of the call waiting party even if the caller ID information was provided to the subscriber. Without this feature, the voiced name is provided via TCW only if the ACK (acknowledgement) was not received from the CPE (Customer Premise Equipment). If the ACK was not received from the CPE, the caller ID information is not sent to the subscriber.

2. FEATURE ASSIGNMENT

To provision this feature:

- Set the ACT fields for SFID 331, to "Y" on the SFSYS form (5713-1 Record) to activate the base Talking Call Waiting feature.
- Set the ACT fields for SFID 579 to "Y" on the SFSYS form (5713-1 Record) to activate the Talking Call Waiting with Caller ID feature.

There are no new forms or new fields added for this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 331, SFID 579 to "Y".

SEC. 4A584: AIN OPERATOR SERVICES TRIGGER

1. FEATURE DESCRIPTION

The feature number for the AIN (Advanced Intelligent Network) Operator Services Trigger feature is 99-5E-7517. This feature is controlled by SFID (Secured Feature ID) 584 and is being deployed for the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

This feature applies to the 5ESS Switch, 5ESS CDX (Compact Digital Exchange) Switch, the 5ESS VCDX (Very Compact Digital Exchange) Switch, and the 7R/E PLS 4.0 Platform. This feature is not supported on the 5ESS LDP (Long Distance Platform).

Currently, the 5ESS Switch does not have the mechanism to allow operator requested calls (0- and 0+ calls) to encounter a true Operator Services trigger as defined in GR-1298-CORE. With the absence of this true Operator Services trigger, service providers have been simulating this trigger for "0-" operator requested calls by using a DNT (Dialed Number Trigger). This simulated trigger processing however, does not support the Operator Services Trigger processing defined in GR-1298-CORE. That is, it does not provide a unique Trigger Criteria type in the message that is sent from the SSP (Service Switching Point) to the SCP (Signaling Control Point). This work-around also does not support the "0+" operator requested calls.

The purpose of this feature is to provide an Operator Services Trigger as defined by Telcordia GR-1299-CORE. Operator Services Triggers are encountered based on a prefix dialed by the customer before the main digit string, or based on the Nature of Number field of the Called Party ID parameter returned in an SCP/Adjunct Response message. There are two new Trigger Criteria types, ZeroPlus and ZeroMinus. The new trigger is detected via a trigger number on the PDIT form. The switch allows this trigger number to be provisioned only for Operator type calls. A call is considered an Operator Services type call if either the PREFIX field on the PDIT form is "0+", or the CALL TYPE field is "OPER" or "IDDDOPER".

This feature does not support the detecting of OS triggers on incoming ISUP trunks. This feature only encounters OS Triggers on line originations and line-like trunk originations. This feature is applicable only to those offices which have unlocked ASP (Advanced Services Platform) Rel 0.1B.

Typically, the end user for this feature is a telephone caller that has placed a telephone call with 0- or 0+ prefix and has encountered an OS Trigger in the SSP. The caller may then be offered an AIN service or an AIN service may be provided on the caller's behalf by the service provider.

This feature does not limit calls that encounter OS triggers to be routed to operator service trunks only. This feature supports any routing that the SCP instructs the SSP to do via the Analyze_Route message. Therefore, it is possible for services to be built where routing is to a line termination, a PF trunk, IC trunk, etc.

Line owners can subscribe to alternate operator services (i.e., OS services other than the traditional OS service given by their Service Provider). In addition, the line owner can subscribe to alternate operator services based on Time of Day or Day of Week. The OS triggers in the SSP are office wide and are not on a subscription basis. Therefore, the subscription data would reside in the SCP. When a caller originates a 0-/0+ call from an SSP office that has this feature unlocked and the OS Trigger active, the SSP sends a query to the SCP for further instructions when the OS Trigger is encountered.

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT fields for SFID 584 and either SFID 254 or 256 on the SFSYS form (5713-1 Record) must be set to "Y".
- The OS TRIG INH field on the SCRDXPA form (5543 Record) can then be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PDIT	5300-2	3	3B	9.2
SCRDXPA	5543	3	5AQ	8.24
SFSYS	5713-1	3	5AR	8.22

PDIT form (5300-2 Record) - This form is used to define the Prefix/Feature Digit Interpreter in a 5ESS Switch. A new field PREFIX TRIG NBR is added for 5E16 and later.

SCRIDXPA form (5543 Record) - This form is used to assign parameters to a line or trunk on a per screening index basis. A new field OS TRIG INH is added for 5E16 and later.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 584 and either 254 or 256 to "Y".

SEC. 4A585: FURNISH AMA RECORDING FOR ABANDONED STOR CONNECTIONS

1. FEATURE DESCRIPTION

The feature number for the Furnish AMA (Automatic Message Accounting) Recording for Abandoned STOR (Send to Outside Resource) Connections feature is 99-5E-7787. This feature is controlled by SFID (Secured Feature ID) 585 and is being deployed in the 5E15 FR2 (Feature Release 2) Software Release.

This feature provides a slightly different AMA recording mechanism than the one provided in the ASP (Advanced Services Platform) AMA Recording for Abandoned STOR Connections feature (99-5E-7404). Instead of an AMA record with a "dummy" AMASlpID value of 900000050, which depends on a receipt of an AMAMeasure parameter, this feature provides an "abandoned" AMA record independent of the presence of an AMAMeasure parameter. When this feature is unlocked, the presence of the AMASlpID and the absence of the AMAMeasure parameter cause an AMA record to be generated with the received AMASlpID value. In addition, other AMA parameters which were received with the STOR message are also recorded, (e.g., AlternateBillingIndicator, Furnish_AMA data, etc.). For more information on the ASP feature (99-5E-7404), see Division 2, Section 4A534.

This capability (99-5E-7787) produces an AMA record for a STOR connection when the caller abandons during the IP (Internal Protocol) operation when the STOR message contains an AMASlpID but does not contain an AMAMeasure parameter.

The AMA record contains the AMASlpID provided in the STOR message, and records other AMA-related parameters included in that message. In addition, the duration of the IP connection is measured and recorded in a module 290, appended to the base AIN (Advanced Intelligent Network) structure.

AMA OSs (Operating Services) should be able to accept an AIN AMA record with a 0-duration connect time, an arbitrary AMASlpID values (e.g. not the 900000050 "dummy" value used by 99-5E-7404 for abandoned calls), and a module 290 appended, as well as other "normal" AIN AMA tables and modules, including those provided by the Furnish AMA capability.

AIN SCPs (Service Control Points) should be able to support sending the Furnish_AMA_Info component together with a STOR message. This is done in order to append SCP-supplied modules to the end of the record produced by the switch when the caller abandons an IP connection.

2. FEATURE ASSIGNMENT

To provision this feature:

- Set the ACT fields for SFID 126, to "Y" on the SFSYS form (5713-1 Record) to activate the base ASP feature.
- Set the ACT fields for SFID 229 to "Y" on the SFSYS form (5713-1 Record) to activate the AIN (Advanced Intelligent Network) Send To Outside Resource (local) feature.

- Set the ACT fields for SFID 585 to "Y" on the SFSYS form (5713-1 Record) to activate this feature. This feature is dependent upon SFID 126 and SFID 229.

➤ **NOTE:** The ACT field for SFID 516 must be set to "Y" in order for Furnish_AMA to receive a STOR message. However, SFID 585 is not dependent on SFID 516. If SFID 585 is unlocked and SFID 516 is locked, you can still get abandoned STOR records, but any Furnish_AMA in the STOR message is ignored.

There are no new forms or new fields added for this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 126, SFID 229, and SFID 585 to "Y".

SEC. 4A586: DIRECT CALL TRANSFER TO VOICE MAIL

1. FEATURE DESCRIPTION

The feature number for the Direct Call Transfer to Voice Mail feature is 99-5E-7812. This feature is controlled by SFID (Secured Feature ID) 586 and is made available in the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

The DTVM (Direct Call Transfer to Voice Mail) feature is a call transfer feature that enables a call to transfer directly to the desired calling party's Voice Mail box.

After a call from caller A has been answered by an ISDN (Integrated Services Digital Network) or Analog terminal C (e.g., secretary), the DTVM feature enables the terminal to transfer this call directly to the Voice Mail box of the desired party (B) using the DN (Directory Number) provisioned as the CFBL (Call Forward Busy Line) DN associated with line B. (It is assumed that the CFBL DN is B's Voice Mail DN.) The call is routed as a forwarded call to the Voice Mail System with no indication given to B's terminal, e.g., ping ring) with the forward to DN as party B and calling party number of caller A. If no CFBL DN is assigned to line B, the call is treated as a call from caller A to line B.

It is assumed that the Voice Mail user is on the same switch as the ISDN terminal with the Direct Transfer feature button so that the CFBL DN of the Voice Mail user can be determined.

DTVM is supported for voice call transfer only.

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID 586 on the SFSYS form (5713-1 Record) must be set to "Y".
- The pre-constructed feature name is "/MWDTVM" on the MWFD form.
- Assign actions, feature buttons, and dial access codes:

1. For the office dialing plan, CALL TYPE must be set to "FEATURE", FEATURE must be set to "/MWDTVM", ACTION must be set to "DTVMCF", "DCDTVM" on the PDIT form.
 2. For the individual dialing plan, FEATURE must be set to "/MWDTVM", ACTION must be set to "DTVMCF", "DCDTVM" on the IDPDCA form.
 3. For Configuration Group Definition, FEATURE must be set to "/MWDTVM", ACTION must be set to "DTVMCF", "DCDTVM" on the CFGGRP form.
- The TN or CKTN must be defined on the LINE form or the DSLUSR form with a LCC/RAX value that corresponds to one of following CLASS OF SERVICE on the LCC form - "INDIV" or "ISDN".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CFGGRP	5964	6	7A	12.5
DSLUSR	5908	5	11	23.2, 23.8
IDPDCA	5601	4	2B	9.13
LINE	5109	3	11	1.6
MWFD	5602	4	3A	12.19
PDIT	5300	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22

CFGGRP form (5964 Record) - This form is used to assign BRCS (Business and Residence Customer Service) feature actions to CPE (Customer Premises Equipment) user terminal buttons.

DSLUSR form (5908 Record) - This form defines the associated TN(s) and status of a DSL user, the circuit switching (voice and data) attributes, the D-channel packet switching attributes, and the On Demand B-channel packet switching attributes of a DSL user.

IDPDCA form (5601 Record) - This form is used to define the dialed codes associated with IDPs (Individualized Dialing Plans).

LINE form (5109 Record) - The LINE form defines the Office Equipment Number and features for each TN (Telephone Number) in a 7R/E 5ESS Switch.

MWFD form (5602 Record) - This form is used to define many of the Add-On and conferencing features used in other switching systems (e.g., Call Hold, Three-Way Calling, Six-Port Conferencing, and Call Transfer). It is also used to define how call processing will be affected by customer attempts to flash or disconnect while holding, adding, or transferring calls.

PDIT form (5300 Record) - The purpose of the PDIT form is to provide information defining feature and operator access and to provide prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table) form.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 586 to "Y".

SEC. 4A587: SIMULTANEOUS RINGING

1. FEATURE DESCRIPTION

The feature number for the Simultaneous Ringing feature is 99-5E-7457. This feature is controlled by SFID (Secured Feature ID) 587 and is available in 5E16(2) and later Software Releases. SAS (Service Announcement System) is the only supported announcement platform for this feature.

Simultaneous Ringing is a switch based feature that allows a subscriber to receive a call at up to five different locations. A call coming into the user's DN (Directory Number) alerts up to five DNs simultaneously. A DN which has this feature assigned is recognized as the PDN (Pilot Directory Number). The PDN is the main directory number that calls are placed to. The user can define a list which associates up to four other DNs with the PDN. The other DNs in this list are recognized as MDNs (Member Directory Numbers) and create a Simultaneous Ringing group. When a call comes into the PDN, the PDN and all associated MDNs receive alerting. The first DN that is answered is connected to the calling party and alerting stops at all DNs in the group.

A subscriber activates and deactivates this feature by using dial codes either from the PDN or a remote DN. With the base feature (99-5E-7457), the MDN list could only be edited from the PDN. However, available as a Software Update for the 5E16(2) and 5E17(1) 5ESS Switch Software releases, and in the BML (Beginning Managed Introduction) of 5E18(1) 5ESS Switch Software release, an enhancement is introduced. This enhancement allows the MDN list to be modified from any DN using the RAS (Remote Access Service) functionality. The end user dials a RADN (Remote Access DN) from any touch tone line. After dialing the RADN, the user dials their home phone number (PDN), a PIN (Personal Identification Number), and then the feature code to edit the MDN list. From this point on the switch provides the appropriate Simultaneous Ringing announcements and user interfaces as if the user had entered the MDN list editing access code from their home DN. The remote access parameter on the LINE form, or RC (Recent Change) Views 1.8 or 1.11, must be set to "Y" in order for the user to have remote access to the MDN list editing capability. This feature enhancement is not controlled by a secured feature, but is dependent upon the base functionality, thus the Secured Feature ID 587 must be activated before the feature enhancement is activated.

A PDN that has the Simultaneous Ringing feature active is considered busy when, the PDN and all associated MDNs are either busy on a call, or currently alerting with a Simultaneous Ringing call. A call directly to an individual MDN alerts only at that MDN. An MDN in one Simultaneous Ringing group may be designated as the PDN for another Simultaneous Ringing group. Calls to a Simultaneous Ringing group are allowed to alert a second level of Simultaneous Ringing groups, however the proliferation is stopped before a third level of Simultaneous Ringing groups are alerted on the same switch. Subscribers to this feature need to be aware of the effect of answering machines. When an answering machine or voice mail answers a simultaneous ringing call, the caller is connected to the answering machine that answers first, the caller may not realize that it may not be an answering machine associated with the number dialed (PDN). The answer could be from a machine associated with one of the MDNs, but if the caller does not listen closely to the greeting message, or the greeting message is a generic message that just indicates something like "please leave a message", the caller may leave a message at an MDN's answering machine. Subscribers need to be aware of this impact and adjust the ring counters or answer timers such that the answering machine the subscriber would like to use for Simultaneous Ringing calls has the shortest timer or ring counter. The number of rings or the length of the answer timer for answering machines need to be considered. If an answering machine has a short timer or a small number for its ring counter, it may answer the call before all DNs have a chance to alert, or may cause the DNs to only alert for a short period of time. The Simultaneous Ringing feature is not part of a Cluster or BFG (BRCS (Business Resident Customer Service) Feature Grouping).

The PDN can be a residential or Centrex analog line. The PDN must be a dialable DN and not a software created DN. The PDN can not be associated with a MLHG (Multiline Hunt Group) member, a multi-party line, a coin phone, PSAP (Public Safety Answering Point), Attendant (analog), a shared analog DN, or a secondary only DN.

If the PDN and all MDNs are busy, then busy is returned to the calling party. However, if an MDN is not on the

same switch as the PDN and there is no ISUP (Integrated Services User Part) connectivity then the calling party is given audible ringing treatment.

Emergency Override calls takes precedence over Simultaneous Ringing calls. When the PDN is busy an Emergency Override call barges in, and when the PDN is idle, only it is alerted. MDNs are not alerted.

When an MDN is determined to be a 900, 976, 800, 888, or N11 call then termination to that MDN is avoided.

2. FEATURE INTERACTIONS

2.1 Directed Call Pickup

When a call arrives at an idle PDN or idle MDN, the call may be answered by another station via Directed Call Pickup. If a user with Directed Call Pickup tries to pick up a call at a PDN or MDN that has already been answered, barge-in alert tone is provided, and a three-way call is established.

2.2 Precedence and Preemption

When a Precedence and Preemption call arrives at the PDN and it is idle it shall alert the PDN and all the MDNs if the Simultaneous Ringing feature is active. When a Precedence and Preemption call arrives at the PDN and it is busy: If the incoming call has higher precedence then it shall be connected to the PDN. If the incoming call has equal or lower precedence then the rules for Simultaneous Ringing apply.

2.3 Call Screening Interactions

Call attempts to the PDN from parties specified on a Selective Call Rejection list are prevented from terminating to the PDN and MDNs, and are instead routed to an announcement that informs the caller that their call is not presently being accepted by the called party. Call attempts to the PDN from parties specified on a Selective Call Acceptance list will alert the PDN if it is idle and all idle MDNs when the Simultaneous Ringing feature is active. Call attempts from parties not specified on a Selective Call Acceptance list will be rejected.

3. FEATURE ASSIGNMENT

To provision this feature:

- Set ACT to "Y" for SFID 587 on the SFSYS form (5713-1 Record).
- Define activation and deactivation access codes. For ODP (Office Dialing Plan) use the PDIT form (53002 Record). For IDP (Individual Dialing Plan) use the IDPDCA form (56011 and 56012 Records).
- Define a Simultaneous Ringing feature using the SRFD form (5650 Record).
- Assign the Simultaneous Ringing feature /SRG1 to a TN using the LINEFA form (5121 Record).
- Define a Simultaneous Ringing TN list using the SRDN form (5651 Record).
- Assign actions and dial access codes:
 1. For the office dialing plan, CALL TYPE must be set to "FEATURE", FEATURE must be set to "/SRG*", ACTION must be set to "SRGACT", "SRGDCT", "SRGSYM", and "SRGNOSYM" on the PDIT form.
 2. For the individual dialing plan, FEATURE must be set to "/SRG*", ACTION must be set to "SRGACT", "SRGDCT", "SRGSYM", and "SRGNOSYM" on the IDPDCA form.

- The TN or CKTN must be defined on the LINE form or the DSLUSR form with a LCC/RAX value that corresponds to one of following CLASS OF SERVICE on the LCC form - "INDIV".

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNHD	5531	3	5AE	8.61
IDPDCA	5601	4	2B	9.13
LINE	5109	3	1I	1.6
PDIT	5300	3	3B	9.2
PHRASE	5534	3	5AH	8.63
SFSYS	5713-1	3	5AR	8.22
SRFD	5650	4	31I	12.65
SRDN	5651	4	31J	1.65

ANNHD form (5531 Record) - This form lists the phrases, in the required order, to be associated with an announcement header. For 5E16(2) and later, information is added to the table under the PHRASES field to support the Simultaneous Ringing enhancement feature.

IDPDCA form (5601 Record) - This form is used to define the dialed codes associated with IDPs (Individualized Dialing Plans).

LINE form (5109 Record) - The LINE form defines the Office Equipment Number and features for each TN (Telephone Number) in a 7R/E 5ESS Switch.

PDIT form (5300 Record) - The purpose of the PDIT form is to provide information defining feature and operator access and to provide prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table) form.

PHRASE form (5534 Record) - This form defines and describes phrase IDs which are provided on the DSU2-RAF (Digital Services Unit 2-Recorded Announcement Function) Announcement Storage circuit packs for each application (see Division 8, Section 36 for required pack assignments). However, this feature is supported only on SAS (Service Announcement System). For 5E16(2) and later, information is added to the table under the LANGUAGE CODE field to support the Simultaneous Ringing enhancement feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 587 to "Y".

SRFD form (5650 Record) - This form provides the ability to define Simultaneous Ringing features.

SRDN form (5651 Record) - This form provides the ability to edit a list of MDNs (Member Directory Numbers) that are associated with a specific TN. A list of up to four MDNs is allowed.

SEC. 4A588: CALL TRANSFER CUSTOM DISPLAY ENHANCEMENT AND CALL TRANSFER ILHB ENHANCEMENT

1. FEATURE DESCRIPTION

This section contains the descriptive software related information for feature number 99-5E-8315, CTCDE

(Call Transfer Custom Display Enhancement), and related feature number 99-5E-8315.A, Call Transfer ILHB (Incoming Line History Block) Enhancement.

Secured Feature Identifier (SFID) 588 controls activation or deactivation of the Call Transfer Custom Display Enhancement feature.

Secured Feature Identifier (SFID) 667 controls activation or deactivation of the Call Transfer ILHB Enhancement feature.

Each SFID can be activated independently of the other. Both SFIDs can be controlled on a per-switch or per-SM (Switching Module) basis.

To activate the secured feature ID, unlock the security lock by setting the ACT (or ACTIVE for RC) field for SFID 588 or 667 to "Y", on the SFSYS form (5713-1 Record) or RC/V (Recent Change/Verify) View 8.22, Secured Feature Upgrade. A password from the Lucent Technologies Secured Feature Administrator is required. For more information, refer to Routine Operations and Maintenance Procedures, 235-105-210.

These two Call Transfer enhancement features are available in 5E16(2) BMI and later software releases.

The CTCDE feature is only applicable to transferred-to parties that are Custom ISDN (Integrated Service Digital Network) lines.

The Call Transfer ILHB Enhancement feature is supported by analog or ISDN transferred-to lines.

Once SFID 588 is activated, the CTCDE feature is implicitly assigned to a Custom ISDN line having access to a Line Identification feature which is also marked to allow Display. The transferring line must be assigned a valid Multiway feature to effect the transfer.

Once SFID 667 is activated, the Call Transfer ILHB Enhancement feature is implicitly assigned to an analog or ISDN line (the transferred-to line and the transferring line) that has one or more of the LASS AC (Local Area Signaling Service) (Automatic Callback), COT (Customer Originated Trace), or one of the LASS Selective features (e.g. Selective Call Rejection) assigned. The transferring line must also be assigned a valid Multiway feature to effect the transfer.

The Call Transfer Custom Display Enhancement feature allows a Custom ISDN user to receive and display information regarding the transferred party's name and DN (Directory Number) as well as the transferring party's name and DN during call scenarios where a valid transfer has been performed. This is accomplished using modified ISDN display data which indicates both the transferred DN (new data, contained in the redirection information element) and the transferring DN (existing data, contained in the calling DN information element). Previously, the display information for this case would only have shown a "calling DN", and that DN would be set equal to the transferring DN. By altering the display data, the identity of the transferred party is preserved and is displayed to the transferred-to party.

The transferred caller can be associated with any line or trunk origination.

The transferring caller can be any analog or ISDN line.

The transferred-to party must be a Custom ISDN line (including Custom ISDN Attendant).

The transferring party and the transferred-to party must be on the same switch.

The Call Transfer ILHB (Incoming Line History Block) Enhancement feature utilizes the DN of a transferred caller as the target DN when the transferred-to party initiates Automatic Callback, Customer Originated Trace,

or Screen List Editing. This is accomplished by populating the LASS ILHB with the transferred DN (versus the transferring DN). This allows the transferred-to party to use the transferred DN when activating LASS AC (to initiate a callback), COT (to initiate a call trace), or a LASS Selective feature (to add the last incoming call DN to a valid screening list). The transferred-to party can be any analog or ISDN line.

1.1 Call flow

For CTCDE, display information provided to a Custom ISDN end-user is modified as described in the following call scenario:

Party A calls Party B, and Party B subsequently transfers the call to Party C. With CTCDE, the display information provided to Party C includes both the transferring party's DN (that is, Party B's DN) as well as the transferred party's DN (that is, Party A's DN). The assignment of CTCDE enables the additional display of Party A's DN, and indicates that it is furnished as the result of a transfer. The added display information is carried in the existing "redirection" parameter which is modified for use by this feature. In addition to the DN information, CTCDE can also support display of the related name information, provided the proper Line Identification feature (with Calling Name) is provisioned against the transferring and transferred-to party's line.

For Call Transfer ILHB Enhancement, the contents of the analog or ISDN end-user's LASS ILHB is modified as illustrated by the following scenario:

Party A calls Party B, and Party B subsequently invokes a transfer to Party C. The value of the LASS ILHB for Party C is set to Party A's DN. This allows AC, COT, or a LASS Selective feature to be invoked by Party C using Party A's DN (that is, the transferred party's DN) as the target.

In either case above, the Call Transfer operation can be "explicit" or "implicit", as defined by the particular Multiway feature in use.

This is not a transparency feature.

1.2 Benefits

With the CTCDE feature, the transferred party's DN is displayed as well as the DN of the transferring party. Previously, a transferred-to user or terminal was only provided with information regarding the transferring party (as if the transferring party were the actual calling DN). This behavior results in the "masking" of the transferred party's identity which is not desirable. CTCDE allows both the transferred and transferring DNs to be displayed, providing more accurate and complete identification in those cases where a transfer is involved with the incoming call.

Call Transfer ILHB Enhancement makes it possible for the end-user to invoke the LASS AC, COT, or a LASS Selective feature using the value of the transferred party's DN as the target DN. This allows the callback, trace, or list editing entry to identify the transferred party rather than the transferring party. This is especially important for LASS COT, when a nuisance or threat call needs to be accurately identified.

1.3 Differences

The ISDN Q.931 Display Field Information Element is modified to support CTCDE by including additional "redirection" display information (that is, the transferred DN). A new redirection reason for the ICI (ISDN Call Identification) parameter of "Tfr" (Transfer) is also added to indicate that the display data is related to a call transfer operation.

For Call Transfer ILHB Enhancement, the population of the LASS ILHB is modified to use the transferred party's DN in a transfer scenario.

1.4 Feature operations

This feature does not impact existing operations. No switch personnel or subscriber actions are associated with this feature aside from those described in the "Feature Description" and the "Call Flow" sections above. For RCV operations only, after SFID 588 or SFID 667 has been activated, the CTE ALLOC field need to be set to "Y" on Recent Change View 8.1..

1.5 Dependencies

CTCDE functionality is dependent on the Multiway feature with the transfer option being assigned to the transferring user (Party B). The Line Identification feature must be assigned to the transferred-to user (Party C), and Party C must also have Display enabled. Transmission of Calling Name would require both Party B and Party C to subscribe to a Line Identification feature that supports Calling Name.

Likewise, Call Transfer ILHB Enhancement functionality is dependent on the Multiway feature with the transfer option being assigned to the transferring user (Party B) and one or more of the LASS features Automatic Callback, Customer Originated Trace, or one of the LASS Selective features being assigned to the transferred-to user (Party C). Party B must also have access to a valid LASS feature that utilizes ILHB data in its processing.

Note: For either CTCDE or Call Transfer ILHB Enhancement, the transferring party and the transferred-to party must reside on the same switch.

1.6 Incompatibilities

The CTCDE feature supports valid transfers only (that is, redirections resulting from Call Transfer or Three-way Conference operation).

The CTCDE feature does not support calls transferred outside the transferring party's switch.

The CTCDE feature does not support CSD (Circuit Switched Data) calls since the Call Transfer feature is not currently supported for CSD.

The CTCDE feature does not support Call Transfers performed via any analog or Custom ISDN Conference feature where four (4) or more parties are involved in the call.

CTCDE does not apply to two incoming calls or two outgoing calls that are transferred together by a user.

For the case of one outgoing and one incoming call that are transferred together, the CTCDE display data is provided only to the outgoing call party.

Call transfers to Simultaneous Ringing subscribers are not supported for the CTCDE display enhancements, as the required call display information is not available. However transfers from these same subscribers are supported, as they appear to the switch as legitimate call transfers.

The propagation of the original calling DN information is not supported for multiple Call Transfer scenarios.

1.7 Interactions

When the transferred-to party subscribes to both Calling Number and Calling Name (and the transferring party also subscribes to Calling Name), the switch sends both calling number and calling name for the

transferred party and transferring party. It is up to the end-user's CPE (Customer Premises Equipment) to determine how to properly display all of this information to the end-user.

There are no new CTCDE requirements related to analog Line Identification features. Only the transferring party DN information and transferring name are displayed for the case where the transferred-to party is an analog line.

There is no change to the operation of BCLID (Bulk Calling Line Identification). When a call is transferred to a BCLID customer, the DN of the transferring party (and not the transferred party) appears as the originating DN in the BCLID message.

There is no change made to voice mail operation. When a transferred call is forwarded to a MSS (Message Service System) (i.e. voice mail), the transferring party's number (and not the transferred party's DN) will be sent to the MSS.

When a call is transferred within a network that supports PP (Precedence and Preemption) (for example, the Autovon network), any display information specific to Precedence and Preemption that is currently provided to a transferred-to party's display is maintained. Any information provided by the CTCDE feature would be in addition to that.

For a call involving both Call Transfer and Call Forwarding, one or both cases of redirection may be indicated in the display information provided depending upon the detailed call scenarios.

1.8 Customer premises equipment

For CTCDE, Party A (the transferred party) and Party B (the transferring party) may be either analog or ISDN (that is, Custom or National). Party C (the transferred-to party) must be a Custom ISDN station set. However, no such interface restrictions exist for Party C when supporting the Call Transfer ILHB Enhancement feature.

1.9 Additional information

No operational support systems are impacted by this feature.

No unique hardware considerations are associated with this feature. However, certain transfer scenarios require access to switch-based conference circuits.

No transition considerations are associated with this feature.

No new or changed assignment rules are associated with this feature.

No new or changed validation guidelines are associated with this feature.

This feature does not impact measurements.

No changes are made to billing as a result of this feature. AMA (Automatic Message Accounting) records are generated for each leg of the call transfer. Any billing for the transferred leg is associated with the transferring party.

This feature does not impact maintenance.

There are no related features.

Some exceptions to industry standards may apply since CTCDE applies to Custom ISDN lines.

No unique isolation constraints are associated with this feature.

2. FEATURE ASSIGNMENT

There are provisioning requirements in addition to the respective SFID activation for each Call Transfer enhancement feature.

(This paragraph applies to RC only)— The "CTE ALLOC" field is added to the OFCOPT form (5509 Record); (RC/V 8.1) and must be set to "Y". This field indicates whether the required dynamic data has been allocated for the Call Transfer Custom Display Enhancement and/or the Call Transfer ILHB Enhancement feature. This field can only be set to "Y", when SFID 588 and/or 667 are activated.

An existing switch software resource, "ORIGINFO", is used by these transfer enhancement features and is defined on the SREINCR form (5547 Record), RC/V 8.40. This software resource may be engineered, if required, using the 8.40 view, in accordance with existing procedures specific to this RC view.

For the CTCDE feature (99-5E-8315), the end customer needs to have:

A valid Multiway feature with the "transfer" option set for the transferring party. This includes any constructed or pre-constructed Multiway feature with the "TRANSFER" field set to "ALW".

Line Identification feature (with or without Calling Name) assigned to the transferred-to party. Transferred-to party must have Display enabled (DISPLAY set to "Y" on 23.2 RC/V). When supporting transmission of Calling Name data, the transferring party must also subscribe to Calling Name.

For the Call Transfer ILHB Enhancement feature (99-5E-8315.A), the end customer needs to have:

A valid Multiway feature with the transfer option set for the transferring party. This includes any constructed or pre-constructed Multiway feature with the "TRANSFER" field set to 'ALW'.

One or more of the LASS features (COT, AC, or one of the LASS Selective features) assigned to the transferred-to party. The LASS features may be either generally available or subscription-based to utilize the new ILHB value provided by this feature.

Any valid LASS feature that uses ILHB for its processing assigned to the transferring party. This design requirement is needed to enable the switch to copy ILHB data between the parties involved in the call transfer. Access to the LASS feature can be satisfied on a generally available or subscription basis.

There are no specific provisioning changes introduced for the Multiway, Line Identification, LASS COT/AC or any of the LASS Selective features. Existing provisioning rules continue to apply.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
SREINCR	5547	3	5AW	8.40

(RC Only) OFCOPT Form (5509 Record)— This form is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The "CTE ALLOC" field was added for RC only.

SREINCR form (5547 Record) - This form is used to increase engineering software resource (memory) parameters per SM (Switching Module) for new start and/or retrofit offices. Added a new value (ORIGINFO) to the SOFTWARE RESOURCE field.

SEC. 4A589: ESN (Emergency Service Number) Expansion for E911

1. FEATURE DESCRIPTION

The ESN Expansion for E911 feature is a secured feature that is being deployed for the 5E16 BMI (Beginning Managed Introduction) Software Release. The feature number for this feature is 99-5E-7667.

The ESN Expansion for E911 feature increases the maximum amount of emergency service numbers allowed in an office from 1023 to 15999. This allows customers to increase emergency service resources for a given area.

2. FEATURE ASSIGNMENT

The ESN Expansion for E911 feature is secured by SFID 589. Prior to utilizing this feature, the E911 base feature must be active by setting ACT to "Y" for SFID 61 on the SFSYS form (5713-1 Record). (For more detailed information on the E911 base feature, see Division 2, Section 4A61.) In order to assign ESN values greater than 1023, ACT must be "Y" for both SFID 61 and SFID 589.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ESCO	5541	3	5AO	9.41
ESN	5540	3	5AN	9.40
SFSYS	5713-1	3	5AR	8.22

ESCO form (5541 Record) - The ESCO form is used to retrieve an ESN, an NPD (Numbering Plan Digit), and a selective routing indicator, based on the originating calling area of a 911 call arriving at an E911-serving office. For 5E16 and later software releases, additional values of 1024 - 15999 have been added for the ESN field.

ESN form (5540 Record) - The ESN form is used to define an ESN (Emergency Service Number), and it is used for defining SM standalone data. For 5E16 and later software releases, additional values of 1024 - 15999 have been added for the ESN field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field to "Y" for SFIDs 61 and 589, respectively.

SEC. 4A590: TALKING CALL WAITING - DISTINCTIVE CALL WAITING TONES

1. FEATURE DESCRIPTION

The TCW (Talking Call Waiting) - Distinctive Call Waiting Tones feature is a secured feature (SFID (Secured Feature ID) 590) that is being deployed for the BMI (Beginning Managed Introduction) of the 5E16 Software Release. The feature number for this feature is 99-5E-7752.

The TCW with Distinctive Call Waiting Tones feature provides the TCW subscriber with distinctive call waiting tones, when appropriate. Distinctive call waiting tones may or may not be provided to the TCW subscriber

depending on the following:

whether CWD (Call Waiting Deluxe) and/or CIDCW (Caller ID on Call Waiting) are also provisioned on the DN (Directory Number).

whether only the basic TCW feature (SFID 331) is active or the TCW with Distinctive Call Waiting Tones feature (SFID 590) is also active.

When only the basic TCW feature (99-5E-4605) is active, for the Call Waiting features with distinctive call waiting tones, since an IP (Intelligent Peripheral) provides the call waiting tone and the IP is not notified that the encountered feature is one of the distinctive call waiting features, the distinctive tones are not provided by the IP; just the single call waiting tone is expected for the first TCW alert. However, for the re-alert, the TCW subscriber receives 5ESS Switch-based distinctive call waiting tones. If CIDCW and/or CWD are also provisioned on the DN, the switch usually provides the call waiting tones as part of the SAS+CAS (Subscriber Alerting Signal+CPE Alerting Signal) alerting, so distinctive call waiting tones are provided as part of the first alerting even without this feature (99-5E-7752) being active.

When the TCW with Distinctive Call Waiting Tones feature (99-5E-7752) is also active, for the Call Waiting features with distinctive call waiting tones (except when CIDCW and/or CWD are also provisioned on the DN), additional DNs are provided on the switch to be used to notify the IP that a distinctive call waiting tone is to be provided to the subscriber before voicing the "name information". When the IP receives the call on one of these additional DNs, it provides the appropriate distinctive call waiting tone associated with that DN. However, for the re-alert, the TCW subscriber receives switch-based distinctive call waiting tones. If CIDCW and/or CWD are also provisioned on the DN, the switch provides the call waiting tones as part of the SAS+CAS alerting, so distinctive call waiting tones are provided as part of the first alerting by the switch.

The TCW with Caller ID feature (99-5E-7728) is a secured option on the existing TCW feature (99-5E-4605), SFID 331. The TCW with Caller ID feature provides the subscriber the voiced name of the call waiting party even if the caller ID information was provided to the subscriber. Without feature 99-5E-7728, the voiced name is provided via TCW only if the ACK (Acknowledgement) is not received from the CPE (Customer Premises Equipment). If the ACK is not received from the CPE, the caller ID information is not sent to the subscriber.

When the subscriber with TCW also has the CIDCW and/or the CWD feature, the switch attempts to provide those features which provide a visual display on the subscriber's CPE. Since the switch has already provided the call waiting tone as part of the SAS+CAS signal offering the display information to the CPE, when the switch connects to the IP, the IP speaks only the name of the waiting party (rather than providing the call waiting tone followed by the spoken name of the waiting party).

These feature requirements assume that the DNs on the terminating switch directly providing access to the IP are provisioned with the appropriate terminating Calling Name Delivery feature.

2. FEATURE ASSIGNMENT

The TCW - Distinctive Call Waiting Tones feature is a secured feature, and therefore must be activated for the switch to allow the feature to be used in the office. However, prior to activating this feature, the Talking Call Waiting feature (SFID 331) must first be activated. (For more detailed information on the TCW feature, see Division 2, Section 4A331.)

For 5E16 and later, there are two scenarios for activating this feature.

2.1 Scenario 1 - Prior to Provisioning the Feature Parameters on the OFCOPT Form

To activate this feature using Scenario 1:

Set the ACT field to "Y" for SFIDs 331 and 590, respectively on the SFSYS Form (5713-1 Record).

Set the following feature parameters on the OFCOPT form (5509 Record):

DNB

DNC

DNG

- **NOTE:** (See Division 3, Section 5I for the data rules applicable to the DNB, DNC, and DNG fields.)

2.2 Scenario 2 - After Provisioning the Feature Parameters on the OFCOPT Form

To activate this feature using Scenario 2:

Set the following feature parameters on the OFCOPT form (5509 Record):

DNB

DNC

DNG

- **NOTE:** (See Division 3, Section 5I for the data rules applicable to the DNB, DNC, and DNG fields.)

Set the ACT field to "Y" for SFIDs 331 and 590, respectively on the SFSYS Form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - The OFCOPT form is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. For 5E16 and later, the DNB, DNC, and DNG fields and related data rules were added to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field to "Y" for SFIDs 331 and 590, respectively.

SEC. 4A592: FCCS (FORWARDED CALL - CALL SCREENING) ENHANCEMENT

1. FEATURE DESCRIPTION

The feature number for the FCCS (Forwarded Call - Call Screening) Enhancement feature is 99-5E-7831. This

feature is controlled by SFID (Secured Feature ID) 592 and is being deployed for the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

This feature incorporates several new enhancements to the CS (Call-Screening) feature (99-5E-2652). For more information on the CS feature, see Division 2, Section 4A526. This enhancement also builds upon Call Screening with Announcement feature (99-5E-7614) and provides a CS announcement to be heard (if available) when CS is activated on a line, by using the appropriate dial code where CF (Call Forwarding) is already active. Otherwise only a conformation tone is heard to indicate CS was made active. For more information on the CS with Announcement feature, see also Division 2, Section 4A526.

Another CS announcement is heard when CS is made inactive. And different announcement in the form of a warning message is added for the case where CS is made active on a line where CF is not active.

In addition, the user is allowed to activate and deactivate CFDA (Call Forwarding Don't Answer) and CFBL (Call Forwarding Busy Line) using dial codes.

Another enhancement provided by this feature (99-5E-7831) is the inclusion of the CFDA-RC (Call Forwarding Don't Answer Ring Control) feature (99-5E-7121). This enhancement allows the user to specify through a dial-code, the approximate number of times their phone should ring before the call is forwarded to a VMS (Voice-Mail System). For more information on this feature, see Division 2, Section 4A335.

Finally, a user with the FCCS feature now has the ability to use the same access code for changing the CFDA ringing cycle or the activating/deactivating CFDA/CFBL as a user without the FCCS feature.

2. FEATURE ASSIGNMENT

To provision this feature:

- Set the ACT fields for SFID 526 to "Y" on the SFSYS form (5713-1 Record) to activate the base FCCS feature.
- Set the ACT fields for SFID 592 to "Y" on the SFSYS form (5713-1 Record) to activate the enhancement FCCS feature.
- On the PDIT form (5300-2 Record) (RC/V (Recent Change/Verify) 9.2), associate a dial code with on of the following five ACTION(s), when FEATURE is the wildcard feature /CF*:

BSYACT

BSYDCT

CSTOG

DAACT

DADCT

CFDATCH

- On the IDPDCA form (5601-1 Record) (RC/V 9.13), associate a dial code with on of the following five ACTION(s), when FEATURE is the wildcard feature /CF*:

BSYACT

BSYDCT

CSTOG

DAACT

DADCT

CFDATCH

- On the CFWFD form (5614-1 Record) (RC/V 12.12), set the fields as follows:

Set ACT TYPE to "AUTO" or "CODE".

Set DACT TYPE to "CODE" or "NONE".

Set FCCS OPT to "Y".

For a particular telephone number, provision the above feature using the LINEFA/CLUSTR forms (5112/5600 Records) (RC/Vs 1.8/12.2). If necessary, the DEFAULT PARAMETERS on the CFWFD form (can be overridden using the CFWLPA form (5614-3 Record) (RC/V 1.22).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CFWFD	5614-1	4	15A	12.12
CFWLPA	5614-3	4	15B	1.22
CFWMPA	5614-4	4	15C	1.22
FIXRT	5301-1	3	3G	10.1
IDPDCA	5601-1	4	2B	9.13
PDIT	5300-2	3	3B	9.2
SFSYS	5713-1	3	5AR	8.22

CFWFD form (5614-1 Record) - The Call Forwarding feature allows calls completing to a customer's DN (Directory Number) to be redirected to different DN. This form is used to define a number of separate, but related features, by selecting various feature options for Call Forwarding. Added data rules to the FCCS OPT field.

CFWLPA form (5614-3 Record) - This form defines parameters for a constructed Call Forwarding feature that will be assigned to lines (which are not multi-line hunt group lines). This record is required only if the default parameters assigned on the CFWFD (Call Forwarding Feature Definition) form are inappropriate. Added data rules to the FCCS OPT field.

CFWMPA form (5614-4 Record) - This form is used to define specific parameters assigned to every Multi-Line Hunt Group assigned a specific constructed Call Forwarding feature. It is required only if the default parameters assigned on the CFWFD form are inappropriate. Added the FCCS OPT field as a No Change field.

FIXRT form (5301-1 Record) - This form is used to define Routing and Charging treatment of Fixed Route Types. Added three new enumerations (CSACT, CSDCT, and CSFAIL), and data rules to the FIXED ROUTE TYPE field.

IDPDCA form (5601-1 Record) - It is used to define the dialed codes associated with IDPs (Individualized Dialing Plans). Added data rules to the ACTION field.

PDIT form (5300-2 Record) - This form is used to define the Prefix/Feature Digit Interpreter in a 7R/E 5ESS Switch. Added data rules to the ACTION field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFIDs 526 and SFID 592 to "Y".

SEC. 4A593: AIN Ping Ring in a Forward Call Message

1. FEATURE DESCRIPTION

The AIN (Advanced Intelligent Network) Ping Ring in a Forward Call Message (99-5E-7825) feature is being deployed as a 5E15 FR2 Software Update and in the Beginning Managed Introduction of the 5E16 Software Release. This feature is a Call Processing Secured Feature controlled by SFID 593. This feature is dependent on ASP 0.1B, SFID 126.

The AIN Ping Ring in a Forward Call Message feature provides a Ping Ring to AIN customers that receive a Forward Call message. The SCP (Service Control Point) provides a ping ring indicator in the Forward_Call message by using a new value (068) in the PassiveLegTreatment parameter. When the Forward Call message is received with this value, it is an indication to ping ring the customer that detected the ASP terminating trigger. When the SFID 593 is unlocked, the SSP (Service Switching Point) will accept the new PassiveLegTreatment parameter value of 068 in a Forward Call message. A Forward Call with this parameter value can be received after the following:

A TAT Query.

A TBusy Query.

A TNoAnswer Query.

A Resource Clear message (following one of the above queries).

A TBusy event message.

A TNoAnswer event message.

A Forward Call message is sent by the SCP to indicate a new destination to forward the call to, on behalf of a customer in an SSP that detected an AIN terminating trigger.

When the PassiveLegTreatment parameter value of 068 is received, functionality of this feature is enabled and the following occurs:

1. Validation of the Forward Call message is performed. The Forward Call message may be routed via Trunk Group parameters and digit analysis may not be performed for the call. If public routing is being used, the dialing plan may not successfully translate the forwarded call to the DN (Directory Number). So, successful digit analysis is not a prerequisite to ping ring the customer as it is for switch based CFV (Call Forwarding Variable).
2. For an analog port. The busy/idle port status is read. If the port is busy, then no ping ring is applied. If the port status is idle, then ping ring is applied.
3. For an ISDN port. Regardless of the port status, the ping ring code set is sent to the ISDN station set.

4. For both the analog and ISDN ports, the ping ring applied will be applied in the same manner as the ping ring applied via the CFV feature.

With the exception of ISDN ATND, the same originating and terminating Class of Services supported for TAT are supported for this feature.

This new AIN Ping Ring in a Forward Call Message ping ring feature will be available to the existing list of Class of Services that can be defined as terminating ASP (Advanced Services Platform) triggers.

The following is an example of the call flow:

Analog phone B is assigned a TAT.

Line A dials Line B and the TAT fires.

A Termination Attempt query is launched.

The SCP responds with a Forward_Call message that includes a PassiveLegTreatment parameter with the ping ring value set.

The Forward Call message is received at the SSP and then the port status is read for Line B.

Line B is idle, so ping ring is applied to Line B, and the call completes.

Note that if Line B was an ISDN phone, the port status is NOT read and ping ring is applied via the D-channel to Line B.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate/deactivate secured features. For this feature, SFID 593 must be activated. This feature depends on SFID ASP 0.1B, SFID 126. Also see the Note above for additional feature requirements.

SEC. 4A594: CODE CONVERSION EXPANSION FOR N11

1. FEATURE DESCRIPTION

The feature number for the Code Conversion Expansion for N11 feature is 99-5E-7878. This feature is controlled by SFID (Secured Feature ID) 594 and is made available with 5E15 Feature Release 3 and in the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

This feature allows the 5ESS Switch to implement a new 711 Code Conversion Type. Currently, several N11 Codes are supported in the 5ESS Switch Office Dialing Plan by defining a special Call Type that allows Code Conversion to occur. This Code Conversion allows a new seven or ten digit (maximum of fifteen) number to be substituted for the N11 digits. The current codes that are supported are 411, 611, 811, and 911. There is an additional need to support the 711 Code.

The currently supported N11 Call Types are defined in the office dialing plan with the service provider's desired

routing information. When routing is attempted for the call, the attributes on the LDIT form or the RDIT form are used. After LDIT/RDIT, the call proceeds to a Code Conversion Table (CONV form), where a new digit string is substituted for the dialed N11 string. The call proceeds to routing with the routing attributes found in LDIT.

When there is no digit analysis performed on the new digit string, the call cannot encounter 800 triggers, ASP triggers, or any other capabilities defined for the new digit string.

The following are capabilities provided by this secured feature:

A new CALL TYPE, "RELAY" is added to the LDIT/MLDIT/RDIT forms to support 711.

This new CALL TYPE "RELAY" is defined on the CONV form.

A new field, DA CONV TN on the CONV form, specifies if digit analysis is done on the digit string used as the replacement digits for the dialed 711 digits, or is provided the existing treatment.

2. FEATURE ASSIGNMENT

To provision this feature:

- The ACT field for SFID 594 on the SFSYS form (5713-1 Record) must be set to "Y".
- Define the new CALL TYPE as "RELAY" on the CONV form.
- Activate the digit analysis for the dialed 711 digits by setting the DIG ANAL ON CONV TN field on the CONV form to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CONV	5300-4	3	3D	9.4
LDIT	5300-3	3	3C	9.3
RDIT	5300-7/8	3	3H	9.9
SFSYS	5713-1	3	5AR	8.22

CONV form (5300-4 Record) - This form is used to associate a Local Digit Interpreter Table call type with a code conversion number.

LDIT form (5300-3 Record) - This form is used to define all area, office and service codes (NPA, NXX, X11, etc.,) in a 5ESS Switch. Any code from one to fifteen digits in length may be defined. The LDIT serves as both a "local" and "foreign" area translator.

RDIT form (5300-7/8 Record) - The RDIT input form contains information for the translation of remaining dialed digit strings for digit analysis. RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 594 to "Y".

SEC. 4A595: RC SECURITY FOR VIEW AND CLASS WITH LOGIN ID

1. BACKGROUND

The traditional security interface to RC provided restricted access to RC view modification by TTY (Teletypewriter) ID and by RC view class. RC permissions for each TTY were entered using an MML (Man Machine Language) interface which required octal or hexadecimal input of a binary string. The RC verbose mode output reports users by TTY, rather than by and individual ID.

2. FEATURE DESCRIPTION

The RC Security for View and Class with Login ID feature is a secured feature (SFID 595) that is available with the 5E15 Feature Release 3 and in the Beginning Managed Introduction of the 5E16 Software Release. The feature number is 99-5E-7951.

This feature allows an administrator to set RC security permissions at both the view and class level. The security administrator can also assign permissions to individuals and track RC entries made by individuals, rather than by TTY. Additionally, individual login IDs can be grouped, so that permissions can be established for a group of employees, rather than separately for each individual in a group.

The RC Security for View and Class with Login ID feature provides new and enhanced functionality in three areas of RC security that allows better control and monitoring of RC activity. This feature provides the ability to:

- set permissions by RC view.

- create a RC Security Group that allows TTYs and logins to share RC permissions.

- allow RC security based on Authority Management logins.

- allow for user friendly input of access values.

- allow the RC verbose mode to track RC activity using an Authority Management login instead of a TTY.

Prior to this feature, RC offered update security at a menu class level. A menu class is the set of all views on a x.0 menu (that is, the set 28.1, 28.2, 28.3, 28.4, and 28.5). Permissions are customer-changeable on a per TTY(3B) or per login ASM (Administrative Services Module) basis through the "set:rcaccess" command. Once set, the permissions allow access to the entire class of views. This feature provides the ability to set RC permissions for individual views in addition to the entire class.

With the addition of per view permissions, the process to update the security for each TTY/login increases in time and complexity. To alleviate the need to assign the same set of permissions to a number of TTYs and/or logins, this feature adds the ability to create a "RC Security Group." This group has a set of permissions assigned to it and allows TTYs and logins to be added to the group, so that the TTYs and logins have the same permissions assigned to the RC Security Group.

Authority Management allows input commands to be restricted and logged on a per login basis. However, because RC security is on a per TTY basis, when an Authority Management user begins a RC session, the RC activity is tracked by the TTY, not the login. This feature allows the Authority Management login to be included in all RC verbose mode output messages, allowing RC operations to be logged by login. For more information related to this feature, see the following documents:

- 235-118-251 - Recent Change Procedures

- 235-600-700 - Input Messages

235-600-750 - Output Messages

235-105-210 - Routine Operations and Maintenance

235-200-145 - 5ESS Switch One Link Manager Administration Services Module User's Guide

Only the functionality included in this secured feature that relates to RC security groups, assignment of access by views, and Authority Management logins are denied if SFID 595 is not allowed for the office. All other functionality (that is, assignment of access to classes above 32 and the new access syntax in the "set:rcaccess" Input Message) is allowed for all 5ESS Switch offices.

3. FEATURE ASSIGNMENT

For 5E15 and later, to activate this feature, set the ACT field for SFID 595 on the SFSYS form (5713-1 Record) to "Y".

- NOTE:** This feature does not depend on the Authority Management (Command Restriction feature), but use of the Authority Management login ID permission capability provided by this feature does depend on having the Authority Management feature present and active on the Switch. Authority Management login IDs entered for this feature are verified against the 5ESS Switch's existing Authority Management (Command Restriction feature) login set.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 595 to "Y".

SEC. 4A596: TRUNK GROUP REGISTER EXPANSION

1. BACKGROUND

Prior to this feature, trunk group measurements were provided with single precision in the TG section.

2. FEATURE DESCRIPTION

The Trunk Group Register Expansion feature, feature number 99-5E-7780, is available with 5E15 and later software releases. It introduces a new section, TGN, to the TRFC30 traffic measurements report and is secured by SFID (Secured Feature ID) 596.

This new TGN section consists of the same set of rules and counters as the pre-existing TG section (section numbers 12 and 41). However, the new TGN section provides counts with double the precision that the TG section provides. The TGN section also allows component selectivity. While the TG section continues to be supported, only one of these sections, TGN or TG, is allowed for collection at a time.

Other reports and sections which use data from the TG section, now use data from the TGN section when SFID 596 is active. These sections are as follows:

DSNTG, Section 48 - DSN/AUTOVON Trunk Group

PSTG, Section 92 - Packet Switching Trunk Group

ISUP, Section 120 - ISDN User Part Measurements

The implementation of this feature does not affect NM (Network Management). Since NM uses the traffic macros associated with section 12 (single precision) this section continues to be supported, even while SFID 596 is active.

3. FEATURE ASSIGNMENT

To provision this feature, the ACT field for SFID and 596 on the SFSYS form (5713-1 Record) must be set to "Y". Upon initial activation of SFID 596, a list of components chosen for collection is created for the TGN section. This list remains intact when the SFID is deactivated and reactivated. While SFID 596 is active, use of the TG section is inhibited. Deactivating SFID 596 inhibits the use of section TGN.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 596 to "Y".

SEC. 4A597: CSI DEFAULT HANDLING FOR THE LDP FEATURE

1. BACKGROUND

Prior to this feature, when an IAM (Initial Address Message) was received at the Originating LDP (Long Distance Platform) office and the CSI (Carrier Selection Information) parameter was not present in the IAM, the Dialing Indicator field of the Originating LDP AMA (Automatic Message Accounting) record (structure code 710) would show a value of 8 "NO CAC, NoPresub.stat,NoPresb.ind.sent".

2. FEATURE DESCRIPTION

The feature number for the Carrier Selection Information Default Handling for the Long Distance Platform Feature is 99-5E-8022. This feature is controlled by SFID (Secured Feature ID) 597 and is made available as a Software Update for 5E14, 5E15 and in the BMI (Beginning Managed Introduction) of the 5E16 Software Release.

With the Carrier Selection Information Default Handling for the Long Distance Platform Feature when an IAM is received at the Originating LDP office and the CSI parameter is not present in the IAM, the Dialing Indicator field of the Originating LDP AMA record (structure code 710) will show a value of 6 "CAC,Presub.cust,Presub.ind.sent".

3. FEATURE ASSIGNMENT

To provision this feature, the ACT field for SFID and 597 on the SFSYS form (5713-1 Record) must be set to "Y".

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 597 to "Y".

SEC. 4A598: EXPANDED VIRTUAL TERMINAL ACCESS FOR ASM

1. FEATURE DESCRIPTION

The Expanded Virtual Terminal Access for ASM (Administrative Service Module) feature (99-5E-7890) is being deployed for the Beginning Managed Introduction of the 5E16 Software Release. This is a secured feature controlled by SFID 598.

This feature provides TTY (Teletypewriter) services over the Dual Serial Channel allowing users on the ASM to access shell environments on the 3B. The enhancements for this feature include the following:

Expanded VTTY (Virtual Terminal) - Eight VTTYs are provisioned as part of the ASM base configuration. This enhancement allows expanding VTTYs beyond eight as a secured feature. This is made available through SFID 598. A maximum of 32 VTTYs are allowed for 3B21/DRM AM.

VTTY Usage Report - A report is generated on VTTY status, resource type, controller information, and device details. This is a tool that users on the ASM run to report VTTY usage, availability, configuration, and limits. The tool, in turn, executes the respective program on 3B and sends the result to the ASM. The node and the number of VTTYs available for the node are also displayed by this tool.

Network Terminal Sessions - The number of Network Terminal Sessions supported by this feature increases from 48 to 100. This limit is based on solaris tunable parameter for the number of psuedo TTYs defined in the /etc/system file. This allows 100 simultaneous VTTY sessions across all nodes at any point of time.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 598 to "Y".

SEC. 4A599: G.168-2000 COMPLIANCE AND ACOUSTIC ECHO CANCELLATION ON PHV5

1. FEATURE DESCRIPTION

The G.168-2000 Compliance and Acoustic Echo Cancellation on PHV5 (Protocol Handler for Voice - Version 5) feature is a secured feature (SFID 599) that is made available with the 5E16 and later Software Releases. The feature number for this feature is 99-5E-7872.

This feature provides the following Echo Cancellation functionality for CDMA (Code Division Multiple Access):

Electrical Echo Cancellation is compliant to the G.168-2000 Standard with a maximum tail delay of 64 milliseconds. It is heard by the local user due to poor impedance at equipment interface points (hybrids). This results in a portion of the transmitted signal being reflected back toward the source.

■ **NOTE:** EC (Echo Cancellation) capability currently exists on a PHV4, but it is not compliant to the G.168-2000 standard. Due to memory constraints and processor speed issues, the PHV4 EC functionality will not be compliant to the G.168-2000 standard and is unchanged by this feature.

Acoustic Echo Cancellation has a maximum tail delay of two times the system delay between the PHV5 and the mobile. It is produced when sound from a mobile station's speaker is acoustically fed into the mobile station's microphone. This leakage or "acoustic coupling" between the speaker and microphone of the mobile phone is due to the inadequate isolation between the receiver and the transmitter. As the handset size is reduced, it is more difficult to provide this isolation. The result of the inadequate isolation is that the far-end user hears an echo of themselves.

Automatic Gain Control is the functionality that boosts low signal levels coming from the network to compensate for the surrounding noise. It can also be used to reduce extremely high speech signal levels.

Noise Suppression is the functionality that reduces the background noise found in the "reverse link" mobile speech path environment. It is important to note that while CDMA EVRC (Enhanced Variable Rate Coding) and 13K mobiles already provide this functionality, Noise Suppression will also be implemented in the PHV5 vocoders.

Noise Compensation is the application of a gain to the "forward link" speech path proportional to the noise level found in the "reverse-link" direction.

1.1 Definitions

Tail delay is the round trip delay measured from the PHV's echo canceller to the landline receiver, to the transmission conversion equipment (local switching equipment makes this 4-to-2-wire conversion), and back to the PHV's echo canceller. On a mobile to PSTN (Public Switched Telephone Network) call through a PHV, the tail delay would equal the sum of the delay from the PHV to the hybrid and the delay from the hybrid back to the PHV.

A *hybrid* converts a four-wire connection (separate transmit and receive circuits) to a two-wire connection (transmit and receive on the same wire pair). Ordinary telephone sets are two wire.

The *reverse link* is the signal transmitted from a mobile station to a base station (mobile to cell). This link is also known as the uplink.

The *forward link* is the signal transmitted from a base station to a mobile station (cell to mobile). This link is also known as the downlink.

2. FEATURE ASSIGNMENT

To activate this feature:

Activate the CDMA (Code Division Multiple Access) feature by setting the ACT field for SFID 221 on the SFSYS form (5713-1 Record) to "Y". For more information on this feature see Division 2, Section 4A221.

Activate the Echo Cancellation for CDMA (Code Division Multiple Access) feature by setting the ACT field

for SFID 552 on the SFSYS form (5713-1 Record) to "Y". For more information on this feature see Division 2, Section 4A552.

Activate this feature by setting the ACT field for SFID 599 on the SFSYS form (5713-1 Record) to "Y".

Update any Echo Cancellation fields on the CDMAOPT form (5599 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CDMAOPT	5599	8	80	8.75
SFSYS	5713-1	3	5AR	8.22

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for the CDMA feature. Added the NE SPCH DET TH, AGGR ADPT RATE, NRML ADPT RATE, AGGR NLP TH, NRML NLP TH, DBL-TALK CTRL, AC ECHO CTRL, REV LINK AGC, FRWD LINK AGC, REV LINK NS, and REV LINK NC fields and associated data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 221, SFID 552, and SFID 599 to "Y".

SEC. 4A600: USE OF NPA FOR E911 DEFAULT ROUTED CALLS

1. BACKGROUND

Currently, when a wireline E911 call is default routed at an E911 Tandem switch to an Enhanced MF (Multifrequency) CAMA (Centralized Automatic Message Accounting) PSAP (Public Safety Answering Point) or ISDN PSAP due to the caller's ANI (Automatic Number Identification) not being available (e.g. not 10 digits), the digit string "000-911-0TTT" (where TTT represents the ESCO (Emergency Service Central Office)) is sent instead of the ANI. For a wireless E911 call, when the MDN (Mobile Directory Number) and/or P-ANI (Pseudo ANI) are not available, the "000-911-0TTT" digit string(s) is sent, instead of the ANI and/or P-ANI, to an Enhanced MF CAMA PSAP. For an ISDN PSAP, only one "000-911-0TTT" digit string is sent.

2. FEATURE DESCRIPTION

Available with the 5E15 FR3 Release and 5E16 BMI (Beginning Management Introduction) the Use of NPA for E911 Default Routed Calls feature has feature number 99-5E-8007 (originally 99-5E-7667). This feature is a secured feature controlled by SFID (Secured Feature ID) 600 and modifies the "000-911-0TTT" digit string by replacing the "000" digits of the string with the 3 digits from the HOME NPA field on OFCOPT form (5509 Record) (RC View 8.1). If the HOME NPA field is not populated, the existing "000-911-0TTT" digit string will be used as currently done.

3. FEATURE ASSIGNMENT

The Use of NPA for E911 Default Routed Calls feature is dependent on the Enhanced 911 feature (see Division 2, Section 1BD). Therefore, SFID 61 must first be activated on the SFSYS form. The Use of NPA for E911 Default Routed Calls feature is then activated by setting the ACT field for SFID 600 to "Y" on the SFSYS form.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. ACT must be "Y" for SFIDs 61 and 600.

SEC. 4A601: BILLING AND COMPTROLLERS

1. BACKGROUND

Traditionally, a call that is not directly connected to an inter-exchange carrier is considered to route via a tandem switch; otherwise, it is considered a direct connection. Prior to this feature, the routing indicator in the AMA (Automatic Message Accounting) originating access record and the AMA terminating access record were controlled by the call path. The routing indicator value could not be set by the data. It was not a translation-driven value. The billing for calls traversing directly between inter-exchange carriers and end offices are not duration or distance-sensitive, but the billing for calls traversing via tandem office are both duration and distance-sensitive. The Billing and Comptrollers feature allows the routing indicator to be controlled by a data attribute on the trunk group or by the path actually traveled.

2. FEATURE DESCRIPTION

The feature number for the Billing and Comptrollers feature is 99-5E-7984. This feature is controlled by SFID (Secured Feature ID) 601 and is made available with the 5E15 Feature Release 3.

This feature allows an option to record the routing indicator on the AMA record either according to the provisioning of trunk group or according to the call path that is actually traveled.

The Routing Indicator field (BAF (Bellcore AMA Format Table 59) is used by the 5ESS Switch to indicate the type of routing used to deliver traffic between the IC/INC (Inter-exchange Carrier/International Carrier) and the LEC's (Local Exchange Carrier's) end office. It indicates direct or tandem connection to and from ICs/INCs over LEC facilities. The criteria to set this value is determined by the call path that is actually traversed.

The Billing and Comptrollers feature uses the ROUTE IND (Route Indicator) field on the incoming trunk group or the outgoing trunk group to determine the value of the routing indicator. It is used for the criteria to determine whether to use the call path or the value of the ROUTE IND field. It also determines the value of the routing indicator.

3. FEATURE ASSIGNMENT

To activate this feature:

Set the ACT field to "Y" for SFID 601 on the SFSYS Form (5713-1 Record).

Set the ROUTE IND field to "DIRECT" or "TANDEM" on the TKGRP form (5202 Record).

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

TKGRP	5202	3	2A	5.1
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field to "Y" for SFID 601.

TKGRP form (5202 Record) - The TKGRP form is used to define each Trunk Group in a 5ESS Switch. For 5E15 and later, added the ROUTE IND field.

SEC. 4A602: 7R/E PACKET SOLUTIONS 4.0N ATM TRANSPORT SOLUTION

1. BACKGROUND

Although the Port Maintenance (99-5E-7879), the Fault Management (99-5E-7880), the System Integrity (99-5E-7881), and the Call Processing (99-5E-7882) features were originally viewed as separate features, however, since they are so intertwined, they are being documented together. These features are associated with SFID (Secured Feature ID) 602. All four features are available with the 5E16 and later Software Releases.

2. FEATURE DESCRIPTION

2.1 Port Maintenance (99-5E-7879)

This feature provides the PM (Port Maintenance) functionality on the 7R/E 5ESS Switch to support the ATM (Asynchronous Transmit Mode) LAG (Line Access Gateway) and ATM TAG (Trunk Access Gateway) through the MGP (Media Gateway Proxy). The line types covered for this feature are POTS (Plain Old Telephone Service) Analog, POTS MLHG (Multi-Line Hunt Group), POTS Coin line, and ISDN (Integrated Services Digital Network) BRI (Basic Rate Interface). The trunk types supported by this feature are ISDN PRI (Primary Rate Interface) D-channels (signaling) and B-channels (bearer) and SS7 (Signaling System No.7) bearer channels.

The plan for line units (LAG) is to use the same application pack that is used in an AMAS (AT&T Maintenance & Analysis System) Remote Terminal in an integrated digital loop carrier system (TR-303 interface) for analog lines and ISDN BRIs (U-interface). The trouble detection mechanisms and the ISDN protocols for the analog lines and BRIs are expected to be comparable to those provided in an AMAS remote terminal.

The plan for trunk units (TAG) is to use a PSAX 2300 to terminate trunking facilities. In this release, the PSAX supports 2 types of trunks; PRI trunks and CCS7 bearer trunks. CCS7 (Common Channel Signaling 7) signaling does not exist on the PSAX but existing PSU (Packet Switch Unit) and CN1 (Common Network Interface) signaling links are used for ATM CCS7 bearer trunks. For PRI trunks, the PSAX terminates the PRI D-channel LAPD (Link Access Protocol D) protocol to the far end so all call signaling is performed through the PSAX.

The 7R/E 5ESS virtual trunk design is based on the capabilities of the PSAX 2300 and its CG (Connection Gateway) API (Application Programming Interface) (also called Sapphire) language. The capabilities of the PSAX 2300 affect the 7R/E 5ESS packet trunk design.

The functionality impacted by this design include:

PSA (Port Status Administration),

PSA I/O,

CCS Maintenance,

Port Fault Handling,

Line Testing,
Trunk Testing,
SMP Full and Selective Initialization,
Port Ownership,
Port Conditioning,
RTA, and
Audits.

2.2 Fault Management (99-5E-7880)

This section provides the Fault Management philosophy for PS R4.0. Circuit side maintenance is provided by the existing 7R/E 5ESS management infrastructure. The ASM (Administration Services Module) capabilities are extended to include management of the MGP (Media Gateway Proxy). The ASM at a minimum has to report failure and alarm information on the MGP. It also decides what manual actions are available on this MGP. Packet side maintenance actions are reported to native EMS (Element Management Systems). Real time fault management activities are handled by the individual components. The actions taken that affect SMP (Switch Module Processor) call processing are reported to the MGP via IPDC (Internal Protocol Device Control), (LAG (Line Access Gateway)) or Sapphire (TAG (Trunk Access Gateway)). The following list summarizes the fault management activities:

1. **PSAX-IWG (Inter-Working Gateway):** The PS 3.0 design is covered in SRQ109: Integrated VTOA (Voice Telephony Over ATM (Asynchronous Transfer Mode)) for NAR (PS3.0).
2. **PSAX-IWU (Inter-Working Unit):** This component autonomously switches around failures and report state changes and alarm information on hardware circuit packs to the NavisCore. It reports virtual port state changes, and ATM interface failures to the MGP via Sapphire messages. (Note: Port state changes are handled by the Port Maintenance Area.) The MGP uses call processing "heartbeats" to verify whether or not PSAX-IWU call processing is up and running. For PAG, there are specific PAG functions that lead to specific requirements, (e.g., in case of SMP selective initialization), the PAG packet service and stable call processing should not be affected.
3. **MGP (Media Gateway Proxy):** The MGP performs real time fault management independent from the ASM. This component reports state changes and alarm information to the ASM via SNMP traps. The ASM uses maintenance "heartbeats" to verify that the maintenance process is up and running.
4. **LAG (Line Access Gateway):** This component autonomously switches around failures, and report state changes and alarm information on hardware circuit packs to the AEM. It will report virtual port status changes to the MGP via IPDC messages.
5. **PSAX-TAG (Trunk Access Gateway):** This component autonomously switches around failures and report state changes and alarm information on hardware circuit packs to the NavisCore. It then reports virtual port state changes, DS1 (Digital Signal Level 1) facility status changes and ATM interface failures to the MGP via Sapphire messages. (Note: Port state changes are handled by the Port Maintenance Area.)
6. **P333T:** This component provides the L2 IP (Internal Protocol) switch capability required between the

MGP and ASM. The ASM monitors this component via maintenance "heartbeating".

2.3 System Integrity (99-5E-7881)

SI (System Integrity) is responsible for ensuring the overall system sanity and health of a PS office. More specifically, System Integrity is responsible for initialization, EAI (Emergency Access Interface), integrity monitor, data delivery, audits, IDS (Inter-processor Data Synchronization), craft asserts, escalation, and inhibits.

2.4 Call Processing (99-5E-7882)

This feature, in and of itself, is not delivering any functionality. It was created, along with the other features documented here. The feature is actually delivering all 7R/E 5ESS call processing related work to support the following 7R/E Market Features:

M01250A: Multiple CFS base for ATM

M01252A: Packet and Circuit Interworking on a CFS for ATM

M01253A: ATM Packet Switched Circuit Line Access (i.e. LAG)

M01254A: ATM Packet Switched Circuit Trunk Access (i.e. TAG)

M01255A: Subscriber Services on CFS for ATM Access

3. FEATURE ASSIGNMENT

For 5E16 and later, to provision this feature:

Activate the feature by setting the ACT field for SFID 602 to "Y" on the SFSYS form (5713-1 Record).

Using Recent Change View 19.13 (ODA form EQMH (Record 5856)), create the MH (Message Handler) associated with SM2000.

Using Recent Change View 19.20 (ODA form ENETPIPE (Record 5826)), create an ethernet pipe assignment with SERV TYPE of "CFS".

Using Recent Change View 19.21 (ODA form ENETLINK (Record 5827)), create an ethernet link assignment.

Using Recent Change View 19.26 (ODA form EQIWG (Record 5874)), create a minimum IWU (Inter-Working Unit). This step will define the IWU without OC-3 (Optical Carrier 3) and IWU facility interfaces.

Using Recent Change View 20.24 (ODA form EQVT (Record 5858)), equip the Virtual Tributary and Digital Signal Level 1 SONET (Synchronous Optical Network) (DS1S (Digital Signal Level 1)) on a DNU-S (Digital Network Unit - SONET).

Using Recent Change View 19.26, update the IWU entry, growing the OC-3 datagroups (DG0 and DG1). Define the datagroups with an equipment status of Growth. Note that for IWU, the AESA will not be entered.

Using Recent Change View 19.26, update the IWU entry, changing the equipment status of the OC-3 datagroups (DG0 and DG1) from Growth to Operational. Note that for IWU, the AESA will not be entered.

Using Recent Change View 19.26, modify the IWU entry, updating the IWU facility interfaces.

Using Recent Change View 50.1 (ODA form MGPGROWTH (Record 6920)), create the MGP (Media Gateway Proxy) unit.

Create a new virtual packet line or trunk, using:

- Recent Change Views 1.6 or 1.8 (ODA form LINE (Record 5109)) for analog lines,
- Recent Change Views 23.2 or 23.8 (ODA form DSL (Record 5907)) for ISDN lines, or
- Recent Change View 5.1 (ODA form TKGRP (Record 5202)), 5.2 (ODA form PRIGRP (Record 5211)for PRI), and then 5.5 (ODA form TRUNK (Record 5204)) for trunks.

Using Recent Change View 50.2 (ODA form MGPCOMP (Record 6921)), define the MGP component association.

Define the MGP routing data for packet lines or trunks, using

- Recent Change View 50.3 (ODA form MGPLINE (Record 6922)) for packet lines, or
- Recent Change View 50.4 (ODA form MGPTRUNK (Record 6923)) for packet trunks.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907	5	1H	23.2, 23.2
DSLUSR	5908	5	1I	23.2, 23.8
ENETLINK	5827	8	67	19.21
ENETPIPE	5826	8	66	19.20
EQUIWG	5874	8	82	19.26
EQVT	5858	8	60	20.24
LINE	5109	3	1I	1.8
MGPCOMP	6921	5	4B	50.2
MGPGROWTH	6920	5	4A	50.1
MGPLINE	6922	5	4C	50.3
MGPTRUNK	6923	3	4D	50.4
MLHLN	5111	3	1K	1.8
PRIGRP	5211	3	2M	5.2
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
TRUNK	5204	3	2C	5.5

DSL form (5907 Record) - This form is used is used to define the attributes of a DSL. A DSL is also referred to as a BRI (Basic Rate Interface). It is used to define the attributes of the B1 and/or B2 channel of the DSL, if either or both of those channels are to be used on a Permanent Packet basis (dedicated to X.25 Packet Switching). Added a data rule to the DSL OE field.

DSLUSR form (5908 Record) - This form is used for four major purposes:

1. DSLUSR defines the associated TN(s) and status of a DSL user. The OE field on this form is the field

that associates a user with a particular DSL. This DSL is defined on a DSL form (5907-1 Record) in the DSL OE field. These two fields are the only link between a DSL form and a DSLUSR form.

2. DSLUSR defines the circuit switching (voice and data) attributes of a DSL user.
3. DSLUSR defines the D-channel packet switching attributes of a DSL user.
4. DSLUSR defines the On Demand B-channel packet switching attributes of a DSL user.

Added a data rule to the EQUIPMENT field.

ENETLINK form (5827 Record) - This form is used to enable the craft to review and update the ethernet links connected to an MH (Message Handler). Added data rules to the SERV TYPE, HW ADDR 0 SIDE 0, and HW ADDR 1 SIDE 1 fields. Also changed the IP ADDR SIDE 0 and IP ADDR SIDE 1 from No-Change fields to Optional fields.

ENETPIPE form (5826 Record) - This form is used to enable the craft to review and update the ethernet pipes connected to an MH (Message Handler). Added a data rule to the SERV TYPE. Also changed the IP ADDR SIDE 0 and IP ADDR SIDE 1 from No-Change fields to Optional fields.

EQIWG form (5874 Record) - This form is used to define the units of Interworking Gateway which is the bridge between a Switching Module and an ATM (Asynchronous Transfer Mode) switch. Added the UNIT TYPE and CLI fields with associated data rules. Also renamed the IWG, IWG SM, IWG AISLE, IWG BAY, and IWG VERPOS fields.

EQVT form (5858 Record) - This form is used for the equipage of the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S - feature number (99-5E-1427). Added the IWU value to the APPLICATION field.

LINE form (5109 Record) - This form defines the Office Equipment Number and features for each TN (Telephone Number) in a 7R/E 5ESS Switch. Added a data rules to the ASSOC OE and OE fields.

MGPCOMP form (6921 Record) - This form is used to define a MGP (Media Gateway Proxy) component association. New form to support this feature.

MGPGROWTH form (6920 Record) - This form is used to define a MGP (Media Gateway Proxy). The MGP is associated with an SM2000 to create a packet SM (Switching Module). New form to support this feature.

MGPLINE form (6922 Record) - This form is used to add the MGP (Media Gateway Proxy) routing data for packet lines. These packet lines exist on a LAG (Line Access Gateway). New form to support this feature.

MGPTRUNK form (6923 Record) - This form is used to add the MGP (Media Gateway Proxy) routing data for a packet trunks. These packet trunks exist on a TAG (Trunk Access Gateway). New form to support this feature.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular MLHG. Each MLHG/Terminal Number must be assigned an equipment number and specific options and features. Every MLHG Number assigned on the MLHLN form must be defined on the MLHG form (5110-1/2/3 Record). Added data rules to the ASSOC OE and OE TYPE fields.

PRIGRP form (5211 Record) - This form is used for National ISDN PRI. Added data rules to the EQUIPMENT field.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical

channel group on a PSU (Packet Switching Unit) shelf. Added the VIRTUAL field and an associated data rule.

SFSYS form (5713-1 Record) - This form is used to enable secured features. Enable this feature by setting the ACT field for SFID 602 to "Y".

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 7R/E 5ESS Switch Office. The trunk information that is entered on this record is unique to the individual member of a Trunk Group. Trunk information that is common to the entire Trunk Group is entered on the TKGRP form (5202 Record). Added data rules to the TRKOE field.

SEC. 4A603: SS7 USING OPERATOR SERVICES

1. BACKGROUND

The OSPS (Operator Services Platform System) ANSI (American National Standards Institute) Incoming Signaling System No. 7 from End Offices feature (5E14 feature number 98-5E-4067) provided OSPS the capability to accept and process incoming signaling using ISUP (ISDN (Integrated Service Digital Network) User Part) from LEC (Local-Exchange Carrier)-owned or IC (Inter-Exchange Carrier)-owned SPCS (Stored Program Control System) Switches for both intranetworking and internetworking. The 98-5E-4067 feature does not support operator services hold (also known as connection hold) which allows the operator system to control the originating connection. This capability is only currently defined for MF (Multi-Frequency) signaling. As a result, OSPS does not provide ringback, flash, or coin control functionality on SS7 signaled calls. For more information on this OSPS feature, see Division 2, Section 4A463.

2. FEATURE DESCRIPTION

The SS7(Signaling System Number 7) Using Operator Services feature supports ISUP signaling for OSC/CO (Operator Services Connections for Call Originations) and for OSCs/I (Operator Services Connections for Intercept). It focuses on the signaling functions carried out by 7R/E 5ESS end offices, not the OSS (Operator Services Switch), to support operator services connections. It also addresses signaling functions for 7R/E 5ESS Tandem Switches that are not OSS's.

New ISUP functionality provided by this feature is designed to support originating operator services signaling functions such as:

- the establishment and release of the connection,
- updates of end-to-end connection information,
- connection hold, or
- network recall (flash)

With the exception of exclusion of the Charge Parameter via provisioning on RCV (Recent Change View) 10.2 (ODA form RTIDX (Record 5303)) which also impacts the inclusion of the OLI (Originating Line Information) parameter, SS7 Network Interconnect should operate as currently designed. The impact of this feature is to the ISUP signaling protocol only. So the current implementation for both MF operator calls and intercept calls handled by an MF operator will remain the same.

This feature is a secured feature (SFID 603) that is being deployed in the 5E16(2) Software Release. The feature number for this feature is 99-5E-7921.

3. FEATURE ASSIGNMENT

Although this feature provides new attributes used in provisioning, it relies heavily on existing provisioning scenarios, especially for Digit Analysis and basic SS7 ISUP signaling. The following other features are especially used in provisioning of this feature:

The ICLATA (Intra-LATA PIC (Presubscribed Inter-LATA Carrier)) feature (99-5E-1291). For more information, see Division 2, Section 4A149.

The ALSPP (Alternative Local Service Provider Routing) feature (99-CP-4031). For more information, see Division 2, Section 4A269.

The following views are used during provisioning of this feature:

RC View 5.1 (ODA form TKGRP (Record 5202)).

RC View 5.5 (ODA form TRUNK (Record 5300)).

RC View 8.15 (ODA form OFCOPT (Record 5509)).

RC View 8.24 (ODA form SCRIDXP (Record 5543)).

RC View 10.2 (ODA form RTIDX (Record 5303)).

RC View 10.3 ((ODA form ICF (Record 5305)).

RC View 10.10 (ODA form RAR (Record 5301)).

3.1 Provisioning Scenarios

1. Provisioning the LEC (Local Exchange Carrier) "A" end office for connections to the LEC "A" operator switch:

View 10.2:

- SIGPRO attribute for calls of this type should be set to "TRAD" (Feature Group D signaling not in use).
- Note that when SIGPRO attribute is "TRAD", new CONNECTION HOLD and OPERATOR ACCESS attributes are not applicable. In this case, these capabilities are always enabled.
- OPERATOR SIG attribute should be set to "MOD" to indicate that Modified NOA (Nature of Address) signaling is used.

On view 8.24, the RESTRICT LINE attribute should be provisioned for screening indices associated with lines requiring restricted/special treatment.

On view 10.10, for screening indices supporting restricted/special lines the none+ and 1+ routes should be over ridden with RTI (Routing Indices) that are provisioned to support this feature.

2. Provisioning for calls involving IXC (InterExchange Carriers)

View 10.2

- SIGPRO should be set to "EA" or "INC" (Feature Group D signaling is used).
- OPERATOR SIG should be set to "MOD" to indicate that modified NOA signaling is used.
- OMIT CHARGE should be set to "Y", so the CHG parameter will be sent in the originating IAM (Initial Address Message) only if its DN (Directory Number) is different from the DN in the CPN (Calling Party Number) parameter.
- If the Inter-LATA IXC (Inter-Exchange Carrier) has arranged for another carrier to route their calls, and the call will pass through an access tandem rather than on a direct route, the new CARRIER ID field should be populated. If the IXC carries its own operator calls, this field should be left blank.
- ANI IND, CPN SUBSC and CICP SUBSC fields should be set to "Y".

On view 10.3, the SS7 OP CDI and SS7 OP RTI fields should be populated for 555-1212 calls..

On view 8.24, the RESTRICT LINE field should be provisioned for screening indices associated with lines requiring restricted/special treatment.

3. Provisioning for calls where the LEC is handling an IXC call on behalf of the IXC:

This scenario is identical to the second scenario, with one exception, that on view 10.2, the CARRIER ID attribute should be populated with the Carrier ID of the LEC handling the call on behalf of the IXC.

4. Provisioning when using the ICLATA (Intra-LATA PIC (Presubscribed Inter-LATA Carrier) feature:

The ICLATA feature allows the LEC to open up certain Intra-LATA Toll routes which were previously handled exclusively by LEC, to compete on an equal access basis between the LEC and IXCs (Inter-LATA Carriers). The ICLATA feature also allows a line to presubscribe to an IXC to carry its Intra-LATA toll calls. When ICLATA feature is activated, by setting the ACT field on RCV 8.22 (ODA form SFSYS (Record 5713-1) for SFID 149 to "Y", the following provisioning is used:

- ICLATA calls carried by ICLATA carriers are provisioned with the SIGPRO field set to "EA" on view 10.2. All the provisioning of the new fields introduced with this feature is identical to second scenario (for calls involving IXC).
- Intra-LATA Toll calls carried by the LEC are provisioned with the SIGPRO field set to "TRAD" on view 10.2. All the provisioning of the new fields introduced with this feature is identical to first scenario (the LEC "A" end office for connections to the LEC "A" operator switch).

5. Provisioning when using the ALSPR feature:

The ALSPR feature allows a line to presubscribe to an alternate local service provide, and then allows 0-, 0+7/10D, 411, (NPA)-555-1212, 611, 811 and non-operator handled (None+/1+) 7/10 digit Intra-LATA local calls to have separate routes than if the local exchange company routed the call. For feature 99-5E-7921 to use the ALSPR feature, this feature must be activated by setting the

ACT field on RCV 8.22 to "Y" for SFID 269. Then all provisioning described in second scenario applies to this scenario.

6. Provisioning when the 7R/E 5ESS Switch is used by a LEC that has made arrangements to use another LEC's operator services switch:

One LEC may make arrangements to send its operator services traffic to another LEC's operator services switch. The originating LEC would be provisioned for this feature just as a LEC switch is provisioned when it is sending traffic to its own operator services switch in the first scenario. This kind of call uses traditional signaling, and thus the operator services switch will not receive either the SS7 TNS (Transit Network Selection) parameter, or the SS7 CICP (Carrier Identification Code Parameter) that is provided in equal access signaling, and that allows the operator services switch to be identified by signaling who the owner of the call is. If dedicated trunks are used to carry this traffic, the operator services switch can identify this traffic. Alternatively, a LIDB (Line Information DataBase) type query could be launched at the operator services switch with the key being either the Calling Party DN (Directory Number) or the Charge Number DN.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ICF	5305	3	3R	10.3
LDIT	5300-3	3	3C	9.3
MLDIT	5300-3	3	3C	9.15
OFCOPT	5509	3	5I	8.15
RDIT	5300-7	3	3H	9.9
RTIDX	5303	3	3P	10.2
SCRIDXPA	5543	3	5AQ	8.24
SFSYS	5713-1	3	5AR	8.22

ICF form (5305 Record) - This form is used to define the characteristics of Inter-LATA (Local Access Transport Area) and Intra-LATA carriers.

LDIT/MLDIT form (5300-3 Record) - This form is used to define all area, office, and service codes (NPA, NXX, X11, etc.) in a 7R/E 5ESS Switch.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices.

RDIT form (5300-7 Record) - This form contains information for the translation of remaining dialed digit strings for digit analysis. Added new value, "NORM555", to the CALL TYPE and CONFLICT RESOLUTION CALL TYPE fields. Also added a data rule to the REL LINK field.

RTIDX form (5303 Record) - This form is intended to be used as an office record and as a source document for data entry into the RTIDX form. A Route Index is the output from a Rate and Route Table and is used to define the routing of a call. Added the OMIT CHARGE, OPERATOR SIG, OPERATOR ACCESS, CONNECTION HOLD, and CARRIER ID fields.

SCRIDXPA form (5543 Record) - This form is used to assign parameters to a line or trunk on a per screening index basis.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by

setting the ACT fields for SFID 603 to "Y".

SEC. 4A604: PRI CALLING NAME FOR THE CANADIAN MARKET

1. FEATURE DESCRIPTION

The PRI (Primary Rate Interface) Calling Name for the Canadian Market feature is a Call Processing Special Feature, which is controlled by Secured Feature ID 604. It is being deployed in the 5E15 Software Release and in the BMI (Beginning Managed Introduction) of the 5E16 Software Release. The feature number is 99-5E-8051.

The PRI Calling Name Display for the Canadian Market feature will:

Provide an office option controlled by an SFID (604) that, when set (activated), and the B channel trunk group has the capability allowed, the switch provides the CPN (Calling Party Name) information in the Display IE (Information Exchange).

Provide an office option controlled by an SFID that, when set (activated), and the B channel trunk group does not have the capability allowed, the switch will provide the calling party name information in the Facility IE.

When this SFID is not set (default) the CPN is provided in the Facility IE.

The feature only provides the name for calls leaving the switch. The feature does not allow the switch to process an incoming Q.931 SETUP message with a proprietary coding for the name delivery.

The feature only supplies the name in the proprietary coding in the Originating Switch Calling Name environment. For calls terminating requiring a name query, the name is delivered after the initial delivery of the Q.931 SETUP method via the standard format (a Q.931 Facility message with a Facility IE containing the name in ASN.1 (AT&T Switched Network.1) coding).

2. FEATURE ASSIGNMENT

After activating the SFID 604, the capability is allowed on a per B channel trunk group basis via the RCV (Recent Change View) 5.1 (TRUNK GROUP) field "DISP CNTRL". A value of "Y" activates the feature and causes the proprietary method to replace the standard method for name delivery. The default value of "N" continues to provide the name in the standard delivery method. The "DISP CNTRL" field can be set to "Y" for both Custom and Standard (National) PRIs.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 603 to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The DISP CNTRL field was

added.

SEC. 4A607: DOUBLE PSU PACKET BUS

1. CROSS REFERENCE

This section has been moved to Division 2, Section 7BK.

SEC. 4A608: FAULT MANAGEMENT LOGGING INTERFACE (ROP TO NFM) VIA TCP/IP INTERFACE

1. FEATURE DESCRIPTION

For information concerning this feature, refer to the *Onelink Manager ASM User's Guide*, Lucent Technologies document 235-200-145.

SEC. 4A609: EXTERNAL INTERFACE INFRASTRUCTURE EXPANSION

1. FEATURE DESCRIPTION

The External Interface Infrastructure Expansion feature is being deployed on the 5ESS Switch in a Software Update for the 5E15 FR4 Software Release and with ASM (Administrative Services Module) Release 5.0. This feature is a secured feature, that is controlled by Secure Feature ID 609. The feature number is 99-5E-7886. For additional information on this feature refer to the Lucent Technology document number *235-200-145 OneLink Manager (TM) ASM User's Guide*.

This feature provides for the delivery of 5ESS Switch MDII (Machine Detected Interoffice Irregularity) messages, to external systems, over a TCP/IP (Transmission Control Protocol/Internet Protocol) based interface. This machine-to-machine interface allows these 5ESS Switch-originated messages to be transmitted from the ASM to a receiving OSS (Operation Support System) over a high-speed data network.

In addition to the interface functionality, this feature also provides for an enhanced ASM logging infrastructure that covers the following ASM log types: DLOG (Debug Logs), ELOG (Error Logs), PLOG (Performance Logs), ROPLOG (ROP Logs), SNMP (Simple Network Management Protocol Logs), SECLOG (Security Log) for the GUI (Graphical User Interface), and any new ASM-controlled log types, including those generated by third party products such as RCC (Reliable Cluster Computing). With ASM Release 5.0, the definition of the ORLOG (Output Report Log) now covers what was included in the ROPLOG in previous ASM releases for the purposes of querying.

1.1 Interface Operation

MDII (Machine Detected Interoffice Irregularities) messages are generated on the 5ESS Switch and delivered to the ASM from the AM (Administrative Module) over DCI (Dual serial channel Computer Interconnect) links. The ASM has the ability to store these messages and make them available to external users. This feature makes these messages available to an external OSS (Operational Support System) on a continuous real time basis.

To receive the MDII messages provided by this feature, an external system needs to make a connection, using TCP/IP, to the ASM. This TCP/IP connectivity is made through an Ethernet interface provided on the ASM. Once a connection is established and active, data is transmitted unidirectionally from the ASM to the OSS. This feature automatically provides for the delivery, to the receiving OSS, of heartbeat messages on a regular basis over this interface. This feature also permits all of the nodes serviced by the ASM (5ESS Switch

and up to 15 DRMs (Digital Rights Managements)) to be supported by this interface. At the time the OSS establishes an interface connection, the OSS specifies, to the ASM, which node data (one of the 16) is to be provided over that connection. Once that connection is established, only data from the desired node is provided over that connection. In addition to this single node reporting mode, this feature allows the OSS to specify, at time of interconnection establishment, that data on all nodes should be reported over the connection. In this mode, the message data from all nodes are combined and transmitted over the same TCP/IP connection.

1.2 External Interface Specification

Information on how OSSs can connect to this interface is described in the Lucent Technology document number *235-200-145 OneLink Manager (TM) ASM User's Guide*.

1.3 ASM Command Changes

Users of ASM scripts that access ASM log files need to take into account ASM command and log file changes that arise as a result of the new logging infrastructure for ASM 5.0. Users can consult ASM manual pages for more information on these changes. The following are a list of the commands and their usage.

dslogcftbl Command

The dslogcftbl is a new command, which is a part of the ASM 5.0 logging infrastructure. This command allows users to change parameters of logging configuration.

dslogstat Command

The dslogstat is a new command that is a part of the ASM 5.0 logging infrastructure. This command provides the status of all log types supported by ASM.

dslogview Command

The dslogview is a new command, which is a part of the ASM 5.0 logging infrastructure. This command allows users to view log messages from multiple log files as one stream. This command allows users to have a super view of multiple log files, i.e., records from multiple log files merged together as one stream.

dsdlstat Command

The dsdlstat command is an existing command used to report the status of all ASM connected OSS data links that use a TCP/IP interface. With this feature, this command continues to provide all of its current functionality. However, when connections to an OSS are present, DCI channel information display for this interface application will indicate that it does not use a DCI channel.

dsosdatalink Command

The dsosdatalink command is an existing command that activates, deactivates, or prints the activation status of ASM connected OSS Data links. With this feature, this command continues to provide all of its current functionality. However, when connections to an OSS are present, DCI channel information display for this interface application will indicate that it does not use a DCI channel.

2. FEATURE ASSIGNMENT

To use this feature, the ASM (Administrative Services Module) must be running on release ASM5.0 or later.

This feature is provided as a secure feature controlled by Secure Feature ID 609. To activate this feature, the ACT field on the SFSYS form (5713-1 Record) must be set to "Y" for SFID 609.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 609 to "Y".

SEC. 4A610: INCREASED ASM DISK SPACE FOR AMADNS

1. FEATURE DESCRIPTION

The Increased ASM Disk Space For AMADNS (Automatic Message Accounting Data Network Service) feature is being deployed in the 5E15 FR4 5ESS Switch Software Release and ASM release 5. This feature is a secured feature, that is controlled by Secure Feature ID 610. The feature number is 99-5E-7851. For additional information on this feature refer to the Lucent Technology document number *235-200-145 OneLink Manager (TM) ASM User's Guide*.

2. FEATURE ASSIGNMENT

To use this feature, the ASM (Administrative Services Module) must be running on release ASM5.0 or later.

This feature is provided as a secure feature controlled by Secure Feature ID 610. To activate this feature, the ACT field on the SFSYS form (5713-1 Record) must be set to "Y" for SFID 610.

This feature provides an expanded filesystem of 20 GBytes for billing data. It is only supported on HA ASM configurations and requires three disks in each of the ASM's two external disk units. Growth of the billing filesystem provided by this feature is performed with the dsfsconfig command. The command on the ASM is: dsfsconfig /bafblks. See the ASM Users Guide for further information on dsfsconfig, and the man page for dsfsconfig on the ASM itself.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 610 to "Y".

SEC. 4A613: ON-HOOK DATA TRANSMISSION WITHOUT POWER RING

This section has been moved to Division 2, Section 4B1008.

SEC. 4A614: FAT Numbering

1. FEATURE DESCRIPTION

Available in 5E16(2) FR 5 and later Software Release, the FAT (Foreign Area Translation) Numbering feature is a secured feature (SFID 614) and is associated with feature number 99-5E-8141.

Currently, when a FAT is assigned, the LDIT (Local Digit Interpreter Table) used is the same as the incoming 3-digit string. That is, if a FAT is assigned to NPA 809, the LDIT must be number 809. This feature will allow the user to specify the LDIT to use for a 3-digit FAT.

This opens up the possibility of multiple FATs being assigned to the same digit string in different LDITs which, in turn, will allow offices with multiple rate areas to utilize FATs defined specifically for each rate area. This is needed because there are usually differences in the routing and billing of calls across rate centers.

Overall, this feature allows multiple FATs to be defined for the same incoming 3-digit string.

2. FEATURE ASSIGNMENT

In order to provision this feature:

Set the ACT field for SFID 614 to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 614 to "Y". Added SFID 614 to the table.

SEC. 4A616: FAT CONFLICT

1. FEATURE DESCRIPTION

Available in 5E16(2) FR 4 and later Software Releases, the FAT (Foreign Area Translation) Conflict feature is a secured feature (SFID 616) and is associated with feature number 99-5E-8140.

This feature allows users the ability to assign a Foreign Area Translation to a 3-digit string when the digits assigned as an NPA (Number Planning Area) are also assigned as an NXX (Telephone Office Code) in a calling area and the NXX can be dialed using 7 digits. That is, FATs could be used in code conflict cases with this feature.

An example of a code conflict follows:

NPA 647 is an assigned NPA

NXX 647 is also assigned to NPA 212 and 7-digit dialing is allowed within the home NPA 212.

In the example above, the switch must determine if the call is destined for the 7-digit dialed NXX or the NPA 647, based on the number of digits entered by the user, before it can determine the route and billing.

The existing FAT capability allows a non-conflicted string of three digits to be built and shared across dialing plans but it does not allow them to be built for conflicted 3-digit strings. This feature removes that limitation.

For additional information, see original FAT feature on Division 2, Section 1AO.

2. FEATURE ASSIGNMENT

In order to provision this feature:

Set the ACT field for SFID 616 to "Y" on the SFSYS form (5713-1 Record).

Create a FAT LDIT by creating a new LDIT by setting the following fields on the SMLDIT form (5315 Record).

LDIT =<a valid number>
 PKT SW = N
 FAT = Y
 RCLOG = N

Set the FAT LDIT form on the LDIT form (5300-5 Record).

For non-FAT LDIT(s), insert (or update) the CONFLICT RESOLUTION table entries where one or more of the entries points to the new FAT LDIT on the SMLDIT form.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LDIT	5300	3	3C	9.3
SFSYS	5713-1	3	5AR	8.22

LDIT form (5300 Record) - This form is used for digit interpretation. Added the FAT LDIT field with associated data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 616 to "Y". Added SFID 616 to the table.

SEC. 4A619: CNI NETWORK ID EXPANSION

1. FEATURE DESCRIPTION

Available in 5E16(1), the CNI Network ID Expansion Feature has feature number 99-5E-8175 and is a secure feature (SFID 619). This feature increases the limit of non-local SS7 network IDs for the CNI signaling platform to 64. Prior to this feature only 24 non-local network IDs could be provisioned on the RC/V 15.12 for CNI SS7 Network Routing. Due to the increase in SS7 connectivity between service providers, the limit is no longer sufficient. Increased AM PAS (Protected Application Segment) memory was allocated in 5E16(1) to allow the CNI SS7 Routing data tables to increase in size. Enough memory was allocated to allow for up to 64 SS7 network IDs with cluster and/or full point code routing.

The CNI Network ID Expansion Feature is secured via Secure Feature ID 619. Customers are required to activate the secure feature ID on RC/V 8.22 in order to provision greater than 24 Network IDs via the RC/V 15.12.

2. FEATURE ASSIGNMENT

Since the CNI database is not supported by the 5ODA, all CNI provisioning must be performed using 5ESS Recent Change (refer to Division 9, Sections 1 and 2 for CNI Recent Change information).

SEC. 4A622: CNI/PSU SUPPORT FOR 128K ISUP TRUNKS

1. FEATURE DESCRIPTION

The CNI/PSU (Common Network Interface/Packet Switching Unit) Support for 128k ISUP (ISDN (Integrated Services Digital Network) User Part) Trunks feature is a secured feature (SFID 622) that is being made available with the 5E15 FR 5 (Feature Release 5) Software Release. The feature number for this feature is 99-5E-8110.

This feature expands the number of ISUP Trunks that can be equipped in offices served by the CNI/PSU platforms to 128K in 5e16 BMI (Beginning Managed Introduction). Currently, there is a 92K limit on the number of ISUP trunks being equipped in an office. In order to actually exceed 92K ISUP trunks in an office the office requires TAGs (Trunk Access Gateways) or must have a Non-Squared TSI (Time Slot Interchange) configuration (i.e. Causes blocking of some trunks).

With this feature more than 100,000 (up to 128,000) ISUP trunks can be equipped in an office.

This feature does not increase the CNI capacity. If there is a CNI in the office then it will not be allowed to pass 100,000 trunks even when this feature is active.

2. FEATURE ASSIGNMENT

The only provisioning needed for this feature is to set the ACT field for SFID 622 to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 622 to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added a data rule to the DEST PT CODE and PLATFORM fields.

SEC. 4A625: HARD-TO-REACH

1. FEATURE DESCRIPTION

The HTR (Hard-To-Reach) feature is a secured feature (SFID 625) available with the 5E16.2 and later Software Releases. The feature number is 99-5E-8028.

The Hard-To-Reach capability is used by NM (Network Management) Personnel to initiate and monitor specific destinations which are experiencing call completion problems. It allows NM Personnel to create a list of destinations (1-10 digit number and/or 4-digit carrier ID) which would then be monitored using Network

Management measurements. By analyzing those measurements, NM Personnel could then take appropriate action to control traffic to destinations deemed HTR by adding the HTR option to existing NM Trunk Group Controls.

The following existing Trunk Group Controls (both manual and automatic) have the HTR option added:

CANT (Cancel To)

CANF (Cancel From)

SKIP

RR (Re-Route)

TR (Trunk Reservation)

ACC (Automatic Congestion Control)

The assignment of a destination to the Hard-To-Reach list is initiated via the NM I/O at the switch site or remotely via the Network Management OS (Operation System). The Trunk Group Controls MML (Machine to Machine Language) (onsite I/O) and NMOS (Network Management Operations System) messages are modified to add the HTR options. The maximum number of HTR entries activated at any one time is 128.

Examples of HTR matching:

In order to determine if a destination is Hard-To-Reach, the destination will be checked against entries in the Hard-To-Reach list. If the destination matches an entry then it will be deemed Hard-To-Reach. It is possible for a destination to match multiple entries on the HTR List. To handle this, matching is based on the most specific code then the carrier.

In order to better explain how the matching is done, the following examples are shown:

Hard-To-Reach List		
Entry	HTR Code	HTR Carrier
1	630	
2	630979	
3	630	0288
4		0288
5	713949	0731

1. Destination(Code=630979XXXX, Carrier=731)

There will be a match on HTR List Entry #2.

2. Destination (Code=630224XXXX, Carrier=731)

There will be a match on HTR List Entry #1.

3. Destination (Code=702431XXXX, Carrier=288)

There will be a match on HTR List Entry #4.

4. Destination (Code=630979XXXX, Carrier=288)

There will be a match on HTR List Entry #2.

5. Destination (Code=630949XXXX, Carrier=288)

There will be a match on HTR List Entry #3.

6. Destination (Code=713949XXXX, Carrier=731)

There will be a match on HTR List Entry #5

7. Destination (Code=713949XXXX, Carrier=288)

There will be a match on HTR List Entry #4.

8. Destination (Code=713949XXXX, Carrier=732)

There will be no match found.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 625 to "Y".

SEC. 4A626: CODE SPECIFIC REROUTE

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-400 Feature Descriptions*.

SEC. 4A627: INCREASED TERMINAL SESSIONS FOR READ ONLY RC ON ASM

1. FEATURE DESCRIPTION

The Increase Terminal Sessions for Read Only RC on ASM feature is being deployed in the 5E15 5ESS Switch Software Release. This feature is a secured feature, that is controlled by Secure Feature ID 627. The feature number is 99-5E-8271. For additional information on this feature refer to the Lucent Technology document number *235-200-145 OneLink Manager (TM) ASM User's Guide*.

This feature is used for extending the number of APPTTEXT RC/V (Recent Change/Verify) sessions a customer can execute concurrently. This is done by providing Proxy DB (Database) verify only APPTTEXT Recent Change sessions. This type of Recent Change session does not utilize the same 5ESS resources as a conventional APPTTEXT Recent Change session. This allows the current maximum Recent Change session limit to be extended.

2. FEATURE ASSIGNMENT

In order to activate this feature the ACT field for SFID 627 on the SFSYS form (5713-1 Record) must be set to "Y". This feature also requires that the office be equipped with an ASM (Administrative Services Module) and is

dependent upon the following ASM applications:

Recent Change Front-end on ASM (SFID = 322), (Ssee Division 2, Section 4A322),

Proxy ODD 5ESS Proxy Database (SFID = 539), (see Division 2, Section 4A539), and

Proxy ODD Recent Change and Squal, only if SQUAL queries is performed (SFID = 570), (see Division 2, Section 4A570).

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 627 to "Y".

SEC. 4A628: TCP/IP SECURITY ENHANCEMENTS FOR CALEA

1. FEATURE DESCRIPTION

The TCP/IP Security Enhancements for CALAE (Communications Assistance for Law Enforcement Act) feature is a secured feature associated with SFID 628 and OFID (Option Feature ID) 708. It is being deployed in the 5E15 FR 5 (Feature Release 5) Software Release. The feature number for this feature is 99-5E-8199.

This feature provides a set of security measures that are enhancements to the CALEA-CORE feature (99-5E-4275). For information on the Core feature, see Division 2, Section 4A509. These security measures are implemented in the 5ESS-2000 Switch, specifically, in the PHs (Protocol Handlers) where the X.25 PVC (Permanent Virtual Circuits) are provisioned and terminated for the use of CALEA CDC (Call Data Channel) or PDC (Packet Data Channel). These measures are the implementation of rules that take advantage of the unidirectional nature of CALEA TCP/IP (Transmission Control Protocol/Internet Protocol) messaging. If any violations of the rules are detected, reports are sent to the CALEA ROP (Read Only Printer). In addition, fault recovery actions are triggered that operates on the HDLC (High Level Data Link) channel that supports the X.25 PVC.

2. FEATURE ASSIGNMENT

The only provisioning needed for this feature is, the ACT field for SFID 628 must be set to "Y" on the SFSYS form (5713-1 Record) to activate the feature and, the ACT field for OFID 708 must be set to "Y" on the FOSYS form (5713-2 Record) to turn the feature on and off.

For detailed information concerning this feature, see the *5ESS Switch Lawfully Authorized Electronic Surveillance Provisioning, Troubleshooting, and Maintenance Guide* (235-200-400) document.

SEC. 4A631: EAI VIA ASM

1. FEATURE DESCRIPTION

The EIA (Emergence Access Interface) on ASM (Administration Services Module) feature is a Secured Feature associated with with SFID 631. It is being deployed in the 5E15 FR 5 (Feature Release 5) Software Release. The feature number for this feature is 99-5E-8144.

Currently, EAI information including PRMs (Performance Report Messages) are displayed on the MCC (Master Control Center), and EAI pokes are processed when the EAI page is active via two-way communication over an asynchronous RS232 (one of the standard interfaces between a computer) interface. This information is also sent to an external OSS (Operating Support System) via the SCCS (Software Configuration Control System) interface which is a synchronous BX.25 (A CCITT communications protocol) interface.

With the EAI on ASM feature, the information sent and received via the SCCS interface over a virtual channel 1, as well as any login and password information, is provided over an asynchronous RS232 interface using a spare port on the UN597 MTTYC (Maintenance Teletype Controllers) circuit pack.

There are two MTTYCs in the 3B21D (the AM). The spare port ASMSP (ASM Service Port) from each of the MTTYCs is connected via a Terminal Server to the ASM, and then to an OSS. ASMSP should not show up as a device to RTR (Real-Time Reporting). A Duplex ASM has two Terminal Servers. Each MTTYC connects to a different Terminal Server. An OSS such as NFM (Network Fault Manager) can access this additional interface via the ASM. The access from the OSS to the ASM is done using the TCP/IP (Transmission Control Protocol/Internet Protocol) interface. This feature works on both the Simplex ASM and the Duplex ASM, and provides an interface consistent with the interface currently available for DRM (Digital Rights Management). The legacy SCCS interface is not being changed.

2. FEATURE ASSIGNMENT

The feature has no ODA impact, therefore no provisioning is needed.

SEC. 4A632: DIGITAL TRUNK INTERFACE FOR TAU

1. FEATURE DESCRIPTION

The feature number for the Digital Trunk Interface for TAU (Test Access Unit) feature is 99-5E-8050. This feature is controlled by SFID (Secured Feature ID) 632 and is made available with the 5E15 FR 5 (Feature Release 5) Software Release.

This feature provides the support of Test Access Unit AC (Alternating Current) Jacks via digital trunks from the 5ESS Switch. The AC Jacks are used to get access to any trunk or line on the switch via an AC coupled (tones, voice) connection. The jack access can be used with portable test equipment to source tones, to measure tones, or to send and receive voice transmissions. The access is set up via TLWS (Trunk Line Work Station) commands or via a directly signaled call on the jack interface.

The Test Access Unit AC Jacks currently are connected via analog trunk(SN-104)interfaces to the switch. The test equipment generates and receives analog signals. Therefore when digital trunks are assigned to serve AC Jacks, an appropriate signaling converter or channel bank must be provided between the switch trunk port and the Test Access Unit.

2. FEATURE ASSIGNMENT

To activate this feature:

Set the ACT field to "Y" for SFID 632 on the SFSYS Form (5713-1 Record).

Assignment of AC-JACK equipment number:

Define a new trunk group on RCV (Recent Change View) 5.1 (TKGRP form (5202 Record)) with TRK CLASS equal "ACJCK".

Define a new trunk member on RCV 5.5 (TRUNK form (5204 Record)) with TEN entered for analog trunks, DEN entered for Digital Equipment Trunks, or NEN entered for Digital Networking unit Trunks.

Assign the appropriate trunk (TEN, DEN or NEN) on RCV 14.3 view (TLWS form (5511 Record)) as AC JACK 1 OE or AC JACK 2 OE.

When AC JACK 1 OE and AC JACK 2 OE types equal "T", the AC JACK 1 OE number is used with Service Group 0 of the Trunk Unit, and the AC JACK 2 OE number is used with Service Group 1 of the Trunk Unit. Any other configurations with "D", "N", or "T" types for AC JACK 1/2 OE fields can be used without any restrictions.

2.1 AC JACK setup procedure

AC Jack Connection for DLTU (Digital Line and Trunk Unit):

The DEN is entered on the TLWS Form, it is brought out to the STP (Signaling Transfer Point) Trunk Jack PNL (Panel) by X-connecting the T/R/T1/R1 from the E&M channel packs, which are put in the respective channels of the D4 Channel Bank. The D4 Channel Bank is connected to the DFI (Digital Facility Interface) of the DLTU via T1 links.

AC Jack Connection for DNU-S (Digital Networking Unit - SONET):

The NEN is entered on the TLWS Form, it is brought out to the STP Trunk Jack PNL by X-connecting the T/R/T1/R1 from the E&M channel packs, which are put in the respective channels of the D4 Channel Bank. The D4 Channel Bank is connected to the DDM2K via T1 links. DDM2Ks are connected to DNU-S via STM-1 (Synchronous Transport Mode 1) links. It breaks the STE (Signaling Terminal Equipment) into 28 DS1s (Digital Signal level 1).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1
TLWS	5511	3	5K	14.3
TRUNK	5204	3	2C	5.5

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field to "Y" for SFID 632.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added two data rules to the TRKCLS of "ACJCK".

TLWS form (5511 Record) - This form defines each TLWS (Trunk and Line Work Station) associated with a 5ESS Switch. An MCC (Master Control Center) TLWS is required in every 5ESS Switch and must be defined on this form. Changed the field names of AC-JACK 1 TEN and AC-JACK 2 TEN to AC-JACK 1 OE and AC-JACK 2 OE, respectively.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch

Office. Modified a data rule for the NEN equipment type.

SEC. 4A633: DIGITAL CELLULAR SWITCH CRITICAL ALARMS IMPROVEMENT

1. BACKGROUND

Prior to this feature, for the DCS (Data Control System) there was not an alarm to indicate trunk problems. The craft did not know when there was a problem due to the lack of alarms and messages to the ROP (Read Only Printer).

2. FEATURE DESCRIPTION

The Provide Critical Alarm When Trunks Outside of the DCS is Lost feature is a secured feature (SFID 633) that is made available with the 5E16(1) FR 2 (Feature Release 2) Software Release, and is associated with feature number 99-5E-7970.

The DCS detects, isolates, and provides a critical alarm, and a message to the ROP, when trunk interfacing with the DCS goes OOS (Out Of Service). The ROP message indicates at minimum the following:

- Type of trunk OOS condition is detected on (Digital, Analog, Optical)

- Date and time stamp

- Alarm level (e.g. critical)

- SM alarm occurred on

- Peripheral alarm occurred on

- Indication of what caused the alarm

There is alarm and ROP indications for the following cases:

- Autoplex PSTN (Public Switch Telephone Network)

- Non-Autoplex PSTN

- Other Vendor's APX (Autoplex) Switch

- Cell site-1

- Cell site-2

- PBX (Private Branch Exchange)

- VMS (Virtual Memory operation System)

- IS634 (Interim Standard 634) Base Station

- IWF (Inter-Working Function)

3. FEATURE ASSIGNMENT

To activate this secured feature, the ACT field for SFID 633 on the SFSYS form must be set to "Y".

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. ACT must be "Y" for SFID 633.

SEC. 4A635: VOICE AND DATA CHANNEL COUNTS

1. FEATURE DESCRIPTION

The Voice and Data Channel Counts feature (97-5E-8312) is a secured feature (SFID 635) that is made available with the 5E17 Software Release.

This feature provides a mechanism for tracking the number of PHV (Protocol Handler for Voice) voice and data channels provisioned in an office verses the number of PHV voice/data channels purchased or licensed. If the RCV (Recent Change and Verify) blocking functionality has been activated, once the number of provisioned channels reaches a threshold of 80% of the total Channels licensed, a warning will be given to the customer. Also, if the blocking functionality has been activated, when the number of provisioned channels reaches 100% of the total licensed, the customer is not allowed to provision the PHV channels until the total licensed limit has been updated by Lucent personnel.

2. FEATURE ASSIGNMENTS

2.1 Data Provisioning

Inserts, updates, and deletes will ONLY be allowed for RC. This form can only be reviewed by ODA.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
VDCHN	5918	5	3W	22.32

VDCHN form (5918 Record) - This form is used to display all Recent Change transactions on view 22.32. This is a new form that supports this feature.

SEC. 4A662: CM3 TMS Fabric Expansion

For information concerning this feature, see Division 2, Section 7BO.

SEC. 4A663: CM3 TMS Fabric Expansion

For information concerning this feature, see Division 2, Section 7BO.

SEC. 4A664: CM3 TMS Fabric Expansion

For information concerning this feature, see Division 2, Section 7BO.

SEC. 4A666: NxTMS TRAFFIC MEASUREMENTS

1. FEATURE DESCRIPTION

The NxTMS (N times TMS (Time Multiplexed Switch)) Traffic Measurements feature is being deployed in the 5E16(2) Software Release. The feature number for this feature is 99-5E-8259.

This feature introduces the functionality which allows collection of traffic data for Network Time Slot attempts. It also collects mismatches per originating SM (Switching Module) - terminating SM pair. It formats and report that data on the appropriate newly created 30 minute report section 149, called MTSM (Matrix Time Slot Measurements).

The introduction of the base NxTMS feature (99-5E-4104) requires that the switch be engineered in such a way as to be used to its fullest extent. For example, maintaining proper call load distribution among the SMs (Switching Modules) and SM2000s in an NxTMS office with N greater than 1 is requested. For proper switch engineering, the data related to the call load distribution is needed, and should be supplied by traffic measurements. This data must be collected prior to activating the 99-5E-4104 feature. The existing measurements such as Network Time Slot Occupancy and Network Time Mismatch are reported per SM and does not show the call load distribution to other SMs.

To address the need of additional data needed for NxTMS switch engineering, the additional "matrix" measurements are introduced. These kind of measurements allow the user to get the information about the traffic between any part of SMs in the switch, while taking into account the direction of the traffic (SM x -> SM y traffic is generally different from SM y -> SM x traffic).

2. FEATURE ASSIGNMENT

The only provisioning needed for this feature is:

Activate SFID 666 by setting the ACT field on the SFSYS form (5713-1 Record) to "Y".

Select components to be collected using RC/V (Recent Change/Verify) views 13.7 and 13.8 (no existing ODA forms).

Allow TRFC30 section 149 for collection using the ALW:TRFC30,CLCT,MTSM; command.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9
SFSYS	5713-1	2	4A0	8.22

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Components are defined as the entity to be measured; components can be at the end product level (AIU, DNU-S, SS7 PSU, etc.) or subassemblies (i.e., packs, lines, DPIDB, etc.). Added the MTSM section name.

SFSYS form (5713-1 Record) - This form is used to enable secured features. SFID 666 ACT must be set to "Y" to enable this feature.

SEC. 4A667: CALL TRANSFER/COT/AC ENHANCEMENTS

1. FEATURE DESCRIPTION

For information on this feature refer to Division 2, Section 4A588.

SEC. 4A669: PATCH SPACE RECOVERY TOOL

1. FEATURE DESCRIPTION

The PSR (Patch Space Recovery) Tool feature (99-5E-8278) is made available with the 5E16(2) FR 1 (Feature Release 1) and later Software Releases. This feature is a secured featured controlled by SFID 669.

The primary objective of the Patch Space Recovery Tool feature is to aid in the extension of the life of the 5E16(2) Software Release. Historically, the fragmentations of the patch space and the exhaustion of patch holes in the IM.out has limited the life cycle of a release. This feature addresses this issue by "de-fragmentation" of IM.out patch, consolidating remaining patches in several larger holes.

The new IM.out(s) built on the disk and the memory of the SM(s) (Switching Modules) are updated using the ISD (Interim Split Duplex) mechanism. This mechanism requires that the SM(s) of an office are simplex for a short duration while a retrofit-like procedure is executed to offline pump the SM(s) and switch the SM(s) to run on the new image. Since this procedure requires the SM(s) to be simplex, it is desirable that the procedure be done infrequently (no more than once a year).

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 669 to "Y".

SEC. 4A670: SAAL SS7 HIGH SPEED SIGNALING LINKS

1. FEATURE DESCRIPTION

The SAAL (Signaling Link ATM Adaptation Layer) SS7 High Speed Signaling Links feature is a secured feature (SFID 670) that is available with the 5E16(2) FR 1 (Feature Release 1) and later Software Releases. The feature number is 99-5E-7451.

Telephony service providers are deploying new CCS (Common Channel Signaling) applications which are resulting in a need for higher capacity signaling networks. Examples of these applications are intelligent network services such as LNP (Local Number Portability), wireless services such as PCS (Personal Communications Services), and emerging technologies such as VOIP (Voice Over Internet Protocol). Additionally, traffic growth is also expected in the traditional existing services such as 800/888 toll free data base service, intraLATA (Local Access And Transport Area) class services, and advanced IN (Intelligent Network) services.

As the need for higher capacity in the signaling networks increases, a means for higher capacity transport between network nodes must also be provided. The industry solution for meeting the capacity needs of the future signaling networks is the replacement of the low speed 56Kb/s signaling links with higher speed and capacity signaling links. These HSLs (High Speed Links) implement ATM (Asynchronous Transfer Mode) at the data link layer and utilizes an entire DS1 (Digital Signal Level 1) physical transport facility.

This feature introduces the HSL stack components to the 7R/E 5ESS GSM (Global Switching Module) architecture. New to the GSM is the T1/ATM physical layer and the SAAL (Signaling Link ATM Adaptation Layer) protocol layer for use as a high speed signaling link. Additionally, the existing MTP (Message Transfer Part) layer 3 was modified to support the B-MTP3 standard specifications. The functionality required of each principal layer and sublayer are:

Physical Layer - The physical layer provides a means for the ATM cells to be transmitted and is to be implemented as a DS1 (1.544 Mb/s). The ATM cells are mapped directly into the ESF (Extended Superframe Format) DS1 frame payloads. The actual data rate is 1.536 Mb/s, which is 1.544Mb/s less the DS1 framing overhead.

ATM Layer - ATM is implemented directly above the physical layer providing the signaling data link function. It is a packet-oriented data transfer and networking protocol using an asynchronous time division multiplexing technique. The information flow is organized into 53 octet cells with 5 octets of header and 48 octets of payload. Although the ATM protocol allows for multiple "virtual" paths and channels, the HSL feature implements it as a direct point-to-point virtual channel between two CCS nodes over a dedicated DS1 transmission link.

SAAL Layer - The SAAL (Signaling ATM Adaptation Layer) enhances the services provided by the ATM layer so as to support the specific functions required by CCS signaling, such as the reliable transfer of signaling messages between two signaling points. A signaling message delivered by the higher SS7 protocol layers is transferred over the signaling link as a variable length SAAL PDU (Protocol Data Unit). The SAAL Layer is composed of 4 sublayers or modules:

- *AAL5 (ATM Adaption Layer 5)* - This sublayer supports the capabilities necessary to meet the upper layer data transfer needs. It provides the transport of variable length frames (from 1 to 65,535 octets in length) with error detection capabilities and interfaces to the ATM layer.
- *SSCOP (Service Specific Connection Oriented Protocol)* - This sublayer provides a generic, reliable data transfer service for different AAL interfaces defined by the SSCF (Service Specific Coordination Function). The maximum sized PDU that is supported is 4096 octets in length.
- *SSCF (Service Specific Coordination Function)* - This sublayer maps the services of SSCOP of the SAAL to MTP Level 3. It also communicates with the LM (Layer Management) functional entity for proper operation of the signaling link.
- *SAAL Layer Management* - This sublayer performs a coordination function between system management and the SAAL. This includes error processing, measurements, and determination of link quality during proving and normal operation.

Signaling Network Layer - MTP3 (Message Transfer Part Layer 3) provides the transport functions and procedures that are common to, and independent of, the operation of individual signaling links. Minor changes are needed to the MTP3 layer to support the expansion of message sequence numbers to accommodate the longer sequence numbers used by SAAL relative to those used for MTP2-based 56-Kb/s signaling links.

2. FEATURE ASSIGNMENT

For 5E16 and later, the provisioning rules for this feature are as follows:

Phase 1:

- Insert a new physical PH31 and update the EQSTAT to "O" on the EQSUPH form (5742 Record) RC/V (Recent Change View) 22.4.
- Assign the PH31 to an unused logical channel group on the PSUGP form (5949 Record) RC/V 22.16.

NOTE: The GRP TYPE field is NULL since no applications exist for this channel group yet.

Phase 2:

- Create a High Speed Link Parameter on the SAALPRM form (6017 Record) RC/V 16.27.
- Create a PSU PIPE on a PH31 on the PSUPIPE form (5990 Record) RC/V 22.25.
- Create a SAAL High Speed Link on the SAALHSL form (6016 Record) RC/V 16.26.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CCLNK	6004	9	10D	16.6
CLKSET	6005	9	10E	16.7
EQPSUPH	5742	8	23	22.4
LNKSET	6003	9	10C	16.5
PSUGP	5949	5	3J	22.16
PSUPIPE	5990	5	5O	22.25
SAALHSL	6016	9	10V	16.26
SAALPRM	6017	9	10W	16.27

CCLNK form (6004 Record) - This form is used to define the CCS7 (Common Channel Signaling 7) link sets and members.

CLKSET form (6005 Record) - This form is used to define the link sets that comprise the combined link set.

EQPSUPH form (5742 Record) - This form is used to define the PSU (Packet Switching Unit) PHs (Protocol Handlers) equipped in the 7R/E 5ESS Switch.

LNKSET form (6003 Record) - This form is used to define CCS7 signaling link sets.

PSUGP form (5949 Record) - This form is used to specify the PH type for a defined logical channel group on a PSU shelf.

PSUPIPE form (5990 Record) - This form is used to define a PSU Pipe consisting of a T1 or E1 facility terminating on a PH. This is a new form created to support this feature.

SAALHSL form (6016 Record) - This form is used to define the Signaling Link ATM links. This is a new form created to support this feature.

SAALPRM form (6017 Record) - This form is used to define values of a High Speed Signaling Link parameter set. This is a new form created to support this feature.

SEC. 4A671: ASSERT MNEMONICS ON THE ROP

1. FEATURE DESCRIPTION

The Assert Mnemonics on the ROP (Read Only Printer) feature (99-5E-7853) is a secured feature (SFID 671) and is made available with the 5E16(2) Software Release.

This feature allows assert names to be printed on the ROP in addition to the usual assert numbers. This feature is supported in OSDS (Operating System for Distributed Switching) environments on the AM (Administration Module), CMP (Communication Module Processor) and SMs (Switching Modules) only.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	51	8.1
SFSYS	5713-1	3	5AR	8.22

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the PRINT ASSERT NAME field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 671 to "Y".

SEC. 4A674: RC/V SECURITY LOGGING AND VERBOSE ENHANCEMENTS

1. FEATURE DESCRIPTION

The RC/V (Recent Change/ Verify) Security Logging and Verbose Enhancements feature (99-5E-8297) is a secured feature (SFID 674) that is made available with the 5E17(1) Software Release. This feature is dependent upon the RC Security feature (99-5E-7951). For more information on the 99-5E-7951 feature, see Division 2, Section 4A595.

This feature expands the verbose output associated with RC/V security logging. This feature also allows the RC administrator to review actions by users, and reduce the impact of RC user errors on network functionality. This is done by allowing tracking of errors and targeting training to correct repeated errors.

The verbose function (rcverbose) is already available as an option on the RC/V Menu Interface and the RC/V Text Interface on the 5ESS Switch. The option can be invoked from either interface. When the verbose option is turned on, additional information is provided on the ROP (Read Only Printer). With this feature and the RC Security Feature (99-5E-7951), the ROP displays more data on RC/V update and delete operations (i.e., the old data and new data of RC/V operations).

A ROP example with VERBOSE set to "Yes" is:

```
S570-71 02-05-20 09:56:58 000742 RCVY A0 t9.0-2r20 M RCV SUCCESS RC_PARAM UPDATED
LABA0 TERM-ID = ttyv
```

A ROP example with Authority Management login is:

```
S570-71 02-05-20 09:56:58 000742 RCVY A0 t9.0-2r20 M RCV SUCCESS RC_PARAM UPDATED
LABA0 AUTHLOGIN = gfd
```

A ROP example with RC/V Verbose Enhancements is:

S570-71 02-05-20 09:56:58 000742 RCVY A0 t9.0-2r20 M RCV SUCCESS RQUFD UPDATED /QTRB
 TERM-ID = tty1 AUTHLOGIN = gfd

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 595 and SFID 674 to "Y".

SEC. 4A678: FORWARDED CALL - CALL SCREENING ANNOUNCEMENT MODIFICATION

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-400 Feature Description Document*.

SEC. 4A682: HIGH CAPACITY APT ENHANCEMENTS

1. FEATURE DESCRIPTION

The High Capacity APT (Automatic Progression Testing) Enhancements feature (99-5E-8390) is a secured feature (SFID 682) that is made available with the 5E16(2) FR 1 (Feature Release 1) and later Software Releases. For more information see Division 2, Section 2AD (99-5E-8150 feature).

This feature extends the APT enhancements introduced with the APT Enhancements feature (99-5E-8150) in order to increase trunk testing capacity for Large Tandem 5E16(2) configurations.

The APT Enhancements feature (99-5E-8150) introduced Sequential and Full algorithms. The High Capacity APT feature extends that capability by adding two other algorithms that allow more efficiency and productivity from APT.

The new APT algorithms being added by this feature are:

Test one only - APT selects a trunk on a DS1 (Digital Signal Level 1) that has not been tested in this cycle, is not busy, and has not been manually removed from service. It then runs the provisioned operational test for that trunk. If the test passes or fails, APT moves on to the next DS1.

Stop on success - APT will select a trunk on a DS1 that has not been tested in this cycle, is not busy, and has not been manually removed from service. It then runs the provisioned operational test for that trunk. If the test passes, APT moves on to the next DS1. If the test fails, another trunk on the same DS1 is selected and the operational test for it is run. The failure case continues until all the trunks on the DS1 have been exhausted or until one passes.

None - APT should not perform any tests on a DS1.

With these new algorithms the emphasis is different. Instead of incrementally testing each trunk, the idea is to get coverage of the office by visiting and testing at least one trunk on each DS1 before starting over again. The reason for this is that most of the time a DS1 carries the same type of trunk and adjacent trunks on the same DS1 which do not operationally fail independently. So, the value in sequentially testing adjacent trunks on the

same DS1 has little return.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 682 to "Y".

Other than the SFSYS form, there is no other ODA impacts to this feature.

SEC. 4A684: SIP FOR PACKET TRUNKING

1. FEATURE DESCRIPTION

The SIP (Session Initiation Protocol) for Packet Trunking feature is a secured feature (SFID 684) that is available with the 5E16(2) FR 3 (Feature Release 3) and later Software Releases. The feature number is 99-5E-8382. For other information on this feature refer to the Lucent Technology document number *235-190-400 Feature Descriptions Document*.

This feature adds a SIP packet trunking interface to the 5ESS Switch. The feature allows the 5ESS Switch to operate as a gateway for interworking from the TDM (Time Division Multiplexing)-based PSTN (Public Switched Telephone Network) trunks to next-generation IP (Internet Protocol) network virtual trunks. It interworks with any current circuit signaling protocol, such as SS7 (Signaling System 7) ISUP (Integrated Services User Part), MF (Multi-Frequency), or DTMF (Dual Tone Multi-Frequency), with SIP trunk signaling over IP networks.

The SIP signaling protocol for telephony is the packet signaling protocol used to establish calls using the OIU-IP (Optical Interface Unit - Internet Protocol).

The SIP for Packet Trunking feature contains:

- two new protocol handlers for setting up the SIP signaling connection,
- a new lower layer transport protocol, SCTP (Stream Control Transmission Protocol), and
- integrated OA&M (Operations, Administration, Maintenance) and provisioning using the conventional 5ESS Switch interfaces.

1.1 Call Processing Impacts

This feature is very similar to the OIU IP feature; for call processing the primary difference is that SIP signaling is used as an alternative to BICC signaling. As a result, the call processing requirements are very similar.

On the OPS (Originating Packet Switch), the Secured Feature ID for SIP must be enabled before the call is routed using the SIP packet components. When the SFID is not enabled, the next non-SIP RTI (Route Index) must be used to route the call. This is not considered overflow; therefore, the Overflow Peg Counts for the SIP Trunk Groups are not incremented.

Call Processing/Routing supports the use of all IP bearer networks equipped in the office.

The OIU IP feature added support for the possibility that a service provider would need to route bearer traffic over multiple bearer networks in response to IP signaling messages (up to 512 networks simultaneously). For example, a service provider might use one network to carry internal traffic, and another network to carry traffic destined for other carriers.

In addition, SIP is not inherently limited to supporting only IP bearer networks. SIP is bearer independent, and it is possible that other network types (e.g., ATM (Asynchronous Transfer Mode), AAL1 (ATM Adaptation Layer 1), or ATM AAL5) will need to be supported in the future.

Call processing supports the voice packetization intervals supported by the switch's packet interfaces.

Currently, the OIU-IP supports packetization intervals of 10 mSec, 20 mSec, and 30 mSec.

For the outgoing bearer stream of a call (from the OFI (Optical Facility Interface) to the far office), call processing uses the voice packetization interval provisioned on the bearer network used for the call. For originating calls, this value is put into the SDP MIME (Multipurpose Internet Mail Extension) portion of the INVITE message. For terminating calls, this value is put into the SDP MIME portion of the 183 SESSION PROGRESS message sent after receiving the INVITE.

Although it is expected that all the offices within a given network will signal the same packetization interval for its sending direction, this is not required. Instead, whatever value the far office signals is acceptable as long as it is one of the supported values (10, 20, or 30 mSec).

For the incoming bearer stream of a call (from the far office to the OFI), call processing uses the voice packetization interval signaled by the far office as long as this office supports the requested value. For originating calls, this value is found in the SDP portion of the 183 SESSION PROGRESS message received after sending the INVITE. For terminating calls, this value is found in the SDP MIME portion of the received INVITE message.

For the incoming bearer stream of a call (from the far office to the OFI), call processing will validate that the requested voice packetization interval is in the set of packetization intervals supported by the switch. If it is not, the call will be rejected.

Existing features that reroute released calls (such as Reroute on Release, STOR, GETS, and some ASP (Advanced Services Platform) features) will continue to work. If such a feature uses the release cause code of an ISUP (Integrated Services User Part) message, it will use the cause code of any embedded ISUP message. If there is no such embedded message, the feature will use the mapping provided in requirement SIPT-SIG0860.

Existing features (such as Reroute on Release, GETS, and some ASP features) can reroute a call to the next route in the route list. For these features that route could be another SIP route, or it could be a TDM (Time Division Multiplex) route.

The following requirement covers specific features that are deployed in customers' networks that could cause an incoming SIP call to be routed out of the office using SIP. When this happens, the switch is considered to be a "Back to Back User Agent" (or B2BUA in SIP parlance), not a proxy. This means that the calls on each side of the switch are independent from a SIP signaling point of view. This is done to allow services to modify the call as appropriate (e.g., to allow call forwarding features to change the called party address).

Hence the Call ID, From, and To headers of an incoming SIP call are not required to be replicated when that call is routed out of the switch as a SIP call.

Calls coming in to the 5ESS Switch with SIP signaling are allowed to go out on SIP signaling for the calls involving Two B Channel Transfer for PRIs (Private Rate Interfaces) and Call Forwarding on a Busy Trunk Group.

The following check must be made before the call can be routed via packet: the call must be a circuit switched voice (CSV or 3.1 kHz voice) call. If this check is not satisfied, this SIP route in the route list will be skipped and the next route attempted. If this check is not satisfied and this is the last route in the route list, the call will be given the same treatment as if no routes were available.

At this time it is not expected that IP packet networks will be able to guarantee that the transmission quality of the networks (with respect to jitter and packet loss) will support the needs of circuit switched data calls. Therefore, circuit switched data calls will use an alternate route in place of a SIP route if such a route has been provisioned in the route list.

Features interacting with SIP interoperate in a manner consistent with the interactions specified for BICC in Feature Specification Documents (FSDs) 30-09-0010 and 63-02-0115.

In particular, FSD 63-02-0115 has requirements covering the allowed packet group call to packet group call interactions (e.g., see R.63.02.0015-9090).

Currently it is expected that the first application of SIP packet trunking will be in a tandem application. As a result, interactions of SIP with trunk features have a higher testing priority than interactions with line based features.

2. FEATURE ASSIGNMENT

For 5E16 and later, the provisioning rules for this feature are as follows:

Prerequisites:

Examine office records to determine a suitable SM-2000 to serve as the SIP Global SM. The SM must be on the a PSU2 (Packet Switching Unit 2). The absolute minimum equipage required is a PSU2 with one or more shelves with DF2 (Data Fanout version 2) and at least five empty slots for installing PHs (Protocol Handlers). The PHs must be available in PSU-0 if a dual-PSUs (two PSU2s) is equipped. SIP cannot be provisioned on PSU-1 of a dual PSU. If there are no DF2 equipped shelves with enough empty slots, it is then necessary to order a new PSU2 shelf that has a DF2. Ideally, the SM-2000 selected should not be equipped with any trunks or lines or other call-processing roles. This reduces the chances of interference. The SM-2000 selected could be an existing SS7 (Signaling System 7) GSM (Global Switching Module), but for additional reliability, it is recommended that the two global PSU2 functionalities are separate. If the SIP GSM goes through a full init or a duplex PSUCOM failure, calls can still be routed through SS7 when the two global PSU2 functionalities are separate.

Examine office records to determine the SM for which SM-2000s are provisioned, with OIU-IP/OFI (Optical Interface Unit-Internet Protocol/Optical Facility Interface) protection groups to serve as IP bearer endpoints.

Examine the office records and traffic measurements occupancy reports to determine which SM-2000s have the available capacity to serve as SIP call processing SMs.

Identify the adjacent layer 2 switches and/or IP routers external to the 5ESS Switch that the ethernet links carrying the SIP signaling traffic will be connected to for the 5ESS Switch, as well as for the adjacent routers.

Identify the necessary IP addresses for the 5ESS as well as for the adjacent routers. There can be a maximum of two IP addresses.

Identify the IP addresses and SCTP ports on the other SIP-enabled switches in the network that the 5ESS will be connecting SIP calls. A maximum of two far end addresses per association are supported.

Verify that sufficient PH hardware is available to be installed in the global PSU2 and for replacement boards. The absolute minimum is two TN13 packs with LLE2 100 BaseT Ethernet paddleboards and three TN113 packs with no paddleboards.

OIU-IP feature provisioning must be done. For information on this feature, see Division 2, Section 7BX.

SFSYS form, RC/V (Recent Change View) 8.22

Activate the SIP feature by setting the ACT field for SFID 684 to "Y".

SIP Connectivity Provisioning:

SIPGSM form (5880 Record), RC/V 5.80

Insert SIP Global SM

EQPSUPH form (5744 Record), RC/V 22.4

Define a PH (Protocol Handler)

PSUGP form (5949 Record), RC/V 22.16

Assign the PH Channel Group

QPHPIPE form (5828 Record), RC/V 17.24

Insert QPH Pipes to QLPS network 0 & 1 (creates a GQPH channel group)

EQPIPE form (5544 Record), RC/V 17.20

Assign MH Pipes

QGCON form (5829 Record), RC/V 17.27

Update GSM - Non-GSM Communication

SIPTSMS form (5881 Record), RC/V 5.81

Insert Call Processing SM

Signaling Provisioning:

SIPGSM form (5880 Record), RC/V 5.80

Insert SIP Global SM

EQPSUPH form (5742 Record), RC/V 22.4

Define a PH (Protocol Handler)

PSUGP form (5949 Record), RC/V 22.16

Assign the PH Channel Group

PCRGRP form (5883 Record), RC/V 33.16

Insert Processor Group

IPPROC form (5987 Record), RC/V 33.1

Assign IP Address to SM

ETHIP form (5995 Record), RC/V 33.4

Insert Ethernet - IP Interface

IROUT form (5989 Record), RC/V 33.3

Insert IP routing information.

IPPING form (5884 Record), RC/V 33.17

Insert Router Pinging

SCTPPARM form (5885 Record), RC/V 33.18

Insert SCTP Endpoint Timers and Protocol Parameters

SCTPNEPD form (5886 Record), RC/V 33.19

Insert SCTP Near Endpoints

SCTPFEPD form (5888 Record), RC/V 33.21

Insert SCTP Far Endpoints

ASSCPARM form (5887 Record), RC/V 33.20

Insert SCTP Association-related Protocol Parameters

SCTPASSC form (5889 Record), RC/V 33.22

Insert SCTP Association

ASSOCSET form (5890 Record), RC/V 33.23

Insert SCTP Association Set

OFCOPT form (5509 Record), RC/V 8.15

Update CCS Office Parameters and set HOME COUNTY CODE

SIPTPARM form (5882 Record), RC/V 5.82

Insert SIP Parameters

PKTGRP form (5219 Record), RC/V 5.71

Insert Packet Group

TKGRP form (5202 Record), RC/V 5.1

Insert Trunk Group

RTIDX form (5304 Record), RC/V 10.2

Assign Route Index

For a more detailed description of the provisioning sequences, refer to the Lucent Technology document number *235-200-118 OA&M Manual*.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ASSCPARM	5887	5	3AI	33.20
ASSOCSE	5890	5	3AL	33.23
CMTMH	6021	9	10U	16.16
EQCORE	5701	8	3	17.14
EQPSU	5741	8	22	22.2
EQPSUPH	5742	8	23	22.3

				22.4
ETHIP	5995	5	3S	33.4
IPPING	5884	5	3AF	33.17
IPPROC	5987	5	3N	33.1
IPROUT	5989	5	3P	33.3
MEASSUM	5563	3	5BG	13.7
				13.8
				13.9
OFCOPT	5509	3	5I	8.1
				8.15
PCRGRP	5883	5	3AE	33.16
PKTGRP	5219	5	3Z	5.71
PSUGP	5949	5	3J	22.16
PSUPIPE	5990	5	5O	22.25
QGCON	5829	8	91	17.27
QPHPIPE	5828	8	70	17.24
QTUV	NA	8	92	NA
SCTPASSC	5889	5	3AK	33.22
SCTPFEPD	5888	5	3AJ	33.21
SCTPNEPD	5886	5	3AH	33.19
SCTPPARM	5885	5	3AG	33.18
SFSYS	5713-1	3	5AR	8.22
SIPGSM	5880	5	3AB	5.80
SIPTPARM	5882	5	3AD	5.82
SIPTSMS	5881	5	3AC	5.81
SREINCR	5547	3	5AW	8.40
TKGRP	5202	3	2A	5.1

ASSCPARM form (5887 Record) - This form provides information about a set of parameters that will be used for SCTP (Scream Control Transmission Protocol) associations. This is a new form that supports this feature.

ASSOCSET form (5890 Record) - This form is used to provide information about a SCTP association set. This is a new form that supports this feature.

CMTMH form (6021 Record) - This form defines which message handler will be used for CCS (Common Channel signaling) message transport for communication between a GSM (Global Switching Module) and a NGSM (Non-GSM). Modified a data rule for the GLOBAL SM field.

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments in a 5ESS Switch office. Added a data rule to the VCDX OFFICE field.

EQPSU form (5741 Record) - This form is used to define the PSUs (Packet Switching Units) equipped in a 5ESS Switch. Added and modified data rules for the SG 0 TYPE (PSU2) field.

EQPSUPH form (5742 Record) - This form is used to define the PSU PHs (Protocol Handlers) equipped in the 7R/E 5ESS Switch. Added data rules to the PSU, PSU SHELF, and PH 31 MIN SPARE fields. Added a new value to the PH CLI field. And added the PH33 MIN SPARE field.

ETHIP form (5995 Record) - This form provides the ethernet capability to provision IP (Internet Protocol) addresses, subnet masks, and associated IP parameters to an internet interface. Replaced the GATEWAY IP ADDRESS with GATEWAY IP ADDRESS 1 and 2. And replaced the IP SUBNET MASK with IP SUBNET MASK 1 and 2.

IPPING form (5884 Record) - This form is used to manage the IP Ping Parameters. This is a new form that supports this feature.

IPPROC form (5987 Record) - This form provides the capability to provision up to five IP addresses and subnet masks, and associated IP, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) parameters to a processor (SM or PH). Added the ICMP ERR GEN, IP. FRAGMENT, and MTU INTVL AFT

FAIL fields. Also added new value to PROCESSOR TYPE field.

IPROUT form (5989 Record) - This form provides the capability to provision an IP gateway between an external IP destination and a local IP interface. Modified data rule for DEST IP ADDR field and added data rule to the ROUTE METRIC field.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the PKTGRP and SCTP values to the SECTION NAME table. Also added a data rule to the SECTION NAME field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the PRACK ENABLED and COUNTRY CODE fields.

PCRGRP form (5883 Record) - This form is used to insert, review, update, and delete the Processor Group corresponding to either one SIP PH, or to two SIP PHs that function as a serving/non-serving pair. This is a new form that supports this feature.

PKTGRP form (5219 Record) - This form is used to insert, review, update, and delete ATM (Asynchronous Transfer Mode) or IP packet groups. This form was modified to support this feature.

PSUGP form (5949 Record) - This form is used to specify the PH type for a defined logical channel group on a PSU shelf. Added the AVAILABLE PH 33 field and added a new value to PH TYPE.

QGCON form (5829 Record) - This form provides the basic description of the SM (Switching Module) side of the GQPH (Global Quad Protocol Handler) pipe connecting the QPH to the GQPH network. This is a new form that supports this feature.

QPHPIPE form (5828 Record) - This form provides the basic description of the SM side of the QLPS (Quad-Link Packet Switch) pipe connecting the QPH (QLPS Protocol Handler) to the QLPS network. Added the SERVICE TYPE field and modified data rule for PH TYPE.

QTUV form - This form is used to preserve timeslot assignment on a QTMSLINK to a QLPS board in an SM-2000 office. This is a new form that supports this feature.

SCTPASSC form (5889 Record) - This form is used to provide information about the SCTP association. This is a new form that supports the SIP feature.

SCTPFEPD form (5888 Record) - This form is used to provide information about the SCTP far endpoint. This is a new form that supports this feature.

SCTPNEPD form (5886 Record) - This form is used to provide information about the SCTP near endpoint. This is a new form that supports this feature.

SCTPPARM form (5885 Record) - This form supports the definition of SCTP endpoint parameters. This is a new form that supports this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 684 to "Y". Added SFID 684 to the table.

SIPGSM form (5880 Record) - This form is used to insert, review, update, or delete the SIP GSM (Global Switching Module). This is a new form that supports this feature.

SIPTPARM form (5882 Record) - This form is used to insert, review, update, or delete the SIP parameters. This is a new form that supports this feature.

SIPTSMS form (5881 Record) - This form is used to specify SM-2000 modules in an office for SIP call processing. This is a new form that supports this feature.

SREINCR form (5547 Record) - This form is used to increase engineering software resource (memory) parameters per SM for new start and/or retrofit offices. Added the SIPTBLK and SIPTMAP values to the SOFTWARE RESOURCE and INCREMENTAL VALUE tables.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added data rules to the TGN, TRKCLS, INPULSING, and BICC GRP fields. Also added the SIPT GRP field.

SEC. 4A685: IMLT ACCESS IMPROVEMENTS AND IMTL METALLIC A-LINK BLOCKAGE NOTIFICATION

1. FEATURE DESCRIPTION

This feature Consists of two parts, IMLT (Integrated Mechanized Loop Testing) Metallic Access Retry and IMLT Metallic A-Link Blockage Notification that is associated with feature number 99-5E-8393. The feature is made available with the 5E16(2) FR 1 (Feature Release 1) and later Software Releases.

Both parts are controlled by a secured feature ID (SFID 685). However, the user has the option of turning the IMLT Metallic A-Link Blockage Notification part of the feature on/off by using OFID (Option Feature ID) 1010 after SFID 685 is activated.

IMLT Metallic Access Retry

IMLT Metallic Access Retry provides a retry capability in the event of a failed metallic access attempt.

The feature provides for an optional second attempt at metallic access after a variable delay of between 10 and sixty seconds, and for preserving information about any access failures for use in optimizing the metallic access network.

Metallic A-Link Blockage Notification

Metallic A-Link Blockage Notification provides added detail to be recovered during metallic access failures, so as to provide data for switch administrators. This data allows metallic line unit access networks to be regroomed to handle maintenance loads more efficiently. The data logging mechanism is based on the BALANCE feature, which currently provides similar data for call processing attempts.

2. FEATURE ASSIGNMENT

To provision this feature:

Set the ACT field for SFID 685 on the SFSYS form (5713-1 Record) to "Y".

To turn on/off IMLT Access Retry and to set the delay time for the second attempt, on the OFCOPT form (5509 Record) or RC/V (Recent Change) view 8.1, via the IMLT RETRY and IMLT RDELAY field, respectively.

To enable/disable IMLT Metallic A-Link Blockage Notification, set the ACT field for OFID 1010 on the

FOSYS form (5713-2 Record) or RC/V 8.31, to "Y".

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
OFCOPT	5509	3	5I	8.1, 8.15
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. Activate the IMLT Metallic A-Link Blockage Notification part of the feature by setting the ACT field for OFID 1010 to "Y".

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the IMLT RETRY and IMLT RDELAY fields.

SFSYS form (5713-1 Record) - This form is used to activate secured features. Activate this feature by setting the ACT field for SFID 685 to "Y".

SEC. 4A686: 3B21D/RTR HIGH SPEED PERFORMANCE IMPROVEMENT

1. FEATURE DESCRIPTION

The 3B21D/RTR High Speed Performance Improvement feature (99-5E-8472) is a secured feature (SFID 686) that is made available with the 5E16(2) FR 1 (Feature Release 1) and later Software Releases.

This feature reduces the AM's (Administration Module's) occupancy for AMA (Automatic Message Accounting). The main benefit is for high-speed billing. Additional benefits also include improvements for teleprocessing and tape writing. Optimizations have been identified that provide an AM occupancy reduction of 20% or more while running the LCT (Large Capacity Terminal) call model at loads of 1.6M to 2.5M BHCA (Busy Hour Call Attempts).

The changes fit into the following three categories:

Redundant stat() function call elimination

In the existing AMA code, there are many places where a test is done to determine if the offline disk should be read. This is something that normally occurs only during a retrofit situation. The current code calls the UNIX RTR stat() function each time this condition needs to be tested. The optimization calls stat() once at the beginning and then reads a global variable for subsequent checks.

Replace standard UNIX RTR open(), close(), read(), write(), and lseek() functions with optimized versions.

The existing AMA code uses the standard system routines to access the disk. These functions are generalized for any type of file access and therefore incur significant overhead. Given the specialized nature of the disk accesses for AMA, the standard routines have been re-written as optimized versions that perform only the tasks needed by AMA.

Maximize number of blocks read per function invocation

Currently, on each entry to the AMhisp polling function, the number of blocks to be read is determined, and up to 80 blocks are read. Under lower loads, the function may determine that no blocks are available and the ASM (Administrative Services Module) is signaled to wait for 14 seconds before issuing another request. This allows the number of blocks to build up in the interim. When the calling rate reaches 1.6M BHCA, there are always blocks available for reading, but only 28 blocks are available per entry. Since blocks are always available to be read, the 14 second timer is never activated. However, it is much more efficient to process 80 blocks per function entry than to process only 28 blocks, so the AM processing time consumed per block increases substantially. To alleviate this, the function now invokes a four-second sleep if the number of blocks available is less than 80. This allows the number of blocks to build up so 80 blocks are read per function entry after the four-second sleep.

2. FEATURE ASSIGNMENTS

To provision this feature:

Set the ACT field for SFID 686 to "Y" on the SFSYS form (5713-1 Record) to activate this feature.

After the SFID is turned on/off, the following command needs to be executed in order to get the process to read the new SFID value:

STOP:EXC:DATA,ANY,FN="/no5text/prc/amhisp",UCL;

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 686 to "Y".

SEC. 4A689: TCP/IP VIA ASM FOR CRITICAL ALARM INDICATORS

1. FEATURE DESCRIPTION

The TCP/IP (Transmission Control Protocol/Internet Protocol) via ASM (Administrative Services Module) for CAI (Critical Alarm Indicators) feature (99-5E-8288) is a secured feature that is controlled by SFID 689. It is made available with the 5E16(2) FR 2 and later Software Releases.

The functionality covered by this feature is only a part of the functionality provided by the 5ESS SCCS (Switching Control Center System) interface. In addition to the existing BX.25 (The Bell System version of the CCITT X.25 communications protocol) interface, this feature provides the OSS (Operations Support System) with the option of receiving the CAI messages via the industrial standard TCP/IP interface.

This feature provides a TCP/IP interface to report the 5ESS and the DRM (Distinctive Remote Module) CAI information to a remote OSS. This interface provides similar capabilities as the current CAI process supported by the BX.25 connection (the SCCS interface) off the 5ESS AM (Administrative Module of the 5ESS Switch). The OSS has the choice of receiving the CAI information from the legacy BX.25 interface or from the industrial standard TCP/IP interface.

This feature is available on the ASM Model 1, 2, and 3, and is available for both ASM simplex and HA-ASM configurations.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 689 to "Y".

SEC. 4A690: ASM MODEL 1 SUPPORT EXTENSION

1. FEATURE DESCRIPTION

The ASM (Administrative Software Module) Model 1 Support Extension feature (99-5E-8392) is a secured feature using SFIDs 690 and 691, and is made available with the 5E16(2), Feature Release 2 Software Release.

This feature allows support extension for the ASM Model 1 which is discontinued as of November 16, 2003. To download and install new post release 6.3 SWDs (Software Deliveries) for ASM Model 1 units beyond the November 16, 2003 date, one of the following two extended support options is available to purchase:

a one-year RTU (Right-to-Use) license which has unique SFID 690, and covers the interval between November 16, 2003 and November 15, 2004.

a two-year RTU license which has unique SFID 691, and covers the interval between November 16, 2003 and November 15, 2005.

One of the two extended support options must be purchased in order to download any SWD on ASM Model 1 after November 15, 2003. Not purchasing one of these options inhibits downloading any SWD on the ASM Model 1 after the November 15, 2003 date. In addition, no new SWD can be installed effective November 16, 2003. Customers will, however, continue to be able to backout or rollback any SWD anytime.

2. FEATURE ASSIGNMENT

This is a secured feature and requires that the ACT field for either SFID 690 or SFID 691 be set to "Y" on the SFSYS form (5713-1 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field to "Y" for either SFID 690 or SFID 691.

SEC. 4A691: ASM MODEL 1 SUPPORT EXTENSION

1. FEATURE DESCRIPTION

For information on this feature, see Division 2, Section 4A690.

SEC. 4A693: UN597-9600 BAUD ROP CAPABILITIES

1. BACKGROUND

Prior to this feature, the 9600 baud ROP could only be used with a 60-byte SCCS status record. Additionally, offices were limited to either being programmed to operate using the Recovery from Alternate Boot Disk feature, or the 9600 baud ROP (60-byte); both could not be used simultaneously within the same office.

2. FEATURE DESCRIPTION

Available in 5E16(2) FR2 (Feature Release 2) and later software releases, the UN597-9600 Baud ROP Capabilities feature is a secured feature (SFID 693) and has feature number 99-5E-8539.

The UN597-9600 Baud ROP Capabilities feature adds two additional capabilities to the 3B21D AM (Administrative Module) MTTYC (Maintenance Teletype Controller), and supports:

9600 Baud ROP with 20-byte Switching Control Center System (SCCS) status records.

9600 Baud ROP plus the Alternate Boot Disk (ABD) feature (99-5E-2406) with 60-byte SCCS status records.

This added functionality allows the use of a 9600 baud receive-only printer (ROP) with a 20-byte SCCS status record capability for compatibility with Network Management Administration (NMA). This feature also allows an office to use both the 9600 baud ROP and the Recovery from Alternate Boot Disk feature (99-5E-2406) simultaneously.

This feature requires that UN597 circuit packs are used for the MTTYC, set with the correct ECD (Equipment Configuration Database) UCB (Unit Control Block) equipage value. For more information about using the ECD and the UCB form, see the *ECD/SG Data Base Manual, 5E16(2) Software Release*, "Low-Level Forms," 235-600-317.

This feature is deployed on a per-office basis, does not impact existing call flow and does not impact existing operations.

For more information concerning this feature, see the *Feature Descriptions* document, 235-190-400.

The following table shows the MTTYC UCB equipage values for the 3B21D AM and their meaning.

VALUE	MEANING
0x0	SCC not equipped
0x1	SCC equipped
0x2	UN583
0x2	UN597 (to function like a UN583 base MTTYC)
0x3	UN597 (For Alternate Boot Disk (ABD) feature capability - uses 60-byte SCCS records)
0x6	UN597 (For 9600-baud ROP capability - uses 60-byte SCCS records)
0x7	UN597 (For 9600-baud ROP and ABD capability - uses 60-byte SCCS records)
0x8	UN597/UN583 SCC Compatibility Feature - uses 20-byte SCCS records.
0xe	UN597/UN583 SCC Compatibility Feature and 9600-baud ROP capability - uses 20-byte SCCS records .

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured' features. The ACT field for SFID 693 must be set to "Y" on the SFSYS form to make the UN597-9600 Baud ROP Capabilities feature active for the office. In addition, The Recovery from Alternate Boot Disk feature (99-5E-2406) also needs to be activated (using SFID 284) in order for these two features to operate simultaneously.

SEC. 4A694: RATE AND ROUTE TRANSLATION SIMPLIFICATION

1. BACKGROUND

A redesign of ODD (Office Dependant Data) translations was developed to provide routing and screening enhancement features creating a more efficient and alternative translation method for supporting multiple rate centers, code restriction options, and unique operator/DA (Digit Analysis)/911 routing. The current ODD design and translation methods result in redundant RAR (Rate and Route) and LDIT (Local Digit Interpreter Table) tables. The new translation methods utilizing Feature 99-5E-8307 eliminates the current "required" duplication process of the RAR and LDIT tables. The implementation of this feature provides significant reductions in the RAR and LDIT tables, resulting in "Time Savings" and "Simplification" of the ongoing table maintenance, analysis, and troubleshooting. Additionally, this feature reduces operating expenses through the maintenance savings, enhanced translation flexibility, reduced memory requirements, and optimized switch performance.

2. FEATURE DESCRIPTION

Available in 5E16(2) FR5 (Feature Release 5) and later Software Releases, the Rate and Route Translation Simplification feature is a secured feature that contains 3 sub-features, each having an individual contribution to overall benefits of this feature. Each sub-feature, can be provisioned independently, but combined together they provide the maximum benefit, and is controlled by a separate SFID (Secured Feature ID. Below is a brief description of each sub-feature:

Exception Routing (99-5E-8307.A - SFID 694)

This feature allows multiple rate centers to share common routing/screening data and to only build out exceptions based on the rate center when required. Redundant RAR/LDIT (Local Digit Interpreter Table) tables are no longer required and can be removed.

Code Restriction (99-5E-8307.B - SFID 695)

This feature allows code restriction options to be translated at the LCC (Line Class Code)/line level and to completely be removed from the RAR table. Unique code restriction screens are no longer required and can also be removed.

OPER/EMER Routing (99-5E-8307.C - SFID 696)

This feature allows unique operator/911 routes to be translated within a common screen. Redundant RAR/LDIT tables are no longer required and can be removed. OPER represents an RTI used for Operator routing. EMER represents an RTI used for Emergency routing.

3. FEATURE ASSIGNMENTS

In order to provision this feature for PSTN lines:

Insert the HGRPAS form (5115 Record); RC/V 4.14

Insert the NOC form (5501 Record); RC/V 8.2

Insert the RAR form (5301 Record); RC/V 10.10

Insert the LDIT form (5300-3 Record); RC/V 9.3

Insert the CRTBL form (5030 Record); RC/V 10.41

Insert the PDIT form (5300-2 Record); RC/V 9.2

Insert the OPEMER form (5031 Record); RC/V 10.42

Insert the DAS form (5300-1 Record); RC/V 9.1

Insert the LCC form (5306 Record); RC/V 4.1

Insert the MLHLN form (5111 Record); RC/V 1.6

In order to provision this feature for trunks:

Insert the RTIDX form (5303 Record)

Insert the RAR form (5301 Record)

Insert the LDIT form (5300-3 Record)

Insert the CRTBL form (5030 Record)

Insert the INDIT form (5309 Record)

Insert the OPEMER form (5031Record)

Insert the DAS form (5300-1 Record)

Insert the TKGRP form (5202 Record)

Insert the TRUNK form (5204 Record)

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACCTGP	5623-2	4	24B	4.21
ACDTN	5631-1	4	32A	6.10
ATHFCOS	5619-4	4	20D	4.19

BFG	5626	4	26B	12.9
CRTBL	5558	3	3AN	10.41
DFLTSRV	5974	6	17A	23.15
DSL	5907	5	1H	23.2
DSLUSR	5908	5	1I	23.8
IIDIGTBL	5573	3	5BN	8.57
LASSOP	5945	5	5F	8.21
LCC	5306	3	3S	4.1
LDPCTBL	5562	3	5BF	8.52
LDPINDEX	5576	3	5BQ	8.59
LDPTNSC	5568	3	5BI	8.53
LINE	5109	3	1I	1.5, 1.6
NSTRIG	5324	3	3AK	9.35
OFCOPT	5509	3	5I	8.1
OPEMER	5559	3	3AO	10.42
OPRTK	5417	3	3R	26.26
PFASFG	5609-3	4	10C	7.3
PPSCRN	5618-2	4	19B	10.31
RAR	5301	3	3F	10.10
SCRIDXPA	5543	3	5AQ	8.24
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1
XAT	5909	5	1J	23.40

ACCTGP form (5623-2 Record) - This form is used to define the group level of information required for the Account Code capability. Added the RAX and CODE RESTRICT fields. Also added a data rule to the TOLL SI field.

ACDTN form (5631-1 Record) - This form is used by the ACD/BRCS (Automatic Call Distributor/Business and Residential Custom Services) feature to define the ACD directory number or the DAA (Direct Agent Access) directory number. For more information on the secured feature ACD/BRCS and ACD/BRCS Interworking II see Division 2, Section 4A121. Added the RAX and CODE RESTRICT fields.

ATHFCOS form (5619-4 Record) - This form is used to define the restriction and features associated with each FCOS (Feature Class of Service), main/alternate, assigned at an authorization code group. Added the TOLL RAX and TOLL CODE RESTRICT fields. Also added a data rule to the TOLL SCREEN INDEX field.

BFG form (5626 Record) - This form is designed to provide information that will be used to aid in the construction of BFGs that will provide the maximum usefulness in the switch. Added the CODE RESTRICT field.

CRTBL form (5558 Record) - This form is used to associate key values of code restriction to the rate and route data. This is a new form that supports the Code Restriction part of this feature, which is controlled by SFID 695.

DFLTSRV form (5974 Record) - This form allows unknown CPE (Customer Premises Equipment) on a DSL (Digital Subscriber Line) subscribing to Default Service to originate ACSR, BRI Test Line, BRIV (Basic Rate Interface Verification), Repair (611), Access to 108 Test Line, Business Office (811), and Emergency (911) calls. Terminations to the user will be denied with default service. Added the CODE RESTRICT field.

DSL form (5907 Record) - This form is used to define the attributes of a DSL. A DSL is also referred to as a BRI (Basic Rate Interface). It is also used to define the attributes of the B1 and/or B2 channel of the DSL, if either or both of those channels are to be used on a Permanent Packet basis (dedicated to X.25 Packet Switching). Added the CODE RESTRICT field.

DSLUSR form (5908 Record) - This form defines the associated TN(s) and status of a DSL user, defines the circuit switching (voice and data) attributes of a DSL user, defines the D-channel packet switching attributes

of a DSL user, and defines the On Demand B-channel packet switching attributes of a DSL user. Added the CODE RESTRICT field.

IIDIGTBL form (5573 Record) - This form contains the information to route the call. Added the RAX and CODE RESTRICT fields. Also added a data rule to the SCR field.

LASSOP form (5945 Record) - This form is used to supply global office options and parameters for the LASS features. Added the IP RAX and IP CODE RESTRICT fields. Also added a data rule to the IP SCR field.

LCC form (5306 Record) - This form is used to define each LCC (Line Class Code) in a 5ESS Switch. Added the CODE RESTRICT field.

LDPCTBL form (5562 Record) - This form provides an LDP Carrier Table and Default Carrier Table. The LDP Carrier Table applies to callers who used a carrier not shown in the ANI table or did not require ANI table processing and used a carrier that was not the home carrier ID. Added the RAX and CODE RESTRICT fields. Also added a data rule to the SCR field.

LDPINDEX form (5576 Record) - This form contains the option set for the ANITABLE form. Added the RAX and CODE RESTRICT fields. Also added a data rule to the SCR field.

LDPTNSC form (5568 Record) - This form provides the capability for specifying or verifying a TNSC (Terminating Network Selection Code), and its associated DAS (Digit Analysis Selector) and screening index information. Added the RAX and CODE RESTRICT fields.

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch. Added the CODE RESTRICT field.

NSTRIG form (5324 Record) - This form is used to identify network service applications. Added the POST QUERY RAX and POST QUERY CODE RESTRICT fields. Also added a data rule to the POST QUERY SCR field.

OFLOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the LTP RAX, LTP CODE RESTRICT, RDTA RAX, RDTA CODE RESTRICT, E911 RAX, E911 CODE RESTRICT, TCW RAX, and TCW CODE RESTRICT fields with associated data rules. Also added a data rule to the SCR field.

OPEMER form (5559 Record) - This form is used for Operator and Emergency services based on Originators RAX (Rate Centre). This is a new form that supports the OPER/EMER Routing portion of this feature, which is controlled by SFID 696.

OPRTK form (5417 Record) - This form is used to define the characteristics of Inter-LATA (Local Access Transport Area) and Intra-LATA carriers. Added the RAX and CODE RESTRICT fields. Also added a data rule to the SCR INDEX field.

PFASFG form (5609-3 Record) - This form is used to define SFG (Simulated Facility Groups) which allow controlling access to physical groups such as lines, trunks and special circuits. Added the RAX and CODE RESTRICT fields. Also added a data rule to the SCR INDEX field.

PPSCRN form (5618-2 Record) - This form is used to define the routing treatment for calls associated with the DSN (Defense Switched Network) Precedence and Preemption feature. Added the RAX and EXC RAR fields.

RAR form (5301 Record) - This form is used to define the routing and charging for each Code Index and

Screening Index combination in a 5ESS Switch. Added the RAX and EXC RAR fields.

SCRIDXA form (5543 Record) - This form is used to assign parameters to a line or trunk on a per screening index basis. Added the RAX and EXC RAR fields.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 694, 695, and/or 696 must be set to "Y" on the SFSYS form to activate the Rate and Route Translation Simplification feature. Added SFIDs 694, 695, and 696 to the table.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added the proprietary field FAR END ES 4E and CODE RESTRICT fields. Also added a data rule to the SCR field.

XAT form (5909 Record) - This form is used to provision T1 facilities (digital lines and trunks) with X.25 Packet Switching services on a subscription basis using Q.931 signaling. Added the CODE RESTRICT field.

SEC. 4A695: RATE AND ROUTE TRANSLATION SIMPLIFICATION CODE RESTRICTION

1. FEATURE DESCRIPTION

For information on this feature see Division 2, Section 4A694.

SEC. 4A696: RATE AND ROUTE TRANSLATION SIMPLIFICATION OPER/EMER ROUTING

1. FEATURE DESCRIPTION

For information on this feature see Division 2, Section 4A694.

SEC. 4A697: CIC ROUTING SOLUTION

1. FEATURE DESCRIPTION

Available in 5E17(1) FR 3 (Feature Release 2) and later software releases, the CIC (Carrier Identification Code) Routing Solution feature is a secured feature (SFID 697) and has feature number 99-5E-8546.

This feature introduces a new RC/V (Recent Change/View) control "SEND CI PARAM" message to determine whether or not the CIC should be sent in the Circuit Identification parameter.

If a SETUP_S7X message is received from the ECP (Executive Control Processor), including the optional TNS (Total Network Surveillance) parameter, and the "SEND CI PARAM" field is set to "YES", the TNS parameter will be included in the outgoing IAM (Initial Address Message), if this is an International call and the 5E-DCS is connected to a TANDEM or IXC (Inter-Exchange Carrier). The Carrier Identification parameter will be generated using the information in the TNS, if it is a non-international call and the 5E-DCS is connected to an IXC or TANDEM switch, and sent in the outgoing IAM message.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CDMAOPT	5599	8	80	8.75
SFSYS	5713-1	3	5AR	8.22

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. Added the SEND CI PARM field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. The ACT field for SFID 697 must be set to "Y" on the SFSYS form to activate this feature.

SEC. 4A700: UDP TRANSPORT LAYER FOR SIP

This feature has been moved to Division 2, Section 1DE.

SEC. 4A762: IP BACKHAUL

1. FEATURE DESCRIPTION

The feature number for the IP (Internet Protocol) Backhaul feature is 99-5E-8530. This feature has been moved to Division 2, Section 7CN.

SEC. 4A764: RLU SECONDARY CONTROL FACILITIES

1. FEATURE DESCRIPTION

Available in 5E16(2) FR4 (Feature Release 4) and later Software Releases, the RLU (Remote Line Unit) Secondary Control Facilities feature is a secured feature (SFID 764) that is associated with feature number 99-5E-8613. This feature is dependent upon the RLU ESA (E911 Service Adjunct) feature (99-5E-8474).

Prior to this feature only the primary facilities carried control information between the host switch SM-2000 and the ESA Site.

This feature adds the capability for EAIU (Expansion Access Interface Unit) control and signaling information to be carried on the secondary communication links (T1 facilities) of TSGRP 1. This provides another level of reliability to EAIUs equipped at a remoted ESA site, by doubling the number of communication links that carry this information. With this feature an EAIU at an ESA site will not go into the standalone mode-of-operation until the primary and secondary facilities carrying control and signaling information are severed or lost. If this feature is enabled at the host switch, all EAIUs at ESA Sites can be provisioned to use this capability. This also requires that all EAIU shelves be equipped with the "624C" version of RCOMDACs (RCOMDAC 0 & RCOMDAC 1).

For a detailed description of the RLU ESA refer to the *5E-XC™ RLU ESA User Guide, 255-800-009 document*.

2. FEATURE ASSIGNMENTS

Provisioning for this feature is as follows:

Set the ACT field for SFID 764 to "Y" on the SFSYS form (5713-1 Record)

Set the ACT field for SFID 766 to "Y" on the SFSYS form (5713-1 Record)

Insert all necessary forms for a SIP-T Packet Group (see Division 2, Section 4A684 and Division 2, Section 4A700) and then set SIP-T PRECOND to either "Y" or "N" on the PKTGRP form (5219 Record).

The new Preconditions flag (SIP-T PRECOND field) used by the 5E-XC originating switch is added to the existing 5E-XC Packet Group View (R/C 5.71; PKTGRP form for ODA). The precondition flag determines the

SIP signaling messages that is required to setup a packet call. Set the SIP-T PRECOND flag to Yes if the SIP signaling requires an additional step to verify the resource is available before setting up a call. (This is done by the SIP UPDATE method). For a basic SIP call that does not require this extra step, set the SIP-T PRECOND flag to No. For details, refer to the *Recent Change Reference Manual 235-118-258*.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PKTGRP	5219	5	3Z	5.71
SFSYS	5713-1	3	5AR	8.22

PKTGRP form (5219 Record) - This form is used to insert, review, update, and delete IP packet groups. Added the SIP-T PRECOND field and associated data rules.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for SFID 766 to "Y". Added SFID 766 to the table.

SEC. 4A766: SUPPORT FOR SIP WITHOUT PRECONDITIONS

This feature has been moved to Division 2, Section 1DF.

SEC. 4A769: SIP WITHOUT ENCAPSULATED ISUP

1. FEATURE DESCRIPTION

Available in 5E16(2) FR6 (Feature Release 6) and later Software Releases, the SIP (Session Initiation Protocol) without Encapsulated ISUP (Integrated Service Digital Network User Part) feature is a secured feature (SFID 769) that is associated with feature number 99-5E-8587.

This enhancement allows the 5E-XC to interwork with other network elements that does not recognize or support ISUP. This capability is also defined as part of the ANSI T1.679 "Interworking between SIP and BICC (Bearer Independent Call Control) or ISDN (Integrated Service Digital Network) User Part".

This feature is based upon the BASE SIP for Packet Trunk NAR (99-5E-8382) feature, and it provides the following additional capabilities:

1. When sending a SIP INVITE message on the OPS (Originating Packet Switch), the switch uses a new provisional parameter to determine if ISUP encapsulation should be used for the "INVITE" messages. This new parameter is set on a per packet group basis.
2. When the switch receives a SIP request or response on the OPS without an ISUP encapsulation, the switch processes it and determines if a backward ISUP interworking message needs to be generated. If it does, the switch first generates an internal interworking message that is based on the SIP request or response information in SIP headers or the default values provided by the ANSI T1.679. The switch then uses the internal interworking message to generate a backward message depending upon the types of trunks and the class of services.
3. The switch is able to receive and process a SIP request or response without encapsulated ISUP on the TPS (Terminating Packet Switch). The switch first determines if a forward ISUP interworking message needs to be generated. If it does, the switch first generates an internal interworking message based on the SIP request or response information in SIP headers, or the default values provided by the ANSI T1.679. The switch then uses the internal interworking message to generate a forward message

depending on the types of trunks and the class of services.

1.1 Auto ACM Timer

With this feature, OPS will start a new Automatic ACM timer (the value in seconds ranges from 4-14). This timer is to be started for all SIP calls when an INVITE is sent, regardless of whether or not the call is or is not using ISUP encapsulation. This is a permanent change to the way BASE SIP works (See Division 2, Section 4A684). The main benefit and goal of this new timer, is to help prevent the call from being killed by a backward (in call flow) ISUP office, because TPS was too slow to send OPS 18X INVITE response containing ACM, OR a 180 INVITE without encapsulated ISUP, or a 200 OK INVITE either with or without encapsulated ISUP. The Auto ACM Timer will be stopped when receiving anyone of above mentioned responses. If Auto ACM Timer expires, a default ACM will be sent to the backward ISUP office. This function is protected by SFID 684.

2. FEATURE ASSIGNMENTS

This feature is secured by an SFID. Therefore, the OPS and the TPS must have the SFID turned on in order to handle SIP messages without ISUP encapsulation properly. In addition, this feature supports both precondition and no precondition procedures and it is transport independent.

In order to provision this feature:

Set the ACT field to "Y" for SFID 684 on the SFSYS form (5713-1 Record) to activate the Base SIP-T feature.

Set the ACT field to "Y" for SFID 769 on the SFSYS form (5713-1 Record) to activate the SIP without Encapsulated ISUP feature.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SIPTPARM	5882	5	3AD	5.82
SFSYS	5713-1	3	5AR	8.22

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT fields for SFID 684 and SFID 769 to "Y". Added SFID 769 to the table.

SIPTPARM form (5882 Record) - This form is used to insert, review, update, or delete the SIP parameters. Added the AUTOMATIC ACM TMR and ISUP ENCAPSULATION fields.

SEC. 4A776: ENHANCED 5E TRAFFIC MEASUREMENT INTERFACE

1. FEATURE DESCRIPTION

Available in 5E20(1) BMI (Beginning of Management Introduction) and later Software Releases, the Enhanced 5E Traffic Measurement Interface feature is a secured feature (SFID 776) that is associated with feature number 99-5E-8701.

This feature addresses the increased needs of operational customers, especially wireless, in collecting more traffic measurement data. Currently, there are plans to increase 5ESS/FPS (Fast Packet Switch) capacity to 2 MBHCA (Million Busy Hour Call Attempts), and - in near future - to 5 MBHCA. Traffic measurement capacities

must be grown in parallel with 5ESS/FPS (Fast Packet Switch) call capacity growth.

Most of the traffic measurement data is collected by TRFC30 (30 Minute Traffic Report). As a result, the capacity of the TRFC30 report must be enhanced. The operational customers are processing the TRFC30 externally (out of 5ESS/FPS switches), so it must also be possible to transfer the increased amount of traffic measurement data to the external OS (Operations Support). This feature makes this transfer possible. Other enhancements that this feature supports are as follows:

- Two MHPPC (Message Handler - Power PC) boards (UN550 packs and BKE2 paddle boards), that are dedicated solely for traffic measurements processing are added to selected CORE 700 SMs (called GSM (Global Measurement Service Modules)).

- New TRFC30 collection buffers, that are expanded to 8 MB, are created in the GSM.

- TRFC30 pegging buffers on the CORE 700 SMs are expanded to 1 MB.

- All TRFC30 report TDC (Traffic Data Collection) sections can be collected by the GSM, the rest of TRFC30 sections are collected by the AM (Administrative Module) TRFC30 buffer. Non-TDC sections and office total sections are transferred from the AM buffer to the GSM and are merged with GSM TRFC30 buffers.

- MHPPC boards are connected with external OS (Operations Support) OMP-FX (Operation Management Platform-Foreign Exchange) via TCP/IP (Transport Control Protocol / Internet Protocol) links that are used to transfer the increased amount of traffic measurement data to an external OS in a reasonable time. MHPPC works as a client and initiates the FTP (File Transfer Program) transmission to external OS (OMP-FX) as soon as the traffic measurement data is ready on the GSM.

2. FEATURE ASSIGNMENTS

In order to provision this feature:

- On the SFSYS form (5713-1 Record; RC/V (Recent Change View) 8.22:

 - Set the ACT field to "Y" for SFID 776.

- On the EQMH form (5856 Record); RC/V 19.13:

 - Insert CLI = C (for MHPPC (Message Handler Power PC))

- On the ENETPIPE form (5826 Record); RC/V 19.20:

 - Provision OMP (Operations, Maintenance and Administration Platform) Ethernet Pipe

- On the ENETLINK form (5827 Record); RC/V 19.21:

 - Provision OMP Ethernet Link and the Remote login.

- On the MEASSUM form (5563 Record); RC/V 13.9:

 - Check the collection summary.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ENETLINK	5827	8	67	19.21
ENETPIPE	5826	8	66	19.20
MEASSUM	5563	3	5BG	13.9
OFCOPT	5509	3	5i	8.1
SFSYS	5713-1	3	5AR	8.22

ENETLINK form (5827 Record) - This form is used enable the craft to review and update the ethernet links connected to an MH (Message Handler). Added data rules to the SERV TYPE field.

ENETPIPE form (5826 Record) - This form is used to enable the craft to review and update the ethernet links connected to an MH (Message Handler). Added data rules to the SERV TYPE GATEWAY IP ADDR SIDE 0/1, GATEWAY NET MASK SIDE 0/1, and REMOTE LOGIN fields. field.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the COLLECT field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the ENHANCED BUFF field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field SFID 776 to "Y". Added SFID 776 to the table.

SEC. 4B: TRANSPARENCY FEATURES

SEC. 4B0: OFFICE OPTIONED FEATURE DESCRIPTION

1. GENERAL

Office Optioned features are features that have been developed to replicate features that exist on the 1A ESS Switch. In the past, they have sometimes been called "Field" or "Fast" features.

Figure 1 gives the Feature Name, OFS ID (Optioned Feature System ID) that corresponds to a specific Office Optioned feature, (these special feature IDs are used to activate the feature), the Software Release, the Software Update (formerly called BWM) in which the feature was implemented, and the Informational Software Update which provides feature information. The FOSYS form (5713-2 Record) is used to enable or option Office Optioned features.

See Division 3, Section 5AS for detailed information for implementing Office Optioned Features using the Special and Office Optioned Optioning System.

- **NOTE:** The use of OFS IDs is not limited to Office Optioned features, and not all Office Optioned features use OFS IDs.

2. ON-LINE INFORMATIONAL SOFTWARE UPDATES

Informational Software Updates, which are available on SCANS (Software Change Administration And Notification System), provide information on features which are released during a Software Update. In addition to being transmitted to users via SCANS, these Informational Software Updates can also be accessed in the 5ESS Switch electronic media documentation. The Informational Software Updates are located on the menu for 5ESS Switch documentation on-line or on CD-ROM.

FEATURE NAME	OFS ID	SOFTWARE RELEASE	SOFTWARE UPDATE / FEATURE RELEASE	INFO SOFTWARE UPDATE / FEATURE RELEASE
3-Way Reconnect Procedures (TF) No Data Impact	500	5E4(2) 5E5	SU 890073 GA	SU 890059 GA
Multi-Way 3-Way Conference/Call Transfer B911 Interactions (TF) No Data Impact	501	5E5 5E6	SU 900125 GA	SU 900097 GA
Directed Call Pickup with Barge-In Assignment (TF) No Data Impact	502	5E5 5E6	SU 900012 GA	SU 890050 GA
Shared DN Display with No Ringing Option (TF) No Data Impact	503	5E4(2) 5E5 5E6	SU 890108 SU 890035 GA	- - GA
Limited Intragroup ICLID (SpF) No Data Impact	504	5E4(2) 5E5 5E6	SU 890134 SU 890060 GA	SU 890126 SU 890053 GA
Entry of Forwarded-To-DN/IDP (TF)	505	5E4(2) 5E5 Not 5E6	SU 900067 SU 900096 NA	SU 900055 SU 900086 NA
Non-Alerting ISDN Shared Terminal Display Option (TF) No Data Impact	506	5E4(2) 5E5 5E6 Not 5E7	SU 900010 SU 900009 GA NA	- - GA NA

Separate Call Waiting from MW Ringback Parameter (TF) No Data Impact	507	5E4(2) 5E5 5E6	SU 900037 SU 900064 GA	SU 900028 SU 900051 GA
Increase Number of Simultaneous Calls Forwarded to DID Groups (TF) No Data Impact	508	5E4(2) 5E5 5E6	SU 900041 SU 900028 GA	- - GA
Fix for PFA, ARS, and VPATH (TF) No Data Impact	509	5E4(2) 5E5 5E6	SU 900024 SU 900027 GA	- - GA
Hotel Motel Mini Feature (TF) No Data Impact	510	5E5 5E6	SU 900065 GA	- GA
FTS2000 Office Indicator for Private MDR Record Fix (TF) No Data Impact	511	5E5 Not 5E6	SU 900068 NA	- NA
Authorization Code Interaction with Multiway Fix (TF) No Data Impact	512	5E4(2) 5E5 5E6 Not 5E7	SU 910017 SU 900076 SU 900047 NA	- - - NA
Restrict Initial Flash and Call Waiting Before Answer (TF) No Data Impact	513 51 4	5E4(2) 5E5 5E6 5E7	SU 910019 SU 910045 SU 910004 GA	SU 910013 SU 910028 SU 910002 GA
Calling Party Disconnect Indication (SpF) No Data Impact	515	5E4(2) 5E5 5E6 5E7	SU 910027 SU 910064 SU 910077 GA	SU 910023 SU 910063 SU 910061 GA
Transfer of Unsupervised Lines Fix (TF) No Data Impact	516	5E4(2) 5E5 5E6 5E7	SU 900066 SU 900108 SU 910006 GA	- - - GA
Modified Calling Line Disconnect (SpF)	517	5E5 5E6 5E7 5E8	SU 910049 SU 910052 GA GA	SU 910029 SU 910044 GA GA
Call Transfer to Busy - Return Busy to Originator (TF) No Data Impact	518	5E5 5E6 5E7	SU 910045 SU 910064 GA	SU 910041 SU 910059 GA
Fix for Optioning Errors During NPA Splits (TF) No Data Impact	520	5E5 5E6 5E7	SU 900116 SU 900055 GA	- - GA
Fix to Decrease SC (Series Completion) and MLHG's Post Dial Delay (TF) No Data Impact	521	5E5 5E6 5E7	SU 910030 SU 910032 GA	SU 910019 SU 910026 GA
Bridging Indication to Analog Shared DN Lines (TF) No Data Impact	522	5E5 5E6 5E7	SU 910055 SU 910069 GA	- - GA
Problems with Routing Intra-LATA / Interstate Calls (TF) No Data Impact	523	5E4(2) 5E5 5E6 5E7	SU 910031 SU 910089 SU 910163 GA	SU 910026 SU 910080 SU 910132 GA
Option to Prevent IDP Users from Using ODP LASS Dial Codes (TF) No Data Impact	524	5E5 5E6 5E7	SU 910050 SU 910079 GA	- - GA
Option to Provide 5E6 Functionality for Series Completion and MSS Interaction (TF)	531	5E7 5E8 5E9(1)	SU 920124 SU 920007 GA	SU 920120 SU 920011 GA

Limited 2 Level COT/AC (SF43) See Division 2, Section 4A43	532 53 3	5E6 Not 5E7	SU 910014 NA	SU 910011 NA
POLIN (Privacy Option for Last Incoming Number) (SF48), See Division 2, Section 4A48	534	5E6 5E7	SU 910004 GA	SU 910003 GA
DTA Routing of Calls Based on Attendant's LCC (TF) No Data Impact	535	5E7	GA	GA
Customized Announcement 5E6 to 5E7 Retrofit Fix (TF) No Data Impact	536 53 7	5E7 Only	GA	GA
Shared DN Groups Across SM/RSM Clusters (TF) No Data Impact	538	5E6 5E7	SU 910056 GA	SU 910038 GA
MSSCF (Message Service System Call Forwarding Interaction) (TF)	539	5E6 5E7 5E8 Not 5E9	SU 910129 Retrofit Retrofit NA	SU 910124 - - NA
Transfer to ACD from ARU (SpF)	540	5E6 5E7 5E8	SU 910169 SU 920035 GA	SU 910141 SU 910004 SU 910030 GA
Calling Name Delivery (SF40) - Phase 0 See Division 2, Section 4A40	541	5E6 5E7 5E8	SU 910142 SU 920005 GA	- SU 910112 GA
Calling Name Delivery (SF40) - Phase 2 See Division 2, Section 4A40	54 1	5E7 5E8 5E9(1)	SU 920105 GA GA	SU 920087 GA GA
Calling Name Delivery (SF40) - Phase 2.1 See Division 2, Section 4A40	54 1	5E8 5E9(1)	SU 930010 GA	SU 920029 GA
ISDN Fast Transfer Enhanced Feature (TF)	542	5E8	GA	GA
Provide Redirect Display for TGSR and ACVT Enhancement for Terminating Restrictions Resulting with Reroute to a DN (TF)	543	5E6 5E7 5E8	SU 920032 SU 920056 GA	SU 920024 SU 920036 GA
Metro Hub (ELIGI) (SF60) See Division 2, Section 4A60	544	5E6 5E7	SU 910092 GA	SU 910084 GA
Option to Block the Sending of Off-Switch Calling DN Across API Link (TF) No Data Impact	545	5E6 5E7	SU 910075 GA	SU 910146 GA
LASS and Split NPA Management (SF36) See Division 2, Section 4A36	546 54 7 54 8	5E6 and 5E7 Only 5E8	SU 910133 SU 910033 NA	SU 910114 SU 910019 NA
800 Post Dial Delay MF Signaling Transmission Reduction (for End Office) (SF28) See Division 2, Section 4A28	549 55 6	5E6 5E7 5E8 5E9(1)	SU 930002 SU 930004 SU 920019 GA	SU 920093 SU 920136 SU 920138 SU 920025 SU 920043 GA
Charge/No Charge for UCR (Unidentified Call Rejection) Call Rej Annc (SF47)	550	5E6 5E7	SU 910163 GA	SU 910162 GA

See Division 2, Section 4A47		5E8	GA	GA
AMA Recording of Prefixed Digits in PNDP (Private Network Dialing Plan) (TF)	551	5E6 5E7 5E8	SU 920035 SU 920081 GA	SU 920017 SU 920022 GA
OSPS LS Billing on Position Release (TF)	552	5E7 5E8	SU 920061 GA	SU 910060 GA
UCR Special Feature Option for Confirmation Announcement/Tone with the UCR Activation Dial Code (SF47)	553	5E6 5E7 5E8	SU 920057 SU 920083 GA	SU 920040 SU 920040 GA
See Division 2, Section 4A47				
Option to Maintain the 5E6 Operation of Intraswitch Originally Called DN (OCDN) Which is Sent to VMS (Voice Mail System) (TF)	554	5E7 5E8	SU 920077 GA	SU 920065 GA
IALT (Intra-Switch Analog Line Transfer) (SF80) See Division 2, Section 4A80	555	5E7 5E8 5E9(1)	SU 920131 SU 930006 GA	SU 920102 SU 920015 GA
UCR Special Feature Option for Confirmation Announcement/Tone with the UCR Deactivation Dial Code (SF47)	557	5E6 5E7 5E8	SU 920057 SU 920083 GA	SU 920072 SU 920072 GA
See Division 2, Section 4A47				
Hotel/Motel Charge Table Option (TF)	558	5E8 5E9(1)	GA GA	GA GA
OSPS AIBNS (Automated Inward Billed Number Screening) (SF107)	559	5E8 5E9(1)	SU 930008 GA	SU 930004 GA
See Division 2, Section 4A107				
OSPS Volt Delta DA Interface (SF87)	560	5E8 5E9(1)	SU 930008 GA	SU 930006 GA
See Division 2, Section 4A87				
OSPS AATOS (Access To Operator Services) (TF)	561	5E8 5E9(1)	SU 920015 GA	SU 920038 GA
OSPS EABS (External Alternate Billing System) Alternate Routing (SF86)	562	5E8 5E9(1)	SU 930008 GA	SU 930010 GA
See Division 2, Section 4A86				
OSPS FTS (Federal Telephone System) / NRA (Network Remote Access) (SF85)	563	5E8 5E9(1)	SU 930012 GA	SU 930025 GA
See Division 2, Section 4A85				
OSPS Alternate Access to Language Specific Operator Services (SF84)	564	5E8 5E9(1)	SU 930010 GA	SU 930013 GA
See Division 2, Section 4A84				
OSPS DIOR Speed Dialing (SpF)	565	5E8 5E9(1)	SU 930012 GA	SU 930016 GA
OSPS EABS (External Alternate Billing System) - Alternate Routing Transition	566	5E8 Only 5E9(1)	SU 930008 NA	SU 930010 NA
OSPS AMA Identification of 800 Access Calls (SF112)	567	5E8 5E9(1)	SU 930019 GA	SU 930030 GA
See Division 2, Section 4A112				
OSPS 0+ / 1+ 500 and 1+700 Traffic Handling (SF69)	568	5E8 5E9(1)	SU 930012 GA	SU 930017 GA
See Division 2, Section 4A69				
DC-ACVT (Direct Connect Capability for Analog Lines through ISDN ACVT feature) (SF12)	569	5E8 5E9(1) Not 5E9(2)	SU 930033 GA NA	SU 930050 SU 930059 GA NA
See Division 2, Section 4A12				
OSPS Interflow for Operator Conferences (SF361)	570	5E9(1)	GA	GA
See Division 2, Section 4A361				
OSPS CICADA Mute Back (SF115)	571	5E8 5E9(1)	SU 930015 GA	SU 930022 GA
See Division 2, Section 4A115				
OSPS Feature Group D Incoming Signaling for	572	5E8	SU 930027	SU 930043

Special Applications (SF83) See Division 2, Section 4A83		5E9(1)	GA	GA
OSPS ACQS Rate Distinction Based on Quote Delivery (SF82) See Division 2, Section 4A82	573	5E8 5E9(1)	SU 930027 GA	SU 930039 GA
OSPS BNS (Billed Number Screening) Fraud Control (SF26) See Division 2, Section 4A26	574	5E8 5E9(1)	SU 930027 GA	SU 930045 GA
OSPS Telephone Relay Service Call Handling (SF25) See Division 2, Section 4A25	575	5E8 5E9(1)	SU 930033 GA	SU 930048 GA
POLIN (Private Option for Last Incoming Number)/CFDA (Call Forwarding Don't Answer) Feature Interaction (SpF)	576	5E8 5E9(1)	SU 930011 GA	SU 930018 GA
Multi-Distinctive Ringing and Message Service System Interaction Option (TF)	577	5E8 5E9(1)	SU 930019 GA	SU 930035 GA
Revertive Ringback Announcement (TF)	578	5E9(1)	GA	GA
	579			
OSPS Route ACCS RAF Failures to AP (TF)	580	5E8 5E9(1)	SU 930017 GA	- GA
Limited Intra-Group ICLID (LIGI) (TF) - Call Forwarding	581	5E8 5E9(1)	SU 930026 GA	SU 930037 GA
OSPS Non-Equal Access Dummy ANI for Unitel AATOS	582	5E8 5E9(1)	SU 930032 GA	- GA
OSPS Virtual Card (SF23) See Division 2, Section 4A23	583	5E8 5E9(1)	SU 930035 GA	SU 930053 GA
OSPS AATLSOS - (Allow Sent Paid Special Feature - Phase 2)	584	5E9(1) 5E9(2)	SU 940009 GA	SU 940012 GA
OSPS AATLSOS (Allowed Sent Paid Special Feature - Phase 1) (SF84) See Division 2, Section 4A84	585	5E8 5E9(1) 5E9(2)	SU 930037 SU 930003 GA	SU 930060 SU 930002 GA
OSPS CIID - Carrier Specific Routing (SF363) See Division 2, Section 4A363	586	5E9(1)	GA	GA
PRI Echo Cancler Options	587	5E9(1)	GA	GA
	588			
OSPS AATOS/AATLOS Fraud Control	589	5E8 5E9(1)	SU 930032 GA	SU 930054 GA
	590			
Centrex Tie Line Unanswered Call Record	591	5E8 5E9(1) 5E9(2)	SU 930043 SU 940006 GA	SU 930074 SU 940007 GA
Call Park - Feature Assignment Enhancement	592	5E9(1)	GA	GA
Inhibit 800 Post Dial Delay MF Signaling Response Reduction (Access Tandem Office) (SF29) See Division 2, Section 4A29	593	5E8 5E9(1)	SU 930038 GA	SU 930065 GA
OSPS AATLSOS - (Allow Sent Paid Special Feature - Phase 2 - BNS Query Option)	594	5E9(1) 5E9(2)	SU 940009 GA	SU 940012 GA
OSPS Screening for Real Time Call Details (SF366) See Division 2, Section 4A366	595	5E9(1) 5E9(2)	SU 940008 GA	SU 940019 GA
OSPS OTR with Automated Position ID	596	5E9(1) 5E9(2)	SU 940008 GA	SU 940011 GA
OSPS Prepaid Overtime for Coin Calls (SF372) See Division 2, Section 4A327	597	5E9(1) 5E9(2)	SU 940018 GA	SU 940043 GA
Clock Synchronization Circuit	598	5E8 5E9(1) 5E9(2)	SU 940009 SU 940028 GA	- - GA

OSPS LIDB - Recognition of PSDI Value 4 (SF368) See Division 2, Section 4A368	599	5E9(1) 5E9(2)	SU 940003 GA	SU 940003 GA
OSPS Inclusion of International Called Number in LIDB Query	600	5E9(1) 5E9(2)	SU 940011 GA	SU 940025 GA
OSPS Automated Inward Line Screening - Phase 1 (SF370) See Division 2, Section 4A370	601	5E9(1) 5E9(2) 5E10	SU 940023 SU 940009 GA	SU 940071 SU 940009 GA
OSPS Inclusion of International Calling Country Code in LIDB Query	602	5E9(1) 5E9(2)	SU 940011 GA	SU 940025 GA
OSPS Allow Back Number Listing Services Calls	603	5E9(1) 5E9(2)	SU 940005 GA	- GA
OSPS Terminating Point Restriction Expansion (SF371) See Division 2, Section 4A371	604	5E9(1) 5E9(2)	SU 940023 GA	SU 940061 GA
OSPS Feature Group D Incoming Signaling for Special Application - Release 2 (SF373) See Division 2, Section 4A373	605	5E9(1) 5E9(2)	SU 940018 GA	SU 940048 GA
OSPS Automated Inward Line Screening - Phase 2	606	5E9(2) 5E10	SU 950009 GA	SU 950031 GA
OSPS Recall from Subscriber Deactivation (SF376) See Division 2, Section 4A376	607	5E9(1) 5E9(2)	SU 940023 GA	SU 940053 GA
COT Duplicate Activation Request Treatment	608	5E8 5E9(1) 5E9(2)	SU 940009 SU 940013 GA	SU 940010 SU 940029 GA
OSPS TCS Screen Code Expansion	609	5E9(1) 5E9(2)	SU 940020 GA	SU 940056 GA
OSPS Feature Group D Incoming Signaling for Special Application - Release 2 - AMA Option	610	5E9(1) 5E9(2)	SU 940018 GA	SU 940048 GA
Incoming Foreign Exchange Calls (Defeating Immediate Answer)	611	5E9(1) 5E9(2) 5E10	SU 940029 SU 950003 GA	SU 940080 SU 950004 GA
Screening of E911 Calls	612	5E9(1) 5E9(2)	SU 940023 GA	SU 940072 GA
OSPS 800 Access Using Feature Group D Signaling (SF377) See Division 2, Section 4A377	613	5E9(1) 5E9(2)	SU 940026 GA	SU 940075 GA
OSPS LEC Feature Group D Incoming Signaling/Special Handling of Calls (SF379) See Division 2, Section 4A379	614	5E9(1) 5E9(2) 5E10	SU 940030 SU 940009 GA	SU 940086 SU 940004 GA
OSPS Customer Controlled Reconnect to DA (SF381) See Division 2, Section 4A381	615	5E9(1) 5E9(2) 5E10	SU 940037 SU 950005 GA	SU 940105 SU 950020 GA
OSPS Forward Number Interdigit Timing Change (SF382) See Division 2, Section 4A382	616	5E9(1) 5E9(2) 5E10	SU 940034 SU 950002 GA	SU 940092 SU 940018 GA
OSPS Feature Group D Enhancements (SF383) See Division 2, Section 4A383	617	5E9(1) 5E9(2) 5E10	SU 940034 SU 950002 GA	SU 940002 SU 940019 GA
OSPS Quantum Sequence Call Handling	618	5E9(1) 5E9(2) 5E10	SU 940038 SU 940009 GA	SU 940098 SU 940008 GA
OSPS AATLSOS Automated Access Prompt	619	5E9(2) 5E10 5E11	SU 950020 SU 950006 GA	SU 950061 SU 950003 GA
OSPS International Billed Number Screening Release 2 (SF386) See Division 2, Section 4A386	620	5E9(1) 5E9(2) 5E10	SU 950002 SU 950004 GA	SU 940116 SU 940026 GA

OSPS TRP Expansion for International Numbers (SF387) See Division 2, Section 4A387	621	5E9(2) 5E10	SU 950004 GA	SU 950002 GA
OSPS ACCS for Commercial Credit Cards (SF388) See Division 2, Section 4A388	622	5E9(2) 5E10	SU 950004 GA	SU 950014 GA
Ability to Drop Fully Restricted Terminating Leg of a Multiway Call (TF)	623	5E10	GA	GA
OSPS AMA Recording of the Access ID for CAP Calls (SF392) See Division 2, Section 4A392	624	5E9(2) 5E10	SU 950007 GA	- GA
OSPS Extending Round Trip Delay for OSC (TF)	625	5E10	GA	GA
OSPS Teleconferencing Service Signaling Interface (SF391) See Division 2, Section 4A391	626	5E9(2) 5E10	SU 950010 GA	SU 950030 GA
OSPS 800 Toll Free Services NPA Expansion (SF405) See Division 2, Section 4A405	627	5E10 5E11	SU 950004 GA	SU 950012 GA
OSPS Option for HOTMOT Line	628	5E9(1) 5E9(2) 5E10	SU 950004 SU 950002 GA	SU 940115 - GA
OSPS Allow Leading 1 and 011 for Automated Phone Number Collection	629	5E9(2) 5E10 5E11	SU 950022 SU 950004 GA	SU 950067 SU 950001 GA
OSPS BNS Query Message Enhancements (SF630) See Division 2, Section 4A630	630	5E9(1) 5E9(2) 5E10	SU 950004 SU 950005 GA	SU 940004 SU 950017 GA
Call Forwarding Block Operator and N11 Forward to DNs Option (TF)	631	5E9(1) 5E9(2) 5E10	SU 950004 SU 950019 GA	- SU 950062 GA
OSPS 1+ Time And Charges (SF396) See Division 2, Section 4A396	632	5E9(1) 5E9(2) 5E10	SU 950007 SU 950011 GA	SU 950012 SU 950032 GA
OSPS In Language Services Call Transfer Using Route Number (SF398) See Division 2, Section 4A398	633	5E9(2) 5E10	SU 950007 GA	SU 950027 GA
OSPS Specialized AMA for 15 Digit International Numbering Plan (SF397) See Division 2, Section 4A397	634	5E10	GA	GA
OSPS Early Position Release of International Calls (SF399) See Division 2, Section 4A399	635	5E9(2) 5E10	SU 950013 GA	SU 950038 GA
OSPS AATOS Fraud Control (SF401) See Division 2, Section 4A401	636	5E9(2) 5E10	SU 950018 GA	SU 950054 GA
OSPS AATOS Fraud Control - Enhanced Screening (TF)	637	5E10	GA	GA
OSPS Quiet Hear (TF)	638	5E9(2) 5E10 5E11	SU 950020 SU 950006 GA	- SU 950003 GA
OSPS Closed End Branding for Operator Handled Calls (TF)	639	5E9(2) 5E10 5E11	SU 950021 SU 950005 GA	SU 950070 SU 950015 GA
OSPS DACC AMA Record with Operator Entered Forward Number Special Feature.	640	5E9(1) 5E9(2) 5E10 5E11	SU 950017 SU 950022 SU 950004 GA	SU 950071 SU 950071 - GA
OSPS Automation of T & A Information Special Feature	641	5E10 5E11	SU 950002 GA	SU 950022 GA

OSPS DIOR Calling Card Announcement Change Special Feature	642	5E9(2) 5E10 5E11	SU 950021 SU 950003 GA	SU 950068 SU 950005 GA
Automation of TCS / CPS Override	643	5E10	SU 960010 GA	SU 960028 GA
OSPS Quantum SDN	644	5E10 5E11	SU 960006 GA	SU 960006 GA
OSPS Quantum Calling Party Pays Air Time	645	5E10 5E11	SU 960006 GA	SU 960013 GA
E911 / TGSR Interaction Option	646	5E9(1) 5E9(2) 5E10 5E11	SU 950019 SU 960001 SU 970007 GA	- SU 950083 - GA
Option for ST on NONCI 0+	647	5E9(1) 5E9(2) 5E10 5E11	SU 950019 SU 950019 SU 960001 GA	- SU 950086 - GA
ASP IntraLATA PIC Interworking	648	5E10 5E11	SU 960005 GA	SU 960015 GA
OSPS Universal T1.5 Access Signaling Changes	649	5E11	GA	GA
Identification of Calls Originated Through Special Access Methods	650	5E10 5E11	SU 960009 GA	SU 960025 GA
OLS Call Routing for Special Services	651	5E10 5E11	SU 960010 GA	SU 960022 GA
OSPS AATLSOS Automated Access Prompting Using CPDL	652	5E10 5E11	SU 960025 GA	SU 960046 GA
ICLID Enhancement for MLHG (SF192) See Division 2, Section 4A192	653	5E10 5E11	SU 960008 GA	SU 960026 GA
Block No ANI on Non-Equal Access Calls	654	5E10 5E11	SU 960008 GA	SU 960016 GA
OLS Routing for 0 - Calls	655	5E10 5E11	SU 960020 SU 960005	SU 960051 SU 960005
OLS Routing for 00 - Calls	656	5E10 5E11	SU 960020 SU 960005	SU 960021 SU 960005
OSPS ASAP Language Specification Operator Services	657	5E10 5E11	SU 960017 SU 960007	SU 960044 SU 960001
OSPS AATLSOS Automated Access Prompting Menu Changes - Release 2	658	5E10 5E11	SU 96A008 GA	SU 960023 GA
OSPS Record and Playback (SF415) See Division 2, Section 4A415	659	5E10 5E11 5E12	SU 960019 SU 960006 GA	SU 960052 SU 960004 GA
Remove E911 PSAP Outpulsing Delay Option	660	5E9(1) 5E9(2) 5E10 5E11	SU 950002 SU 960002 SU 960010 GA	- - SU 960031 GA
CCS7 Incoming Signaling from 4ESS for Wireless Service Providers	661	5E11	GA	GA
OSPS Bill to Third Fraud Control Based on Third Number NPA	662	5E10 5E11 5E12	SU 960016 SU 960005 GA	SU 960037 SU 960002 GA
Call Waiting with 3-Way Calling Interaction	663	5E10 5E11	SU 960023 GA	SU 960059 GA
Billing Option for Spontaneous Usage Sensitive 3-Way Calling	664	5E10 5E11	SU 960016 GA	SU 960045 GA
Local Number Portability AMA Billing	665	5E11 5E12	SU 970005 GA	- GA
Deny Automatic Callback on Intra-LATA PIC Calls (SF201)	666	5E10 5E11	SU 960020 GA	SU 960057 GA

See Division 2, Section 4A201				
OSPS 800 Universal International Numbering	667	5E11	SU 970008	SU 970018
		5E12	GA	GA
Selective NPA Deletion for ASP Multiple Rate Center Support	668	5E10	SU 970010	SU 970015
		5E11	SU 970016	-
		5E12	GA	GA
Line Blocking Enhancement for ISVM	669	5E10	SU 970002	SU 970002
		5E11	SU 970003	SU 970006
		5E12	GA	GA
OSPS 10 Digit Branding in the AABS - AAP	670	5E10	SU 960028	SU 960077
		5E11	SU 970003	SU 960016
		5E12	GA	GA
OSPS NPA Handling by Trunk Group	671	5E11	SU 97A008	SU 970024
		5E12	GA	GA
OSPS DIOR with Commercial Credit Card Capability	672	5E11	SU 970023	SU 970064
		5E12	SU 980005	SU 970011
		5E13	GA	GA
OSPS LS Automated Directory Assistance	673	5E10	SU 970006	SU 970009
		5E11	SU 970009	SU 970025
		5E12	GA	GA
OSPS Rate Quote for Flat and Measured Services	674	5E11	SU 970016	-
		5E12	GA	GA
OSPS AMA - Record ANI II Digits - Interim	676	5E11	SU 970009	SU 970026
		5E12	GA	GA
OSPS 0 - LEC Calls Maintenance Handling	677	5E11	-	-
		5E12	GA	GA
Access Code Option for SUSTWC	678	5E11	SU 970026	SU 970089
		5E12	SU 970007	-
		5E13	GA	GA
OSPS DIOR 800 Services	679	5E12	SU 980021	SU 980048
		5E13	GA	GA
ADSI Acknowledgment Timer Optional Value	680	5E12	SU 980025	SU 980060
		5E13	SU 980004	-
		5E14	GA	GA
Transfer Two Outgoing ISUP?PRI Trunks Together	681	5E13	SU 020001	-
		5E14	SU 010003	SU 020017
		5E15	SU 020006	SU 010069
		5E16(1)	GA	GA
SS7 Response to PSU Isolation	682	5E16(2)	FR4	GA
Recent Change (Hashsum Failure) Blocking Feature (TF)	692	5E10	GA	GA
ASI Proxy Option for OLHB Population Feature	693	5E9(1)	SU 950017	-
		5E9(2)	SU 950019	SU 950062
		5E10	-	-
		5E11	GA	GA
Minimize SS7 Link Downtime During Retrofit	694	5E10	SU 970006	-
		5E11	SU 970008	-
		5E12	GA	GA
Auto ISDN Line Assignment	695	5E11	SU 980013	SU 970037
		5E12	GA	GA
911 Billing for Toll Transferred Calls	696	5E10	SU 970009	SU 970011
		5E11	SU 970010	SU 970029
		5E12	GA	GA
Alternate Local Service Provide Routing	697	5E12	SU 990004	SU 990005
		5E13	GA	GA
TPCC Use IDP/ODP	698	5E10	SU 980003	SU 970018
		5E11	SU 980001	SU 970070

		5E12	GA	GA
Number Portability NPA - NXX Growth	699	5E12	GA	GA
IC (Inter-exchange Carrier) Option for Screening Enhancements to Outside Calling Area Alerting	700	5E10	SU 970011	SU 970017
		5E11	SU 970019	SU 970043
		5E12	GA	GA
OSPS 800 Peel Out for Calling Card	701	5E12	SU 980005	SU 980007
		5E13	GA	GA
OSPS PLBQ with Add-on Capability	702	5E10	SU 980003	SU 980002
		5E12	SU 980007	SU 980001
		5E13	GA	GA
OSPS Automated Sequential Card Queries	703	5E12	GA	GA
NP - Service Provider Portability AMA Enhancement (Originating) (depends on SFID 276)	704	5E11	SU 980011	SU 980023
See Division 2, Section 4A276		5E12	SU 980015	SU 980028
		5E13	GA	GA
NP - Service Provider Portability AMA Enhancement (Terminating) (depends on SFID 276)	705	5E11	SU 980011	SU 980023
See Division 2, Section 4A276		5E12	SU 980015	SU 980028
		5E13	GA	GA
OSPS CAS TCAP Query Changes Using CCC Numbers	706	5E11	SU 970024	-
		5E12	SU 970006	SU 970012
		5E13	GA	GA
OSPS CAS TCAP Query Changes Using CAS Numbers	707	5E11	SU 970024	SU 970066
		5E12	-	-
		5E13	GA	GA
TCP/IP Security Enhancements for CALEA	708	5E15 FR5	FR5	-
		5E16	GA	GA
Deny Transfer of International Calls	709	5E11	SU 970026	SU 970077
		5E12	SU 97B006	SU 970014
		5E13	GA	GA
Telcordia Technologies (Bellcore) Cause Codes and Location Values	710	5E13	GA	GA
OSPS Acceptance of New Parameters in LIDB BNS and Card Replies	711	5E11	SU 980006	SU 980005
		5E12	SU 980003	SU 980003
		5E13	GA	GA
Deny Transfer of Digit Screened Calls	712	5E13	GA	GA
MCG (Manual Control Gap) Interactions with LNP	713	5E11	SU 970027	-
		5E12	SU 980001	-
		5E13	GA	GA
OSPS Credit Key Blocking for Domestic Calls	714	5E11	SU 980005	SU 980009
		5E12	SU 980006	SU 980009
		5E13	GA	GA
OSPS Credit Key Blocking for International Calls	715	5E11	SU 980005	SU 980009
		5E12	SU 980006	SU 980009
		5E13	GA	GA
E911 Call Error Detection and Alarm (SF293)	716	5E11	SU 980011	SU 980017
See Division 2, Section 4A293		5E12	SU 980014	SU 980022
		5E13	GA	GA
Simplified Custom ISDN Attendant	717	5E12	-	-
		5E13	-	-
		5E14	GA	GA
ASP CDI/RTI Ignore on LNP	718	5E11	SU 980006	-
		5E12	SU 980007	-
		5E13	GA	GA
CNA Trunk Group Billing Number	719	5E11	SU 980011	SU 980024
		5E12	SU 980016	SU 980024
		5E13	GA	GA
OSPS NPA Code Expansion	720	5E11	-	-
		5E12	SU 980024	SU 980063

		5E13	GA	GA
OSPS 0 - LEC Calls Maintenance Assert Handling	721	5E13	GA	GA
Abstract OSPS Enhanced AMA LS Single Record	722	5E11	SU 980007	-
		5E12	SU 980011	-
		5E13	GA	GA
Balance	723	5E11	SU 980013	SU 980035
		5E12	SU 980017	SU 980035
		5E13	GA	GA
NP Service Provider Portability AMA Enhancements (SF276)	724	5E11	SU 980013	SU 980023
See Division 2, Section 4A276		5E12	SU 980017	-
OSPS Flexible ANI Enhancement	725	5E13	GA	GA
		5E11	SU 980009	SU 980025
		5E12	SU 980014	-
		5E13	GA	GA
AATLOS - Automated Access Prompting	726	5E11	SU 980009	SU 980026
Non-Tariffed Announcement		5E12	SU 980017	SU 980030
		5E13	GA	GA
OSPS Billed Number Screening Call Blocking - Release 2	727	5E11	SU 980014	SU 980036
		5E12	SU 980020	SU 980045
		5E13	GA	GA
ASP Alternate Routing Before Announcement	729	5E13	GA	GA
Control of DACC Per LS/DA Transporting Carrier	730	5E12	SU 980025	SU 980068
		5E13	SU 980004	SU 980001
		5E14	GA	GA
DIOR Calling Card Restrictions to Domestic Terminations	731	5E12	SU 980025	SU 980076
		5E13	SU 980002	-
		5E14	GA	GA
OAS Call Origination for Intertoll Trunk Calls	732	5E12	SU 990006	SU 990013
		5E13	SU 99B006	SU 990017
		5E14	GA	GA
Send pANI to 8-digit PSAP	733	5E12	SU 980023	-
		5E13	SU 99A004	-
		5E14	SU 980023	-
Trunk trigger for Toll	734	5E12	SU 980025	-
		5E13	SU 980002	-
		5E14	GA	GA
Inhibit TGC NPA Deletion On Reroute	735	5E11	SU 990001	-
		5E12	SU 990002	-
		5E13	SU 980007	SU 980017
		5E14	GA	GA
Inhibit Flash on E911 Calls	736	5E10	-	-
No Data Impact		5E11	SU 990001	-
		5E12	SU 990007	-
		5E13	SU 980003	-
		5E14	GA	GA
Call Forward Don't Answer - Ring Control	737	5E12	SU 990004	SU 990006
		5E13	SU 990004	SU 990009
		5E14	GA	GA
30 SEC T310 Timer for PRI	738	5E11	SU 990001	-
		5E12	-	-
		5E13	SU 990005	-
		5E14	GA	GA
Use NPA to get NPD from ESCO	740	5E11	SU 990001	-
		5E12	SU 990002	-
		5E13	SU 980007	-
		5E14	GA	GA
OTR Automatic Link Restoral	741	5E12	-	-

		5E13	-	-
		5E14	GA	GA
NPA to NPD Translation Table for E911 Calls	742	5E12	SU 990009	-
		5E13	SU 990007	-
		5E14	GA	GA
Pre-query Screen for TYPE CI CALL of TCONF.	743	5E10	-	-
		5E11	SU 990003	-
		5E12	SU 990004	-
		5E13	SU 990007	-
		5E14	GA	GA
ASP Toll Free Service Interaction with Flexible ANI Features	744	5E13	-	-
		5E14	-	-
		5E15	GA	GA
ASP Toll Free Service Interaction with Flexible ANI Features	745	5E13	-	-
		5E14	-	-
		5E15	GA	GA
Call Forward Don't Answer During Ringback of a Call Waiting Call	746	5E12	—	-
		5E13	—	—
		5E14	-	—
		5E15	GA	GA
ASP/LDP Module 21 220 Record Enhancement	747	5E13	SU 990021	SU 990070
		5E14	SU 990004	SU 990014
		5E15	GA	GA
Standard PRI XMIT Progress Instead of Alerting when Interworking non-ISDN	748	5E14	SU 990001	-
		5E15	GA	GA
Selective Destination Screening for Software Defined Network	749	5E11	—	—
		5E15	GA	GA
Include CSI in IAM for ASP Calls	750	5E14	—	—
		5E15	GA	GA
Release Link for Toll (SFs 520 and 521) See Division 2, Sections 4A520 and 4A521)	788	5E14	GA	GA
Populate Call Type with ASP Default for Continue with Slip	948	5E13	-	-
		5E14	GA	GA
SPS ANSI Incoming Signaling System Number 7 from End Office	949	5E14	-	-
NP - DID PBX Query Enhancement	950	5E13	FR2	FR 990025
PCN Request Handling Parameter	951	5E14	IMR 719567	IMR 719567
		5E15	GA	GA
OSPS Provide Account Owner to LSDB Feature Activation	952	5E13	SU 0010	SU 000007
		5E14	-	-
		5E15	GA	GA
OSPS Control of Call ID Activation	953	5E14	SU 0010	SU 000007
		5E15	GA	GA
Easy Access to Voice Mail (Depend upon SFID 540. See Division 2, Section 4A540)	954	5E15	GA	GA
1000 Block Number Pooling Using Number Portability (Depends on SFID 530. See Division 2, Section 4A530)	955	5E14	FR3	-
		5E15	GA	GA
1000 Block Number Pooling Using Number Portability (Depends on OFID 955.)	956	5E14	FR3	-
		5E15	GA	GA
DA Custom Branding by Account Owner (Depends on SFID 543) (See Division 2, Section 4A543)	970	5E13	FR3	FR 000011
		5E14	FR2	-
		5E15	GA	GA
Audible Calling Name on *69 (Automatic Callback) (Depends on SFID 549. See Division 2, Section	971	5E14	FR3 GA	-
		5E15		GA

4A549.)				
Allow SCP DAL Carrier Compare	972	5E15	GA	GA
ASP Monitor for BRI and Multiline Hunt Group	973	5E15	FR1	-
Commercial Credit Card Alternate Access Methods	974	5E14	FR4	-
		5E15	GA	GA
PSAP (Public Safety Answering Point) Trunk Reports OOS BLKD When Originator Hangs Up Before PSAP	975	5E13	-	-
		5E14	-	-
		5E15	GA	GA
Talking Call Waiting	976	5E13	-	-
DA Automatic Position Release (Depends on SFID 559. See Division 2, Section 4A559.)	977	5E14	FR3	-
GETS (Government Emergency Telecommunications Service) Egress Queuing	978	5E15	FR3	SU 010036-
		5E16	GA	GA
GETS (Government Emergency Telecommunications Service) Office Queuing	979	5E15	FR3	SU 010036-
		5E16	GA	GA
Carrier Compare For VPN (Virtual Private Network) Depends on SFID 165 and SFID 242.	980	-	5E14 FR6	-
		-	5E15 FR2	-
		5E16	GA	GA
NM 3 Digit Reroute	981	5E14	-	-
		5E15	-	-
		5E16(1)	GA	GA
Inhibit No Circuit Peg Counts on Final Route Type of Busy	983	5E14	IMR 720980	IMR 720980
		5E15	GA	GA
NPA Split Enhancement	984	5E14	SU 010002	SU 010003
		5E15	-	-
		5E16(1)	GA	GA
LEA TPKT Inhibit	985	5E14	SU 010002	-
		5E15	GA	GA
Use Originators Screen Index for ANI II Digits	986	5E14	-	-
		5E15	GA	GA
PRI Calling Party Number Presentation Indicator Exception	987	5E14	SU 010002	-
		5E15	GA	GA
Enhancement for Stand-Alone Routing for International	988	5E14	SU 030002	SU 010016
		5E15	SU 020008	SU 010068
		5E16(1)	GA	GA
Alternate ASP Algorithm used' to Delete an NPA	989	5E14	SU 010003	-
		5E15	SU 010010	-
		5E16(1)	GA	GA
256K Trunk Scaling for Mega 5ESS	990	5E16	GA	GA
Bypass Subset of Crosschecks during RCV 10.10 Screening Delete	992	5E14	SU 010005	-
		5E15	SU 010016	-
		5E16(1)	GA	GA
Listing Services for OSPS ANSI Incoming SS7 form End Offices	993	5E14	SU 010006	SU 990009
		5E15	SU 010016	-
		5E16(1)	GA	GA
Canadian 15-Digit International Direct Distance Dialed	994	5E14	SU 010008	SU 010014
		5E15	SU 010017	-
		5E16(1)	GA	GA
Precedence and Preemption Terminating Feature Selection Enhancement	996	5E15	SU 020002	-
		5E16(2)	GA	GA
Delete Network Identity Digits on PRI PLI IE	997	5E15	SU 020007	SU 020013
		5E16(2)	GA	GA
GETS Enabled Edge Switch	998	5E16(2)	GA	GA
DNIS Enhancement for Canada - Part 1	999	5E15	FR 5	-
DNIS Enhancement for Canada - Part 2	1000	5E15	FR 5	-
DNIS Enhancement for Canada - Part 3	1001	5E15	FR 5	-
PRI CBC with Blank/Zero SFG Screen Index	1003	5E14	IMR 759058	IMR 759058
		5E15	IMR 759058	IMR 759058

		5E16(1)	IMR 759058	IMR 759058
		5E16(2)	GA	GA
Inhibit Printing of FC2CF_LTM Assert	1004	5E14	SU 030001	SU 020006
		5E15	SU 020009	SU 020025
		5E16(1)	SU 020008	SU 020014
		5E16(2)	GA	GA
IAM Charge Number	1005	5E15	SU 200003	SU 200002
		5E16.1		
		5E16.2		
		5E17.1		
256 ISUP Tandem Solution	1006	5E16(2)	SU 030001	SU 020006
		5E17(1)	GA	GA
On-Hook Data Transmission without Power Ring	1008	5E15	FR4	-
		5E16	GA	GA
IMLT Metallic A-Link Blackage Notification	1010	5E16(2)	FR1	-
Inhibit CGA (Carrier Group Alarms)	1012	5E16(2)	FR1	SU 30011
SS7 Release Message	1013	5E16(2)	GA	GA
NCA (No Circuit Available) MDII	1014	5E16(2)	SU 030013	-
PRI Origination Send Disconnect with cause 34 for Trunk Busy Condition	1015	5E16(2)	SU 030010	SU 030031
Shared use of GDX Compensators on Priority Basis	1016	5E16(2)	FR4	GA
OCN Sending with no Redirection Information	1022	5E20(1)	GA	GA
TrFo Path Minimization	1027	5E21(1)	GA	GA

Notes:

SU - Feature available in a Software Update (Formerly called BWM).

GA - Feature available in the General Availability Software Release.

- = No Informational Software Update available.

NA - Not applicable. An optioning bit is no longer needed to option the feature. An alternative mechanism (e.g., a dedicated parameter or an option name on the options views) is now used to option the feature.

(SFxx) - Secured Feature. Optional feature that can be purchased. For more information refer to Division 2, Section 4Axx.

(SpF) - Special Feature. For more information refer to Division 2, Section 4C.

(TF) - Transparency Feature. For more information refer to Division 2, Section 4B0, Page 1.

Figure 1 OFFICE OPTIONED ID NUMBERS AND CORRESPONDING FEATURE NAMES

SEC. 4B500: 3-WAY RECONNECT PROCEDURES

1. BACKGROUND

Without this feature, a subscriber, who is attempting to set up a three-way call and receives busy or no answer for the third party, is required to flash once if the third party call is an intra-office call and to flash twice if the third party call is an inter-office call.

2. FEATURE DESCRIPTION

Available with 5E4(2) and later, the 3-Way Reconnect Procedures feature is a Transparency Feature using OFS ID 500.

This feature allows the user, who fails to connect with the third party of a three-way call and receives busy or

reorder, to reconnect with the original party. The user reconnects by flashing twice. The first flash connects the two original parties with the busy tone or audible ringing. The second flash removes the busy tone or audible ringing while keeping the two parties connected. The call attempt to connect with the third party can be intra-office or inter-office.

- **NOTE:** For Auto3way, the subscriber will have to flash to form the three-way; it will not automatically form a three-way.
- **NOTE:** Disconnect timing - during a three-way reconnect call, if the far party hangs up leaving the controller listening to tone, a flash from the controller will remove the tone. Independent of whether the controller is an originator or terminator, the controller will go through 10 second disconnect timing after the flash.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 500 must have field ACT on the FOSYS form (5713-2 Record) set to "Y" to activate this feature for the office.

SEC. 4B501: MULTI-WAY THREE-WAY CONFERENCE/CALL TRANSFER B911 INTERACTIONS

1. BACKGROUND

Without this feature, if a subscriber with three-way calling flashes to connect a 911 ESB (Emergency Service Bureau) as a third party, it is not possible to flash again to re-establish the three-way call.

2. FEATURE DESCRIPTION

Available with 5E5 and later, the MW (Multi-Way) Three-Way Conference Calling/Call Transfer - B911 Interaction feature is a Transparency Feature using OFS ID 501.

This feature allows a subscriber with an MW three-way calling feature to completely conference a three-way connection with a 911 ESB as the third party of an MW conference call without the assistance of an operator. Also, an MW call transfer can be completed with 911 ESB as the third party without the services of an operator.

2.1 Call Scenarios

This feature is implemented for Analog MW, ISDN MW, Analog Attendant MW, and ISDN Attendant. Below are examples of various call scenarios.

Conference:

1. A calls B (or B calls A)
2. A flashes, calls 911
3. A flashes, A, B and 911 form Conference

Transfer:

1. A calls B
2. B flashes, calls 911
3. B goes on-hook, A and 911 transferred
4. 911 flashes, A hears ROH (Receiver Off Hook)
5. A goes on-hook, 911 hears low tone
6. 911 flashes, A gets ringback

Analog MW:

The controlling terminal of a call can flash to put the far party on hold, receive special dial tone, dial and terminate with 911 (third party), and flash to connect all three Parties on the MW conference call. The following call scenario demonstrates the feature operation:

If an MW controller flashes during a three-way conference (to drop the last added party - 911), the Switch will reject the request.

When the MW controller of a conference call goes on-hook without a valid transfer feature, MW will transfer 911 station and non-controlling far Party A.

If a 911 station flashes during MW three-way conference call, MW will ignore the flash.

Also, MW call transfers can be completed with 911 (as a third party) and a 911 station may force hold and ringback the non-controlling far party.

Without this feature,

- the 5ESS Switch force holds the MW controller after the controller goes on-hook while it is connected with 911. Therefore, MW call transfers are not allowed to be completed
- the 5ESS Switch, ignores the flashes after the subscriber is connected with 911. Therefore, MW three-way conference calls are not allowed to be established.

The 911 functionality overrides the MW Filtering/TGSR functions and unconditionally allows MW conference calls and call transfers to complete.

ISDN MW:

The user of an ISDN terminal can depress the conference/transfer functional button to put the non-controlling far party on soft hold, dial and terminate to 911 (third party), and then depress the conference/transfer button to form an ISDN MW conference or transfer.

The MW controller can also transfer by going on-hook during an MW three-way connection with 911 station.

When the MW controller goes on-hook or depresses the transfer button without a valid transfer feature during a conference call, MW will transfer the 911 station and non-controlling far party.

If the MW controller depresses the drop functional button to drop the last added party (911), the Switch will reject the request.

If a 911 station goes on-hook during MW three-way conference call, the 911 station is disconnected and Party A and Party B remain connected. Also, ISDN MW call transfers can be completed with 911 (third party) and the 911 station may force hold and ringback the non-controlling far party. The 911 functionality overrides the MW Filtering/TGSR functions and unconditionally allows MW conference calls and call transfers to complete.

Analog Attendant:

The Analog Attendant (50B Console) MW controller of a three-way conference call can depress the start functional button to put the non-controlling far party on split hold, dial and terminate with 911 (third party), depress join button to conference with 50B, or depress the transfer button to transfer the 911 and non-controlling party. After an MW transfer, the 911 station can force hold the non-controlling party.

If the analog attendant controller depresses the cancel button during a three-way connection with 911 ESB, (to drop 911) the switch will reject the request. When the Analog Attendant controller presses the release button without a valid transfer feature, MW will transfer the 911 station and Party A.

If a 911 station flashes during MW three-way conference call, MW will ignore the flash.

The 911 functionality overrides the MW Filtering/TGSR functions and unconditionally allows MW conference calls and call transfers to complete.

ISDN Attendant:

The user of an ISDN Attendant terminal can establish an MW call, then depress the conference/transfer functional button to put the non-controlling far party on split hold, dial and terminate with 911 (third party), and depress the conference/release button to form an ISDN Attendant MW conference or transfer.

When an MW controller presses the release button without a valid transfer feature during a conference call, MW will transfer the 911 station and the non-controlling far party.

If an MW controller depresses the cancel functional button to drop the last added party (911), the switch will reject the request.

If a 911 station goes on-hook during an MW three-way conference call, the 911 station is disconnected, and Party A and Party B remain connected.

Also, ISDN Attendant MW call transfers can be completed with 911 (third party), and the 911 station may force hold and ringback the non-controlling far party.

The 911 functionality overrides the MW Filtering/TGSR functions and unconditionally allows MW conference calls and call transfers to complete.

2.2 Additional Information About Feature Operation

On-Hook Emergency Ringbacks:

On-hook ringback can occur after an MW call transfer when the transferred far party goes on-hook after establishing a stable talking path with the 911 station. After the far party goes on-hook, the 911 station hears a muffled dial tone, also known as low-tone. If the 911 station needs to continue communicating to the far party, the station can invoke on-hook ringback by flashing the switch-hook. If the far party is on-hook, power ringing is sent to the originator's station and audible ringing is returned to the 911 station. Power ringing and

audible ringing will continue until a 45-minute timeout period, the far party goes off-hook, or the 911 station goes on-hook. After a stable talking state is established, the on-hook ringback procedure can occur as many times as necessary until the 911 station goes on-hook or any single ringback period exceeds the 45-minute timeout period. If either of these conditions is met, the entire call will be torn down.

Off-Hook Emergency Ringbacks:

Off-hook ringback can occur at any time after establishing a stable talking path with the 911 station and the transferred far party. Off-hook ringback is a 4 second burst of ROH (receiver off-hook) tone supplied to the analog far transferred party after the 911 station flashes. For ISDN CPEs, off-hook ringback is a 4 second burst of high tone supplied to the ISDN transferred far party. If the transferred far party is off-hook, ROH tone is returned to the far party and audible ringing is sent to the 911 station. When the ROH tone has timed out, the audible ringing to the station is removed, and a normal talking path is restored. This off-hook ringback procedure can occur as often as necessary during a stable call to the 911 bureau until the 911 station goes on-hook. Off-hook ringbacks can only be invoked after an MW call transfer.

Ringback Not Allowed During Three-Way Connection:

The 911 ESB is not recognized as capable of flashing during the three-way connection. Therefore, all flashes by 911 ESB will be ignored by the switch during a three-Way conference call.

Forced Hold Disallowed During MW Three-Way Connection:

The 911 ESB is not recognized as initiating a forced hold functionality during the three-way connection. Therefore, if the MW control option for the controller disconnect is to tear down the conference, then MW functionality will override the 911 functionality and allow the call transfer with 911 and non-controlling far party A.

911 Cannot Force Hold or Ringback after Transfer:

If the first leg of an MW call routes over a trunk, then the 911 station cannot force hold or ringback the transferred party. This is demonstrated by the following analog non-attendant call scenarios:

Example 1:

1. A calls B (Trunk).
2. A flashes, calls 911.
3. A goes on-hook.
4. 911 and B are transferred.
5. 911 cannot force hold or ringback B.

Example 2:

1. A calls B (Trunk).
2. A flashes, calls 911 (Trunk).
3. A goes on-hook.
4. 911 Trunk and B Trunk are transferred.

5. 911 cannot force hold or ringback B.

911 Cannot Transfer with Ringing Party:

911 cannot be transferred with a ringing party. When 911 goes off-hook, the ringing party will stop ringing and be idled.

1. A calls B (ringing).
2. A flashes, calls 911 (ringing).
3. 911 goes off-hook, B stops ringing and idle.
4. A goes on-hook, 911 force holds A.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 501 must have field ACT on the FOSYS form (5713-2 Record) set to "Y" to activate this feature for the office.

SEC. 4B502: DIRECTED CALL PICKUP WITH BARGE-IN ASSIGNMENT

1. BACKGROUND

Without this feature, both the originating and terminating DPU (Direct Call Pickup with Barge-In) features were commonly assigned when a subscriber wanted to use Directed Call Pickup with Barge-In Assignment.

2. FEATURE DESCRIPTION

Available with 5E5 and later, this feature is a Transparency feature using OFS ID 502.

When this feature is enabled, the originator of the DPU will not need the DPU originating feature (/CPUDO) assigned to the subscriber's line to invoke a DPU (See Division 4, Section 6A). Any subscriber in a dialing plan with a DPU dial code defined, or in a configuration group with a DPU feature button defined, can invoke the feature. Different IDPs will be required if some subscribers can use the DPU feature and others cannot. With the elimination of the DPU originating feature, the wild card feature cannot be used.

This feature change will be transparent to the subscriber since the DPU feature will operate exactly the same as in previous releases as seen by the user.

The administrative work required in assigning Directed Pickup With Barge-In to a subscriber will be half of what was required prior to this feature. Previously, both the originating and terminating DPU features were commonly assigned when a subscriber wanted to use Directed Pickup With Barge-In.

The use of an Authorization code will no longer be supported because of the elimination of the DPU origination feature.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 502 must have field ACT on the FOSYS form (5713-2 Record) set to "Y" to activate this feature for the office.

SEC. 4B503: SHARED DN DISPLAY WITH NO RINGING OPTION

1. BACKGROUND

Without this feature, the field feature ISDN MBKS (Multi Button Key Set) Display for Ringing Call Appearances Only sends display information only to the associated terminals that are audibly alerting. Display for shared sets is provided as follows:

ISDN MBKS Display For Ringing Call Appearances Only	
Ring Pattern	Display Provided
NOR (Normal)	Yes
ABR (Abbreviated)	Yes
DEL (Delayed)	Yes (but delayed)
NON (None)	No

2. FEATURE DESCRIPTION

Even though the ISDN MBKS (Multi Button Key Set) Display For Ringing Call Appearances Only is a field feature, not all offices and users want this feature for their phone. Available with 5E4(2) and later, the Shared DN Display With No Ringing Option transparency feature uses OFS ID 503 and allows the ISDN MBKS (Multi Button Key Set) Display For Ringing Call Appearances Only feature to be made optional rather than having the feature mandatory on all phones.

This feature allows display information to be sent silently to terminals even when they are not alerting. The terminal with DEL ringing is sent display only when it rings, unless it is the lead terminal. Display for shared sets is provided as follows:

Shared DN Display With No Ringing Option	
Ring Pattern	Display Provided
NOR (Normal)	Yes
ABR (Abbreviated)	Yes
DEL (Delayed)	Yes (but delayed)
NON (None)	Yes

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 503 on the FOSYS form (5713-2 Record) must be set to "Y" to activate this feature for the office.

SEC. 4B506: NON-ALERTING ISDN SHARED TERMINAL DISPLAY OPTION

1. BACKGROUND

The ISDN MBKS (Multi Button Key Set) Display For Ringing Call Appearances Only provides display information only to the associated terminals that are audibly alerting. Display for shared sets is provided as follows:

ISDN MBKS Display For Ringing Call Appearances Only	
Ringing Pattern	Display Provided
NOR (Normal)	Yes
ABR (Abbreviated)	Yes
DEL (Delayed)	Yes (but delayed)
NON (None)	No

The feature, Shared DN Display With No Ringing Option (see Division 2, Section 4B503), introduced a change so that display information would be provided for terminals not audibly alerting. This affected the display as follows:

Shared DN Display With No Ringing Option	
Ringing Pattern	Display Provided
NOR (Normal)	Yes
ABR (Abbreviated)	Yes
DEL (Delayed)	Yes (but delayed)
NON (None)	Yes

Customers have indicated that both types of operation can be desirable.

2. FEATURE DESCRIPTION

Available with 5E4(2) and later, the Non-Alerting ISDN Shared Terminal Display Option uses OFS ID 506 and provides offices with the option of providing display information with alerting pattern of NON. The display for non-alerting shared terminals will depend upon a OFS ID which can be set per office basis.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 506 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

To continue the Non-Alerting ISDN Shared Terminal Display Option feature operation of providing display information for non-alerting terminals, no action will need to be taken since the default is set for this capability.

To return to the ISDN MBKS (Multi Button Key Set) Display For Ringing Call Appearances Only feature operation to inhibit display information for all non-alerting shared terminals in the office, OFS ID 506 on the FOSYS form is set to "Y".

If after having returned to the the ISDN MBKS (Multi Button Key Set) Display For Ringing Call Appearances Only feature operation the office wishes to return to the Non-Alerting ISDN Shared Terminal Display Option feature operation, OFS ID 506 on the FOSYS form should be blank to allow display information for all non-alerting shared terminals in the office.

SEC. 4B507: SEPERATE CALL WAITING FROM MW RINGBACK PARAMETER

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions*.

SEC. 4B508: INCREASE NUMBER OF SIMULTANEOUS CALLS FORWARDED TO DID GROUPS

1. BACKGROUND

Without this feature only 1 call-forwarded call will be directed to a DID (Direct Inward Dialing) group at a time, and all additional calls will be blocked.

2. FEATURE DESCRIPTION

Available with 5E4(2) and later, if OFS ID 508 has the field ACT set to "Y" on the FOSYS form (5713-2 Record) so that Increase Number of Simultaneous Calls Forwarded to DID Groups is active and the forward-to party is a DID trunk, then the service class is set so that the forward-to party is a line as opposed to a trunk. The call will then be treated as an intra-office call and allow up to 99 simultaneous forwardings.

The following is a sample call scenario:

- Line A calls Line B and is forwarded to the DID trunk.
- The DID trunk winks and goes offhook.
- Line A and the trunk should be in talking state.
- While Line A and Line B are talking, Line C calls Line B.
- Prior to activation of this feature, Line C gets blocked and receives busy tone. After application of this feature, Line C is forwarded and the trunk is alerted.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 508 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B509: FIX FOR PFA, ARS, AND VPATH

1. BACKGROUND

Originally, all Intra-LATA and Inter-LATA Simulated Facilities OUTWATS (Outward Wide Area Telecommunications Service) calls were routed to the Inter-LATA Carrier found in SFG (Simulated Facilities Group) OUTWATS data. As a result, PFA Private Facilities Access) Intra-LATA OUTWATS calls were not routing via the Intra-LATA route. Since these calls should be handled separately, mis-routed PFA Intra-LATA OUTWATS calls cause incorrect billing for the end customer and RBOC.

A Software Update was introduced to change the routing of these calls to meet the LSSGR (Local Switching

System General Requirements). With this Software Update, OUTWATS Intra-LATA calls are routed to the LEC (Local Exchange Carrier), and Inter-LATA OUTWATS calls are routed to the IC (Interexchange Carrier). Although this routing change meets LSSGR requirements, this is not the most desirable routing for all OUTWATS applications. Some office configurations depend on the original routing arrangement for OUTWATS calls. For example, the field feature VPATH will not route calls correctly due to the above mentioned Software Update.

2. FEATURE DESCRIPTION

Available with 5E4(2) and later, the Fix for PFA, ARS, and VPATH transparency feature uses OFS ID 509 to provide an option for OUTWATS Intra-LATA routing. When OFS ID 509 has field ACT set to "Y" on the FOSYS form (5713-2 Record), this feature is activated to provide the same routing of OUTWATS calls as originally available before the implementation of the above mentioned Software Update. With the feature activated, all Intra-LATA and Inter-LATA Simulated Facilities OUTWATS calls are routed to the Inter-LATA Carrier found in SFG OUTWATS data.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 509 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B510: HOTEL/MOTEL MINI FEATURE

1. BACKGROUND

A Software Update providing a mini feature called Hotel/Motel enforces a blockage against the hotel key when the back number cannot be found in the HOTEL database. Some customers have approved of the feature while other customers do not want the blockage enforced against the Hotel key when the back number cannot be found in the HOTEL database.

2. FEATURE DESCRIPTION

Available with 5E5 and later, the Hotel/Motel Mini Feature is a Transparency Feature using OFS ID 510 and gives the customer the ability to deactivate the blockage against the hotel key. The activation/deactivation of OFS ID 510 on the FOSYS form (5713-2 Record) will activate/deactivate blockage against the key. Other aspects of the feature, ANIF (Automatic Number Identification Failure) back number retrial and billing code 64, will not be changed.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 510 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B511: FTS2000 OFFICE INDICATOR FOR PRIVATE MDR RECORD FIX**1. BACKGROUND**

The MDR (Message Detail Recording) Call Event Code for Vacant Code Calls is incorrect. A call placed to a Vacant Code results in an MDR record having a Call Event Code which indicates "Incomplete - Call Failure." The Call Event Code should indicate "Incomplete - Vacant Code." As a result, it is time consuming to trace vacant code calls with the incorrect Call Event Code of call failure when it could immediately be known that the user dialed a vacant code.

2. FEATURE DESCRIPTION

Available with 5E5, FTS2000 Office Indicator for Private MDR Record Fix uses OFS ID 511 and applies to FTS2000 offices. When OFS ID 511 on the FOSYS form (5713-2 Record) is set to "S", a call placed to a Vacant Code will produce the correct MDR record having a Call Event Code indicating "Incomplete - Vacant Code".

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 511 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B512: AUTHORIZATION CODE INTERACTION WITH MULTI-WAY FIX**1. BACKGROUND**

Without this feature no authorization code CDAR (Customer Dialed Account Recording) number is generated in the billing record for multiway calls after the second multiway call is placed. A typical scenario is: User A calls user B, and they talk and decide to add on user C. B flashes and dials 9 + 11 digits and then gets prompted for an ATH (Authorization) code. B enters the code, and the call completes to C. A, B and C are now connected. After C hangs up, the AMA (Automatic Message Accounting) record is generated and has the CDAR number associated with it as would be expected.

A and B are connected, and B flashes and dials 9 + 11 digits. In this instance B is not prompted for the AUTH code (as expected since it was already entered once), and the call completes to D. A, B and D are now connected. After D hangs up, an AMA trace record is generated. However, no CDAR number is put into the billing record. This happens also when the added leg completes to a busy phone and then calls back later.

Since operating companies cannot bill for calls that do not contain a CDAR number, the potential exists for lost revenue for the customer.

2. FEATURE DESCRIPTION

Available with 5E4(2) and later, the Authorization Code Interaction with Multi-Way Fix feature uses OFS ID 512 on the FOSYS form (5713-2 Record) so that the ATH (Authorization) Code prompt will be allowed. Otherwise the ATH code from the previous leg call record will be copied into the current call record if dialed on a previous leg. This will insure that a CDAR will be generated for each AMA record.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. If OFS ID 512 has field ACT on the FOSYS (5713-2 Record) form set to "Y", this feature will be active for the office, and ATH (Authorization) Code prompt will be allowed. If OFS ID 512 has field ACT set to "N", the ATH code from the previous leg call record will be copied into the current call record if dialed on a previous leg.

SEC. 4B513: RESTRICT INITIAL FLASH AND CALL WAITING BEFORE ANSWER

1. BACKGROUND

Currently, the 5ESS Switch allows flashing and call waiting when a call is in a stable state. Ringing is considered a stable state for the 5ESS Switch. The 1A ESS Switch does not consider ringing to be a stable state and does not allow initial flash or call waiting before answer on intra-office calls. On outgoing calls, the 1AESS Switch optionally allows initial flash before answer and call waiting before answer. (IFBA) Initial Flash Before Answer is the first flash to set up a multiway call. An IFBA implies that the called party is ringing when the controller flashes and there are no soft held parties. If hard hold is in progress, IFBA implies that the controller has a call on hard hold, and is ringing a called party. (CWBA) Call Waiting Before Answer is alerting a busy station when the station has an unanswered call in a ringing state.

2. FEATURE DESCRIPTION

Available with 5E4(2) and later Software Releases, this transparency feature applies to individual analog lines and analog attendants. This feature provides two independent 5ESS Switch office options to restrict initial flash and call waiting before answer on an office basis when an analog controller has a call in the ringing state:

- Intra-office option is controlled by OFS ID 513 on the FOSYS form for intra-office calls
- Inter-office option is controlled by OFS ID 514 on the FOSYS form for outgoing calls

The two office options determine the treatment for IFBA and CWBA for intra-office and outgoing calls. The existing call defines the customer state of the controller. The far class of service defines the existing call type (intra-office or outgoing).

If the office options are set to disallow IFBA and CWBA, and if a controller with a multiway feature flashes while in the ringing state, the flash is ignored and the controller remains connected to the ringing party. If hard hold is in progress, then the flash causes the ringing call to disconnect. If a party tries to call wait a controller that has another call in the ringing state, the party will either get busy treatment or the call will be forwarded if the controller has the call forwarding busy line feature.

When the feature is deployed, it will not be active. Each option of the feature is activated by setting the appropriate OFS ID on the FOSYS form:

- The intra-office option is activated by setting the ACT field for OFS ID 513 to "Y" on the FOSYS form. Flash and call waiting before answer for intra-office calls will not be allowed.
- The inter-office option is activated by setting the ACT field for OFS ID 514 to "Y" on the FOSYS form.

Flash and call waiting before answer for outgoing calls will not be allowed.

3. CALL PROCESSING SCENARIOS

The following three call scenarios illustrate how this feature affects call processing. These scenarios all involve intra-switch calls. In the case of outgoing calls, the difference would be that the inter-office option (controlled by OFS ID 514) would be checked instead of the intra-office option (controlled by OFS ID 513) to determine if IFBA and CWBA are restricted. Also, in the case of outgoing calls, if a trunk simulating answer supervision (e.g., a Foreign Exchange trunk) is used, the restrictions will not apply.

3.1 Scenario I: Direct Intra-Office Call

The first scenario describes a simple A to B intra-office call when party A either flashes or is called.

- Line A - 979-1000 : /CWT, /MW3WC
- Line B - 979-1001
- Line C - 979-1002

3.1.1 Intra-office option (OFS ID 513 ACT field) set to "Y" to disallow IFBA and CWBA.

Line A calls line B. Line B does not answer and is ringing.

- Line A flashes. The flash is ignored since the intra-office option is "Y".
- Line C calls Line A. Line A is not call waited and Line C hears the busy signal since the intra-office option is "Y".

3.1.2 Intra-office option (OFS ID 513 ACT field) set to "N" to allow IFBA and CWBA.

Line A calls line B. Line B does not answer and is ringing.

- Line A flashes. The flash is accepted and Line A receives dial tone since the intra-office option is "N".
- Line C calls Line A. Line A is call waited and Line C hears ringing since the intra-office option is "N".

3.2 Scenario II: Hard Hold Interaction

The second scenario describes how hard hold interacts with Scenario I.

- Line A - 979-1000 : /CWT, /MW3WC, /MWCH1
- Line B - 979-1001
- Line C - 979-1002
- Line D - 979-1003

3.2.1 Intra-office option (OFS ID 513 ACT field) set to "Y" to disallow IFBA and CWBA.

Line A calls line B. B answers. Line A and Line B are talking. Line A flashes and dials the hard hold dial code (puts Line B on hard hold). Line A gets dial tone and calls Line C. Line C does not answer and is ringing.

- Line A flashes. The flash is interpreted as a disconnect since the intra-office option is "Y". Line A goes to silence and the call to C is disconnected. Line A must flash to get back dial tone.
- Line D calls Line A. Line A is not call waited and Line D hears the busy signal since a controller with hard hold in progress cannot be call waited.

3.2.2 Intra-office option (OFS ID 513 ACT field) set to "N" to allow IFBA and CWBA.

Line A calls line B. B answers. Line A and Line B are talking. Line A flashes and dials the hard hold dial code (puts Line B on hard hold). Line A gets dial tone and calls Line C. Line C does not answer and is ringing.

- Line A flashes. The flash is accepted and Line A gets dial tone since the intra-office option is "N".
- Line D calls Line A. Line A is not call waited and Line D hears busy since a controller with hard hold in progress cannot be call waited.

3.3 Scenario III: Transfer Interaction

The third scenario describes how transfer interacts with Scenario I.

- Line A - 979-1000 /CWT, /MWCTIA1
- Line B - 979-1001
- Line C - 979-1002
- Line D - 979-1003

3.3.1 Intra-office option (OFS ID 513 ACT field) set to "Y" to disallow IFBA and CWBA.

Line A calls line B. B answers. Line A and Line B are talking. Line B flashes and dials Line C. Line B disconnects to transfer Line A's call to Line C. Line C does not answer and is ringing.

NOTE: If the call from A to B is an outgoing call, then the feature restrictions will not apply after the transfer.

- Line A flashes. The flash is ignored since the intra-office option is "Y" and Line A continues to ring C.
- Line D calls Line A. Line A is not call waited and Line D hears busy since the intra-office option is "Y".

3.3.2 Intra-office option (OFS ID 513 ACT field) set to "N" to allow IFBA and CWBA.

Line A calls line B. B answers. Line A and Line B are talking. Line B flashes and dials Line C. Line B disconnects to transfer Line A's call to Line C. Line C does not answer and is ringing.

- Line A flashes. The flash is accepted since the intra-office option is "N" and Line A gets dial tone.

- Line D calls Line A. Line A is call waited and Line D hears ringing since the intra-office option is "N".

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 513 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate the intra-office option for this feature for the office. OFS ID 514 must have field ACT on the FOSYS form set to "Y" to activate the inter-office (outgoing calls) option for this feature.

4.1 Transparency Requirements

The following list indicates how to set the 5ESS Switch intra-office option and outgoing option for the 5ESS Switch to be transparent with other requirements:

4.1.1 5ESS Switch Transparent with the 1A ESS Switch

Set the 5ESS Switch intra-office option (OFS ID 513 ACT field) to "Y" to disallow initial flash and call waiting before answer. Set the 5ESS Switch outgoing option (OFS ID 514 ACT field) to "N" to allow or "Y" to disallow initial flash and call waiting before answer.

4.1.2 5ESS Switch Transparent with Current 5ESS Switch Software Releases

Set the 5ESS Switch intra-office option (OFS ID 513 ACT field) to "N" to allow initial flash and call waiting before answer. Set the 5ESS Switch outgoing option (OFS ID 514 ACT field) to "N" to allow initial flash and call waiting before answer.

4.1.3 5ESS Switch Transparent with the LSSGR (Local Switching System General Requirements)

Set the 5ESS Switch intra-office option (OFS ID 513 ACT field) to "Y" to disallow initial flash and call waiting before answer. Set the 5ESS Switch outgoing option (OFS ID ACT field) to "N" to allow initial flash and call waiting before answer.

SEC. 4B515: CALLING PARTY DISCONNECT INDICATION

1. FEATURE DESCRIPTION

Prior to this feature, the indication provided to an analog called party that the calling party disconnected was an open interval followed by dial tone, normally given to the line after a 10 to 12 second delay.

Available for 5E4(2) and later, Calling Party Disconnect Indication is a special feature which provides an indication to an analog called party as soon as the called party's switch recognizes the calling party has disconnected. The indication provided by this feature is a short open interval, that is, removal of central office battery. This indication is followed by the existing 10 to 12 second disconnect timing and then the appropriate disconnect treatment. This disconnect treatment is usually dial tone, except for Manual and Direct Connect lines which receive permanent signal treatment (re-order or announcement).

This particular application is of interest to customers that own automatic equipment which handles incoming

calls (e.g. an answering machine or a key system). The immediate open interval provided by this feature will allow the automatic equipment to react sooner, thereby decreasing wasted occupancy of the line. ISDN station sets do this with standard protocol.

This feature should be activated or deactivated on a per-office basis. To activate this feature for the office, MODULE should be set to "OFC" and Feature ID 515 should be set to "S" on the FOSYS form.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 515 must be set to "S" on the FOSYS form (5713-2 Record) to activate this feature for the office.

SEC. 4B516: TRANSFER OF UNSUPERVISED LINES FIX

1. BACKGROUND

Prior to 5E6, the 5ESS Switch would allow a call over an outgoing trunk (originator is within the 5ESS Switch) to be transferred to a ringing line, which is also within the 5ESS Switch. It was also possible to have scenarios which resulted in two outgoing trunks to be transferred together. This caused problems with hung resources (conference circuits, dynamic data, trunk circuits) and Long Duration Calls in several offices.

The majority of the problems resulted from several sources:

- The 5ESS Switch could not guarantee that outgoing trunks were supervised (supervised is defined as a terminating trunk or an answered call) at the far end, and therefore, must assume that they are not. If an outgoing trunk was not supervised, the 5ESS Switch would not know when the far end would go onhook and therefore, could not allow the transfer.
- The ring timeout in the 5ESS Switch may be set to a very large value, or may not be set at all. This means that a line could possibly ring forever and tie up the resources.

The 5ESS Switch software requires that at least one end of a call be supervised before it will allow the transfer so that the resources do not get hung.

With the 5E6 Software Release, the 5ESS Switch no longer allows these types of calls to be transferred. If the customer sets up a call of this type and attempts to perform the transfer, the following will occur:

- If the customer is analog and attempts to transfer by going onhook, the call will be torn down silently.
- If the customer is ISDN (Integrated Services Digital Network) and attempts to transfer by pressing the TRANSFER button, then a TRANSFER REJECT message will be sent to the ISDN set, the TRANSFER lamp will flutter, and the call will not be transferred. Thus, ISDN transfers may be rejected if an outgoing trunk is transferred to a ringing line.

2. FEATURE DESCRIPTION

Since some switches do not want hung conference circuits that result from unsupervised parties being

transferred together, but other offices want the 1A ESS transparency, this Transparency Feature provides an option to satisfy both needs and is available for 5E4(2) and later:

- If this feature is not resident on the switch, the 5ESS Switch will only allow supervised parties to be transferred together. Therefore, two outgoing trunks, two ringing parties or an outgoing trunk and ringing line will not be transferred together.
- If this feature is resident on the switch and OFS ID on the FOSYS form is not set to "Y", the 5ESS Switch will only allow supervised parties to be transferred together. Therefore, two outgoing trunks, two ringing parties or an outgoing trunk and ringing line will not be transferred together.
- If this feature is resident on the switch and OFS ID on the FOSYS form is set to "Y", the 5ESS Switch will not allow two outgoing trunks or two ringing parties to be transferred, but an outgoing trunk will be allowed to be transferred to a ringing line.

NOTE: The transfer of outgoing trunks that are not supervised may result in the problems described above.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. MODULE is set to an SM number or "OFC" to activate the feature option for that particular SM or the entire office. In addition, OFS ID 516 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to allow an outgoing trunk to be transferred to a ringing line.

SEC. 4B517: MODIFIED CALLING LINE DISCONNECT PROCEDURE FOR FRAUD PROTECTION

1. MCLD FEATURE DESCRIPTION

Available with 5E5 and later Software Releases, MCLD (Modified Calling Line Disconnect for Fraud Protection) modifies the treatment of disconnect. When MCLD is activated, a line that remains offhook following a called party abandon does not receive dial-tone after the delay disconnect timer has expired but receives Permanent Signal (permsig) treatment. This forces the line to go back onhook before originating another call.

The MCLD feature applies only to analog lines. MCLD does not work for coin lines, ground start lines, or ISDN lines.

1.1 Definitions

"Regular" COIN - A line with a COIN class of service.

COCOT - Customer Owned Coin Operated Telephones. These are not "regular" coin lines, but usually have an individual class of service.

Permanent Signal (permsig) Treatment - A series of signals. Typically, it is an announcement followed by ROH (receiver offhook) tone. The flexibility exists to not send the initial announcement or to send reorder. After ROH, the line is viewed by the switch as being out of service until the line goes back onhook.

1.2 Background

Currently, an analog line can originate a call, remain offhook when the called party disconnects, and eventually receive dial-tone again without ever going onhook. With the proper type of CPE (Customer Premise Equipment), such as a call diverter or COCOTs, fraudulent calls could be originated in the above case.

1.3 MCLD Feature Assignment

The MCLD feature is activated by setting FID 517 to "S" on the FOSYS form (5713-2 Record). Refer to the ID Numbers for Transparency Features table in Division 3, Section 5AS. At this time, all analog lines receive permsig treatment unless a particular line has indicated that it will override the MCLD feature and provide dial-tone following disconnect timer expiration.

2. MCLD TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109	3	1I	1.6
MLHLN	5111	3	1K	1.6
FOSYS	5713-2	3	5AS	8.31

NOTE: The Recent Change Views impacted for 5E5 and 5E6 are 1.1, 1.2, 1.3, 1.6, 2.1, 2.2, 2.3, and 3.2. As a result of Recent Change View consolidation, the Recent Change View for 5E7 and later is 1.6.

2.1 Line Translations

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each telephone number in a 5ESS Switch. The new field MCLD DEACT was added. This field determines if MCLD (Modified Calling Line Disconnect) is deactivated for this line when the feature is active on this SM. The MCLD feature is activated by setting FID 517 to "S" on the FOSYS form (5713-2 Record). When MCLD is active and MCLD DEACT is set to "N", this line receives Permanent Signal Treatment following expiration of the disconnect timer. When MCLD is active and MCLD DEACT is set to "Y", then this line receives dial-tone following expiration of the disconnect timer.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular MLHG (Multi-Line Hunt Group). Each MLHG/Terminal Number must be assigned an equipment number and specific options and features. The new field MCLD DEACT was added. This field determines if MCLD is deactivated for this line when the feature is active on this SM. The MCLD feature is activated by setting FID 517 to "S" on the FOSYS form (5713-2 Record). When MCLD is active and MCLD DEACT is set to "N", this line receives Permanent Signal Treatment following expiration of the disconnect timer. When MCLD is active and MCLD DEACT is set to "Y", then this line receives dial-tone following expiration of the disconnect timer.

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for enabling or optioning Special and Transparency Features. The FID 517 on the FOSYS form must be set to "S" to enable or option the MCLD feature.

SEC. 4B518: CALL TRANSFER TO BUSY - RETURN BUSY TO ORIGINATOR

1. FEATURE DESCRIPTION

Available with 5E5 and later, the Call Transfer to Busy - Return Busy to Originator is a Transparency Feature

using OFS (Optional Feature System) ID 518. This feature allows an analog MW (Multiway) party with a valid transfer feature to transfer a held party to busy or reorder tone. After the busy/reorder tone has been applied for a predetermined time interval, the call is idled. This feature is implemented for both analog MW (Multiway) and analog attendant MW (including the 50B console) and applies to only intra-office calls. The transfer to busy/reorder tone is already allowed for inter-office calls. Similar to the Three-way Reconnect feature, this feature will allow a controller to make a three way connection with busy/reorder tone. If the controller of the call goes on-hook, the call is transferred to busy/reorder tone. After the busy/reorder tone has been applied for a predetermined time interval, the call is idled. The party that is transferred to busy/reorder tone cannot be call-waited. If the transferred party has a valid flash feature assigned to its line, all subsequent flashes on this line are ignored until the end of the call.

1.1 Call Transfer to Busy Line Scenario

The following end-user call transfer to busy line scenario is an example of the way the Call Transfer to Busy - Return Busy to Originator transparency feature operates:

- Party A, the controller, has a valid transfer feature assigned to the line.
- Party B has a valid flash feature and call waiting feature assigned to its line.
- Party A calls party B and party B answers.
- Party A flashes and puts party B on hold.
- Party A gets dial tone, calls party C who is busy, and hangs up.
- With this feature enabled, B is connected to busy tone for a preset interval.
- When the busy tone timer times out, the call is torn down.
- If party D call-waits party B when party B is transferred to busy tone, party D gets busy tone.
- Party B does not get call waiting tone even if it has a call waiting feature assigned.
- When party B is transferred to busy tone, its flashes are ignored until the end of the call.
- With this feature disabled, party A is rungback by party B.

The duration of the busy/reorder timer for the whole office is set using the TNTYP form (5504 Record).

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22
TNTYP	5504	3	5D	8.6

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 518 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

TNTYP form (5504 Record) - This form is used to define "ROH", "REORDER", "HIGHTONE", and "BUSY" tones.

SEC. 4B520: FIX FOR OPTIONING ERRORS DURING NPA SPLITS

1. BACKGROUND

Prior to this feature, LASS (Local Area Signaling Services) AR (Assert Range) fails during NPA (Numbering Plan Area) split.

As a result, any LASS calls attempted where customers have started the NPA split will fail. LASS AR calls attempted, where the 5ESS Switch converted to a new NPA at the terminating end, will fail.

The following scenario illustrates the above condition:

- Office A is in area code yyy (home NPA yyy).
- Office B is in area code zzz (home NPA zzz) and formerly had area code yyy.
- STP (Signal Transfer Point) is set up to global title route either yyy nxx or zzz nxx to office B.
- Originator at office A dials nxx xxxx which is a number at office B (no answer).
- originator at office A dials *66 LASS AR.

Since the original call was dialed as 7 digits the 10 digit string needed for global title is constructed using the NPA of the home office. This causes yyy nxx xxxx to be sent to office B where a check is done on the NPA. This check fails since office B is now in area code zzz.

2. FEATURE DESCRIPTION

Available with 5E5 and later, Fix for Optioning Errors during NPA Splits feature uses OFS (Optioned Feature System) ID 520. This feature provides the capability to turn NPA checks off or on to avoid the above described condition. The ACT field for OFS ID 520 must be set to "Y" (or "N") to turn NPA checks off (or on) for LASS TCAP (Transaction Capabilities Application Protocol) messages.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 520 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B521: FIX TO DECREASE SC/MLHG POST DIAL DELAY

1. BACKGROUND

Without this enhancement for BRCS (Business and Residential Customer Services) MLHG (Multi-Line Hunt Group) and SC (Series Completion) calls, there is a delay set before ringing the port. This delay is done in cases where the customer encounters Per Call Test Failure and must be rerouted.

In addition, ISDN (Integrated Services Digital Network) console operators receive a post-dial delay on console transfers. As a result, on transfers to extensions that are in Series Completion hunting arrangements, ISATs

(ISDN Attendant consoles) do not release until the call is parked (ringing or answered).

2. FEATURE DESCRIPTION

For 5E5 and later, the Fix to Decrease SC/MLHG Post Dial Delay Transparency Feature enhancement uses OFS (Optioned Feature System) ID 521 and decreases the post dialing delay for Series Completion and Multi-Line Hunt Groups. When this feature enhancement is enabled, there will no longer be a delay for per call testing. Thus, calls will reroute faster. However, upon encountering a Per Call Test Failure, the current call will not have the ability to reroute as provided without the enhancement. The port where the failure occurred will be taken out of service so that subsequent calls will reroute over the port. This is a necessary trade off between call completion rate and post dial delay time.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 521 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B522: BRIDGING INDICATION TO ANALOG SHARED DN LINES

1. BACKGROUND

Without this feature, no supervision indicators are provided to analog lines during call state changes when a DN (Directory Number) is shared between analog and ISDN (Integrated Services Digital Network) lines.

As a result, when a DN is shared between analog and ISDN lines, the following senario could occur:

- An incoming call to the analog line is answered at the analog set.
- The analog set puts the incoming call on hold.
- The person at the ISDN set is paged to pick up the call.
- The incoming call is answered at the ISDN set.
- The analog set is still on hold and has no indication of the ISDN set answering the call.

2. FEATURE DESCRIPTION

For 5E5 and later, the Bridging Indication to Analog Shared DN Lines feature uses OFS (Optioned Feature System) ID 522 and provides for the sending of a 150 ms open signal to the analog line when an ISDN member bridges into a shared analog line call. Activation of this feature on an entire SM (Switching Module) or an office basis is accomplished via the FOSYS form (5713-2 Record).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 522 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B523: PROBLEMS WITH ROUTING INTRALATA/INTERSTATE CALLS

1. BACKGROUND

A "CONFLICT" dial code is an NPA-NXX combination that must be routed to an InterLATA carrier when dialed by some customers but can be handled by the local exchange carrier when dialed by other customers. The Problems with Routing IntraLATA/Interstate Calls Transparency feature impacts the algorithm that resolves how to handle a call to a "CONFLICT" dial code.

The current (and continuing default) algorithm provides for multiple local routes based on originating service class when a 0+ prefix is dialed, but only a single local route regardless of originating service class when no prefix (None+) or a 1+ prefix is dialed.

2. FEATURE DESCRIPTION

Available with 5E4(2) and later, the Problems with Routing IntraLATA/Interstate Calls Transparency feature uses OFS (Optioned Feature System) ID 523 and brings more control and flexibility to the CONFLICT resolution algorithm. When the feature is enabled, the CONFLICT resolution algorithm used for calls dialed without a prefix (None+) and for calls dialed with a 1+ prefix will be the same as the algorithm for calls dialed with a 0+ prefix. The 0+ algorithm provides the ability for the operating company to define distinct IntraLATA routing for each of several classes of customers even if certain digit sequences (e.g., NPA-NXX) must be handled as IntraLATA calls when dialed from some customers, but as InterLATA calls when dialed from other customers.

3. FEATURE ASSIGNMENT

Prior to activating the feature, the routing of each dial code in the office defined on the LDIT form (5300-3/5 Record) with CALL TYPE as "CONFLICT" should be checked based on the action of the new algorithm. Special care should be given to the InterLATA routing for customers since this might change to IntraLATA if the routes are not correctly populated.

The Optioned Feature System provides the flexibility to:

- A. enable routing 1+ and None+ calls using the 0+ algorithm by setting the ACT field to "Y" for OFS ID 523.
- B. (default) use the current algorithm for routing calls by setting the ACT field to "N" for OFS ID 523.

This option can be turned on or off via the OFS ID 523 on the FOSYS form (5713-2 Record). The following is an example highlighting the impact of the feature. Assuming an NPA-NXX code was defined for a large set of customers with the CALL TYPE of "CONFLICT" on the LDIT form and an RTI (Route Index) of 1990, the CDI (Code Index) from that view could lead to the following routing through translation by RAR (Rate and Route Record) form (5301 Record) using the SCR (Screen Index) assigned to different customer segments. Each customer is assumed to have a distinct SCR.

Customer	RTI*** RAR form	CI ROUTE TYPE RTIDX form	Description
POTS	1990	STG, DTG, or OTHER**	Local routing
Coin	1991	STG, DTG, or OTHER**	Coin system

4FR	1992	STG, DTG, or OTHER**	ONI
Hotl/Motl	1993	STG, DTG, or OTHER**	TSPS-TOBIS
PFA*	1994	GENANN	Not used
ARS*	1995	GENANN	Not used

* screening index via SFG

** only one used

*** using coding index from the LDIT form and customer screening index

1. POTS (Plain Old Telephone Service) - routes as IntraLATA
2. Coin, 4FR, and Hotel/Motel - currently either route to the same place as calls from POTS, or route as InterLATA calls.
3. PFA (Private Facilities Access and ARS (Automatic Route Selection), typically WATS arrangements, route as InterLATA calls.

With the new algorithm in place, item 2 is changed so that the calls can route as before or to distinct local routes as IntraLATA calls.

NOTE: Prior to this feature, the ARS and PFA calls would always be InterLATA, regardless of the Route Description on Recent Change View 10.2. This is not true with the new algorithm. Instead, the field must be populated as above.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 523 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B524: OPTION TO PREVENT IDP USERS FROM USING ODP LASS DIAL CODES

1. BACKGROUND

Currently, IDP (Individualized Dialing Plan) customers are prevented from using the ODP (Office Dialing Plan) defined dialed codes for any LASS features.

2. FEATURE DESCRIPTION

For 5E5 and later, the Option to Prevent IDP Users from Using ODP LASS Dial Codes special feature makes the prevention of IDP customers from using the ODP defined dialed codes for LASS features optional.

OFS (Optioned Feature System) ID 524 is used to set the "escaped to POTS" (Plain Old Telephone Service) flag to implement the above option. The default for OFS ID 524 is "N" and which allows the LASS users in an IDP to escape to the POTS dialing plan for LASS features.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 524 must have field ACT on the FOSYS (5713-2 Record) form set to "N" which allows the LASS users in an IDP to escape to the POTS dialing plan for LASS features.

SEC. 4B531: OPTION TO PROVIDE 5E6 FUNCTIONALITY FOR SERIES COMPLETION AND MSS INTERACTION

1. FEATURE DESCRIPTION

The Option to Provide 5E6 Functionality for Series Completion and MSS Interaction feature uses OFID (Optioned Feature ID) 531. Voice Mail Systems have the option on the Recent Change Multiline Hunt Group View 3.5, CLIENT TN TYPE field, to send either the OCDN (Originally Called Directory Number) or RDN (Redirection Directory Number) to the VMS (Voice Mail System). OCDN (Originally Called DN) is the first forwarding number and RDN (Redirection DN) is the last number that forwards to the voice messaging system.

The SC (Series Completion) feature allows voice calls made to a busy directory number (DN) to be routed to another specified DN in the same 5ESS Switch office. SC is performed by a prearranged ordered DN list (linked list). SC starts with the ODMSC (Originally Dialed Member of the SC) group, and searches for an idle DN from the list of DNs until one of the following conditions is met:

- An idle line is found.

- A DN in the list with an active busy line feature having higher precedence than SC is reached (for example, call forwarding variable (CFV)).

- The end of the linked list of DNs is reached ("regular" SC group).

- The call series completes back to the ODMSC ("circular" SC group) and finds that it is still busy.

- The call has been re-routed 16 times (exhausted SC attempts).

In 5E6(2), the Original Dialed DN delivered to the VMS was the ODMSC group (ODMSC). In 5E7, the DN in the SC list which encountered call forwarding was sent as the operationally called DN. Optioned ID 531 provides the option of either the 5E6(2) or 5E7(1) operation.

2. FEATURE ASSIGNMENT

The Option to Provide 5E6(2) Functionality for Series Completion and MSS Interaction Optioned feature is activated by setting the ACT field for OFID (Optioned Feature System ID) 531 on the FOSYS form (5713-2 Record) to "Y".

With OFID 531:

- not active and VMS MLHG set to "OCDN" in the CLIENT TN TYPE field on the Multiline Hunt Group form, deliver ODMSC to the VMS. (Default to obtain 5E6(2) operation.)

- active and VMS MLHG set to "OCDN" in the CLIENT TN TYPE field on the Multiline Hunt Group form, deliver OCDN (first call forwarding DN) to the VMS.

- having no impact if the VMS has the CLIENT TN TYPE field set to "RDN" on the Multiline Hunt Group form, the 5ESS Switch delivers the DN of the SC list member with CF assigned to the VMS.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFID 531 on the FOSYS form (5713-2 Record) must be "Y" to enable this feature.

SEC. 4B535: DTA (DIAL THROUGH ATTENDANT) ROUTING OF CALLS BASED ON ATTENDANT'S LCC

1. BACKGROUND

On the 5ESS Switch, an attendant has the capability to pass back dial tone to the originating party on DDD (Direct Distance Dialing) calls. This allows a customer to request ESCAPE TO POTS access through the attendant and dial out of the Centrex group. However, the customer placing the DDD call is still limited by the dialing capabilities associated with their own LCC. The inability of the DTA (Dial Through Attendant) feature to transfer LCC information is even more evident when the originating customer already possesses the ability to dial out of the Centrex group.

For example, a customer site utilizing Centrex services has the stations located in its conference rooms configured such that an ESCAPE TO POTS code is accepted but only local dialing is permitted from these stations. For certain meetings in these rooms, it may be necessary to place a long distance call from one of these stations. Without the ability to have the DTA feature transfer the attendant dialing capability to the originator, the attendant must dial the complete number, get a stable path, and then transfer the call from the customer originating the request to the called party. This reduces the attendant's ability to process other calls since more attention is given to the originating call.

2. FEATURE DESCRIPTION

Available with 5E7 and later, the DTA (Dial Through Attendant) Routing of Calls Based on Attendant's LCC Transparency feature uses OFS (Optioned Feature System) ID 535 and allows the originator of a DTA call to receive all of the attendant's routing and screening index privileges on a per call basis after the attendant dials an access code, flashes and passes dial tone back to the originator. Therefore, a subscriber is allowed to complete dialing after the attendant selects a facility. The subscriber may complete the dialing other than station-to-station calls.

The Dial Through Attendant feature is used to provide access to certain facilities (eg. DDD (Direct Distance Dialing), private facilities, CCSA (Common Control Switching Arrangement) network) when the originator does not have access to those facilities. The originator dials the attendant and places a verbal request to the attendant for access to a given facility. The attendant then flashes to place the originator on hold and receives dial tone. The attendant then dials the appropriate access code and if the facility is available, dial tone is returned to the attendant. The attendant then goes on-hook and dial tone is transferred to the originator. This scenario requires the originator to be in the same terminal group as the attendant in order for the requester to complete the dialing of the call. If the originator is not in the same terminal group as the attendant, then the DTA feature will be aborted.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 535 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B538: SHARED DN GROUPS ACROSS SM/RSM CLUSTERS.

1. BACKGROUND

Prior to this feature, it was not possible to move ISDN (Integrated Services Digital Network) lines from local SMs (Switching Modules) to RSMs (Remote SMs) by using the RC/V (Recent Change/Verify) View 23.2. As a result, SHDN (Shared Directory Number) across an SM/RSM cluster would be blocked.

2. FEATURE DESCRIPTION

Available with 5E6 and later, this Transparency Feature uses TFOS (Transparency Feature Optioning System) ID 538 and provides the capability to allow Shared DN groups to exist across SM/RSM cluster boundaries.

This feature is enabled via the FOSYS form (5317-2 Record) by setting TFOS ID bit 538 to "S" (or setting FEATURE ID to 538 and ACTIVE to "Y" on Recent Change View 8.22).

When the feature is active, the SM/RSM cluster boundary checks are not enforced. When the feature is not active, the SM/RSM cluster boundary checks are enforced. For Shared DN members split between an HSM (Host Switching Module), an LSM, and an RSM, the following may be observed:

- On terminating or originating groups, there may be up to a one-second delay between a remote hold retrieval and the establishment of a voice path when the holder and retriever are split between an HSM/LSM and an RSM.
- On terminating groups, there may be up to a one-second delay between a non-lead answer and the establishment of a voice path when the lead member and answering associate are split between an HSM/LSM and an RSM.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. TFOS ID 538 on the FOSYS form must be set to "S" to enable this feature.

SEC. 4B540: TRANSFER TO ACD FROM ARU

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4B541: ANALOG CALLING NAME DELIVERY

1. FEATURE DESCRIPTION

For detailed information on the Analog Calling Name Delivery - Phase 0, Phase 2 and Phase 2.1 features, see Division 2, Section 4A40.

SEC. 4B542: ISDN FAST TRANSFER ENHANCED FEATURE

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-104 ISDN Feature Descriptions*.

SEC. 4B543: PROVIDE REDIRECT DISPLAY FOR TGSR AND ACVT ENHANCEMENT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-104 ISDN Feature Descriptions*.

SEC. 4B544: METRO HUB

1. FEATURE DESCRIPTION

For detailed information on the METRO HUB feature, see Division 2, Section 4A60.

SEC. 4B545: OPTION TO BLOCK THE SENDING OF OFF-SWITCH CALLING DN ACROSS API LINK

1. BACKGROUND

Prior to this feature, off-switch calling DN (Directory Numbers) which were to be considered private information could not be blocked from being sent across API (Applications Processor Interface) links. Also, delivery of the ten digit off-switch calling DN caused a problem with VMS (Voice Mail System) machines that only looked at the last four digits of the calling DN. An option to send or block the sending of off-switch calling DN across API links is needed.

2. FEATURE DESCRIPTION

Available with 5E6 and later, this Transparency Feature uses TFOS (Transparency Feature Optioning System) ID 545 and provides the option to send or block the sending of an off-switch calling DN (Directory Number) to an MSC (Message Service Center) across an API (Applications Processor Interface) link. When this feature is active, the sending of the off-switch calling DN across the API link will be blocked.

- **NOTE:** The above feature option should be activated on SM(s) where the MSC MLHG (Multi-Line Hunt Group) members are assigned.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. This feature is enabled via the FOSYS form (5713-2 Record) by setting TFOS ID bit 545 to "S" (or setting FEATURE ID to 545 and ACTIVE to "Y" on Recent Change View 8.31) on a per SM (Switching Module) basis.

SEC. 4B549: 800 POST DIAL DELAY MF SIGNALING TRANSMISSION REDUCTION

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4B551: AMA RECORDING OF PREFIXED DIGITS IN PRIVATE NETWORK DIALING PLAN

1. BACKGROUND

This feature allows deleting digits on the PNDP (Private Network Dialing Plan) form (5608-10 Record) before an AMA (Automatic Message Accounting) record is generated. Currently, the digit deletion is done later on the RTIDX (Route Index) form (5303 Record) before the AMA record is generated. This causes a 1+10 or 1+7 digit call defined in the PNDP to have 001 included in the digits dialed field on the AMA record.

2. FEATURE DESCRIPTION

Available with 5E6 and later, The AMA Recording of Prefixed Digits in PNDP Transparency Feature uses OFS (Optioned Feature System) ID 551 and provides the ability to delete a 1, 01 or 011 Private Network Dialing Plan prefix from the Terminating NPA or Tandem Digits Dialed field of the AMA (Automatic Message Accounting) record for calls which route via PFA (Private Facilities Access) or ARS (Automatic Route Selection).

The feature affects the AMA records for the following call codes as required:

- Call Code 001 - Detailed Message Rate, Timed, with MBI
- Call Code 006 - Station Paid and Foreign Area Directory Assistance
- Call Code 007 - WATS, Station Identification
- Call Code 011 - FX, Automatic Flexible Routing
- Call Code 021 - CCSA Sampling
- Call Code 032 - Tandem Tie Trunk
- Call Code 068 - WATS Billing Number
- Call Code 085 - Electronic Tandem Switching
- Call Code 099 - ETS Call Via CCSA
- Call Code 110 - InterLATA Station Paid
- Call Code 111 - InterLATA WATS, Station Detail

- Call Code 114 - InterLATA WATS, Billing Number

Currently on the 5ESS Switch, for 1+ prefix dialing, the prefix is stored in different places on the AMA records for 7 digit calls and for 10 digit calls. For 7 digit calls, when a prefix is dialed, it is stored in position 3 - 5 of the TERMINATING NPA field on the AMA record. For 10 digit calls, when a prefix is dialed, it is stored in position 1 - 2 of the TERMINATING NPA field (it has a sub field name of Overseas Expander Position).

For all of the above call codes affected by this feature except call code 32 (Tandem Tie Trunk), the terminating number is located in the fields TERMINATING NPA and TERMINATING NUMBER on the AMA record.

For call code 32 (Tandem Tie Trunk), the terminating number is in the TANDEM DIG. DIALED field of the AMA record. This is due to the different structure code of a Call Code 32 AMA record.

For 1 + 7 digit ARS private number dialed digits, this feature deletes the prefix and does not append the implied NPA to the AMA record for call codes of 021, 085, 099. The TERMINATING NPA field will be populated with "00000" in this case. For other call codes and for ARS public number dialed digits, the prefix is deleted and the implied NPA is appended to the AMA record.

For 1 + 7 dialed digit PFA calls (PFA access code + 1 + 7 digits), this feature deletes the prefix and does not append the implied NPA to the AMA record for call codes 021, 085, 099. The TERMINATING NPA field is populated with "00000" in this case. For other call codes, the implied NPA is appended to the AMA record.

Private Number dialed digits (sometimes referred to as On-Net calls) are defined on the PDNP form (5608-10/11 Record) with the CALL TYPE field set to "ON" or "OFFON". Public Number dialed digits (sometimes referred to as Off-Net) are defined on the PDNP form with the CALL TYPE field set to "OFF" or "USEOFFC".

For 1 + 10 digit calls and all call codes except 32, this feature deletes the prefix from the Overseas Expander Position subfield of the TERMINATING NPA field; all other dialed digits are stored as normal. For call code 32, the digits are stored in the TANDEM DIG. DIALED field and the prefix is deleted.

01+ and 011+ calls can be any length up to 15 digits. Only 12 digits of the dialed digit string are included in the AMA record.

2.1 Call Processing Scenarios

To illustrate how this feature affects AMA Billing, four call scenarios are included. The first example describes how a 1 + 10 digit PNDP call's AMA record is affected with and without the AMA Recording of Prefixed Digits in the PNDP feature functionality. The second example describes how a 1 + 7 digit PNDP Off-Net call's AMA record is affected with and without the AMA Recording of Prefixed Digits in the PNDP feature functionality. All the examples are for a 1+ prefix and call code 11. The prefix could have been 01+ or 011+ also. For brevity, only the first example shows how the terminating number is stored for call code 32.

In summary, call code 11 stores the terminating number in the TERMINATING NPA/TERMINATING NUMBER fields and call code 32 stores the terminating number in the TANDEM DIG. DIALED field.

The scenarios described below are for the following configuration:

Line A - 313-860-5000 : Node 1 of ETS Network
RNX 355-5000

Line B - 816-979-3336 : Node 2 of ETS Network

RNX 368-3336

Trunks connecting Node 1 to Node 2.

Office Dependent Data to support private network dialing between Node 1 and Node 2

The first example describes how the AMA Recording feature affects 1 + 10 digit dialing.

Scenario I: 1 + 10 digit PNDP Call — With AMA Recording feature turned off.

Line A calls line B by dialing #8# 1 8169793336 (#8 is the ARS access code).

The AMA record for all call codes other than 32 would have the following fields populated as:

Field Name	Position	Dialed Digits	Description
TERMINATING NPA	1-2	01	Overseas expander position
	3-5	816	NPA
TERMINATING NUMBER	1-3	979	NXX
	4-7	3336	Four digit number

Call Code 32 would have the terminating number stored as follows:

Field Name	Position	Dialed Digits	Description
SIG. DIGITS IN NEXT	1-3	011	number of sig. digits in next field
TANDEM DIG. DIALED	1-11	00018169793336	Tandem digits dialed

Scenario II: 1 + 10 digit PNDP Call — With AMA Recording feature turned on.

Line A calls line B by dialing #8# 1 8169793336 (#8 is the ARS access code).

The AMA record for all call codes other than 32 would have the following fields populated as:

Field Name	Position	Dialed Digits	Description
TERMINATING NPA	1-2	00	Overseas expander position
	3-5	816	NPA
TERMINATING NUMBER	1-3	979	NXX
	4-7	3336	Four digit number

Call Code 32 would have the terminating number stored as follows:

Field Name	Position	Dialed Digits	Description
SIG. DIGITS IN NEXT	1-3	010	Number of sig. digits in next field
TANDEM DIG. DIALED	1-11	00008169793336	Tandem digits dialed

The second scenario describes how the AMA Recording feature affects 1 + 7 digit dialing.

Scenario III: 1 + 7 digit PNDP Off-Net Call — With AMA Recording feature turned off.

Line A calls line B by dialing #8# 1 9793336 (#8 is the ARS access code).

The AMA record for all call codes other than 32 would have the following fields populated as:

Field Name	Position	Dialed Digits	Description

TERMINATING NPA	1-2	00	Overseas expander position
	3-5	001	NPA
TERMINATING NUMBER	1-3	979	NXX
	4-7	3336	Four digit number

Scenario IV: 1 + 7 digit PNDP Off-Net Call — With AMA Recording feature turned on.

Line A calls line B by dialing #8# 1 9793336 (#8 is the ARS access code).

The AMA record for all call codes other than 32 would have the following fields populated as:

Field Name	Position	Dialed Digits	Description
TERMINATING NPA	1-2	00	Overseas expander position
	3-5	816	NPA
TERMINATING NUMBER	1-3	979	NXX
	4-7	3336	Four digit number

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 551 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B552: OSPS LS BILLING ON POSITION RELEASE

1. FEATURE DESCRIPTION

Available with 5E7 and later, this feature allows the OSPS (Operator Services Position System) to write 1215 AMA (Automatic Message Accounting) records on Position Release instead of on Position Seizure for Listing Services calls. Thus, an OSPS Listing Services operator has the ability to selectively bill LS (Listing Services) calls. The operator is also given the ability to block the generation of a 1215 AMA record by either depressing the Cancel Call or Emergency key on the CST/BST-LS (Combined Services Terminal / Basic Services Terminal). However, since the Emergency key is an on/off toggle, if it is toggled off (depressed twice) a record will be written.

Pseudo system hold is provided with this feature to allow the OSPS to correctly bill when the back party goes on-hook before the call has been released from the position.

1.1 Calling Scenarios

The following two scenarios will require the operator to perform an additional key stroke for Listing Services calls.

- A. The caller is at a DTMF (Dual Tone Multifrequency) non-coin station and wishes to receive a listing from the EIS (External Information System) that is not billable. The listing is given verbally.
 1. [Back party] dials an LS number.
 2. [OSPS] receives the call, determines it is an LS call and routes it to an LS operator. Notifies the EIS with a [Position Seizure] message.
 3. [Back party] provides information to the operator for the Listing.

4. [Operator] performs the database lookup and then determines that this number is not billable. Depresses the EIS key [Listing Access Complete], gives the Listing verbally and then depresses the OSPS [Cancel Call] and [Position Release] keys.
 5. [OSPS] receives the [Listing Access Complete] message from the EIS and will NOT write a 1215 AMA record for the call since the [Cancel Call] key was depressed.
 6. [Back party] goes on-hook.
 7. [OSPS] sends a [Disconnect] message to the EIS.
- B. The caller is at a DTMF non-coin station and wishes to receive a listing from the EIS that is not billable. The listing is given via Audio Response Unit.
1. [Back party] dials an LS number.
 2. [OSPS] receives the call, determines it is an LS call and routes it to an LS operator. Notifies the EIS with a [Position Seizure] message.
 3. [Back party] provides information to the operator for the Listing.
 4. [Operator] performs the database lookup and then determines that this number is not billable. Depresses the OSPS key [Cancel Call] followed by the EIS key [Release to Audio].
 5. [OSPS] receives the [Transfer Request], signals off-hook on the external ARU trunk, and drops the operator. Sends [ARU Select] message to the EIS.
 6. [EIS] receives the [ARU Select] message and responds with off-hook on the external ARU trunk.
 7. [OSPS] releases the operator position, does NOT write a 1215 AMA record since the [Cancel Call] key was depressed.
 8. [Back party] hears the announcement then goes on-hook.
 9. [OSPS] sends a [Disconnect] message to the EIS.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22
LSTG SVC REC	5424	3	4Y	8.9

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 552 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" for all SMs to activate this feature for the office.

OSPSOPT form (5424 Record) - This form defines the OSPS office option global parameters. LSTG SVC REC is set to "Y" to activate AMA records for Listing Services calls.

SEC. 4B554: ISVM AND MSS ENHANCEMENTS CO-EXIST

1. BACKGROUND

Prior to this enhancement, offices retrofitting to 5E7 and using MSS (Message Service System) services could experience a change in the way voice mail messages were handled. Calls that were forwarded to a subscriber with voice mail services via CCS7 trunks from another switch that supports ISVM (Interswitch Voice Mail) could be denied voice services after a retrofit to 5E7. An interim option, Option to Maintain the 5E6 Intra-switch OCDN (Originally Called DN) Operation, retained MSS functionality by setting TFOS (Transparency Feature Optioning System) ID 554 to "Y" on the FOSYS form (5713-2 Record). With this option activated, ISVM could not be implemented.

2. FEATURE DESCRIPTION

Available with 5E7 and later, this Transparency Feature enhancement requires TFOS ID 554 to be deactivated, TFOS ID 554 to be "Blank" or "N" on the FOSYS form (5713-2 Record). This feature allows ISVM and MSS services to co-exist on the same switch. When TFOS ID 554 is set to "Y", see Division 2, Section 1BG and Division 3, Section 1J.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer TFOS bits for Special and Transparency Features. TFOS ID 554 on the FOSYS form must be "Blank" or "N" to enable this feature.

SEC. 4B557: UCR (UNIDENTIFIED CALL REJECTION)

1. FEATURE DESCRIPTION

For detailed information on the UCR (Unidentified Call Rejection) feature, see Division 2, Section 4A47.

SEC. 4B562: OSPS EXCHANGE ALTERNATE BILLING SERVICES ALTERNATE ROUTING

1. FEATURE DESCRIPTION

For detailed information on the OSPS Exchange Alternate Billing Services Alternate Routing feature, see Division 2, Section 4A86.

SEC. 4B569: DIRECT CONNECT CAPABILITY FOR ANALOG LINES THROUGH ISDN ACVT FEATURE

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-104 ISDN Feature Descriptions*.

SEC. 4B572: OSPS FEATURE GROUP D INCOMING SIGNALING FOR SPECIAL APPLICATIONS

1. FEATURE DESCRIPTION

For detailed information on the OSPS Feature Group D Incoming Signaling for Special Applications feature, see Division 2, Section 4A83.

SEC. 4B575: OSPS TELEPHONE RELAY SERVICE CALL HANDLING

1. FEATURE DESCRIPTION

For detailed information on the OSPS Telephone Relay Service Call Handling feature, see Division 2, Section 4A25.

SEC. 4B576: POLIN (Privacy Option For Last Incoming Number)/CFDA (Call Forwarding Don't Answer) FEATURE INTERACTION

1. BACKGROUND

The POLIN feature, introduced in 5E6, ensures that for an inter-terminal group call, the calling party's number is not revealed and is treated as private at the terminating end regardless of whether the calling party has marked it as private. Some terminating parties however, do have the ability to override the privacy attribute as set by POLIN, and treat the calling party's number as public. An example of such a terminating case is a voice mail system. When a call is terminated to a voice mail system by either CFV (Call Forwarding Variable) or CFBL (Call Forwarding Busy Line), the calling party's number is delivered to the voice mail system regardless of the POLIN feature privacy setting. However, when a call is terminated to a voice mail system via CFDA (Call Forwarding Don't Answer), the calling party's number is not delivered.

With the POLIN/CFDA Feature Interaction option, the calling party number of an inter-terminal group call is delivered to the terminating party when it has been forwarded to by CFDA. Thus, the interaction of CFDA with POLIN is now consistent with the functionality of CFV and CFBL with POLIN.

2. FEATURE DESCRIPTION

Available in 5E8 and later, the POLIN/CFDA Feature Interaction option provides the ability for the switch to override the privacy indicator, as set by the POLIN feature, when an inter-terminal group call is forwarded via CFDA. This feature option functions only in conjunction with the POLIN feature.

With both the POLIN and the POLIN/CFDA features enabled in an office, when an inter-terminal group call terminates to a line, the privacy indicator is turned on by POLIN so that the calling party's number is not delivered. If there is no answer and CFDA is invoked, the privacy indicator is turned off by POLIN/CFDA before forwarding the call.

3. FEATURE ASSIGNMENT

The POLIN/CFDA Feature Interaction option is secured by the FOSYS (Feature Optioning System). In order to turn the option on, the ACT field for OFS ID (Optioned Feature System ID) 576 on the FOSYS form (5713-2 Record) must be set to "Y". POLIN/CFDA only impacts inter-terminal group calls on the switch when the POLIN feature is also enabled. The POLIN feature is a secured feature that is enabled by setting the ACT field for SFID (Secured Feature ID) 48 to "Y" on the SFSYS form (5713-1 Record) and by setting the ACT field for OFS ID 534 to "Y" on the FOSYS form (5713-2 Record).

- **NOTE:** The OFS IDs for these features are to be activated and deactivated on a per office basis. Although it is possible to activate them for each SM separately, it is not recommended. The intent of this feature is to enable/disable the revealing of telephone numbers office-wide.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
SFSYS	5713-1	3	5AR	8.22
FOSYS	5713-2	3	5AS	8.31

SFSYS form (5713-1 Record) - This form is used to enable secured features for the operating company. The ACT field for SFID 48 must be set to "Y" to enable the POLIN feature.

FOSYS form (5713-2 Record) - This form is used to administer OFS IDs for Special and Transparency Features. The ACT field for OFS IDs 534 and 576 must be set to "Y" to enable the POLIN feature with the POLIN/CFDA Feature Interaction option for the office.

SEC. 4B577: MULTI-DISTINCTIVE RINGING AND MESSAGE SERVICE SYSTEM INTERACTION

1. BACKGROUND

On the 5ESS Switch, when a call terminates to a line with MDR (Multi-Distinctive Ringing), also called MDNL (Multiple DN's per Line), and a Call Forwarding Feature (e.g. /CFV) is assigned to the DN (base DN) that was called, the 5ESS Switch provides the DN that was called (either the Master or Dependent DN) as the base DN for the forward-to (remote) party. On the 1A ESS Switch, when calls terminating to a line with MDR are forwarded, the switch provides the Master DN as the base DN to the forward-to (remote) party.

2. FEATURE DESCRIPTION

The MDR/MSS (Multi-Distinctive Ringing and Message Service System) Interaction transparency feature provides the 5ESS Switch with the option to forward the Master DN as the forwarding party regardless of which DN (Master or Dependent) was actually called. This feature also modifies the operation of the Leave Word Calling Feature to send the Master DN to the AP (Attached Processor) if Leave Word Calling is activated on a Dependent DN.

This feature is a transparency feature with OFID 577 and is being deployed on the 5ESS Switch in a software update for the 5E8 Software Release and in the Beginning Managed Introduction of 5E9(1) Software Release. The feature number for Multi-Distinctive Ringing and Message Service System Interaction is 99-TP-1621.

3. FEATURE ASSIGNMENT

There is no impact to the switch if the Office Option ID 577 is not activated. If the ACT field for OFID 577 is set to "Y" on the FOSYS form (5713-2 Record), calls to a Dependent DN of an MDR Line that are forwarded will provide the Master DN of the MDR Line as the redirecting DN instead of the called DN. Also, Leave Word Calling will send the Master DN to the AP instead of the Dependent DN when Leave Word Calling is activated on a Dependent DN.

In an office where the MDR/MSS transparency feature is active, Line A calls Line B (Line B is an MDR Line), and the call is forwarded to a voice mail system via CFDA (Call Forwarding Don't Answer), CFBL (Call Forwarding Busy Line) or CFV (Call Forwarding Variable). If Line A dialed the Master DN of Line B, the Master DN will be sent to the voice mail as the redirecting DN. If Line A dialed a Dependent DN of Line B, the Master DN will still be sent to the voice mail as the redirecting DN.

In an office where the MDR/MSS Transparency Feature is not active, Line A calls Line B (Line B is an MDR Line), and the call is forwarded to a voice mail system via CFDA, CFBL or CFV. If Line A dialed the Master DN of Line B, the Master DN will be sent to the voice mail as the redirecting DN. If Line A dialed a Dependent DN of Line B, the dialed DN (Dependent DN) will be sent to the voice mail as the redirecting DN.

In an office where the MDR/MSS Transparency Feature is active, Line A calls Line B (Line B is an MDR Line), and Line A activates Leave Word Calling. If Line A dialed the Master DN, a Leave Word Calling message is delivered to the Master DN on the AP. If Line A dialed a Dependent DN, a Leave Word Calling message is delivered to the Master DN on the AP.

In an office where the MDR/MSS Transparency Feature is not active, Line A calls Line B (Line B is an MDR Line), and Line A activates Leave Word Calling. If Line A dialed the Master DN, a Leave Word Calling message is delivered to the Master DN on the AP. If Line A dialed a Dependent DN, a Leave Word Calling message is delivered to the Dependent DN on the AP.

4. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used by the SEE (Lucent Technologies System Equipment Engineer) to enable office option features for an entire 5ESS Switch or for selected Switching Modules. To activate the Multi-Distinctive Ringing and Message Service System Interaction feature, the ACT field for OFID 577 must be set to "Y" on the FOSYS form.

SEC. 4B578: REVERTIVE RINGBACK ANNOUNCEMENT

1. BACKGROUND

When a Multi-Party subscriber originates a call to another subscriber on the same local loop, the originator normally hears busy tone and must hang up so that the 5ESS Switch can "ring back" the called party on the same loop. When the called party answers, the line stops ringing and the originator goes back offhook to talk to the terminator on the same loop.

2. FEATURE DESCRIPTION

Available with 5E9(1) and later, the Revertive Ringback Announcement feature allows the Service Provider to provision an announcement using the fixed route "REVRBANN" on the FIXRT form (Record 5303-1) (10.1 Recent Change View). This announcement is played in the place of busy tone to subscribers who originate a call that is terminating to a subscriber on the same loop and requires revertive ringing to be applied to alert the other subscriber to answer the call. The announcement is intended to inform the calling party that revertive ringing is necessary and that they should hang up to allow the called party to be rung.

This option also provides for a distinctive tone (three Call Waiting beeps) to be played to the called party when they go offhook, in place of silence, before the originator of the call goes back offhook

3. FEATURE ASSIGNMENT

The Revertive Ringback Announcement feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 578 on the FOSYS form (5713-2 Record) to "Y".

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFS ID 578 on the FOSYS form must be "Y" to enable this feature.

SEC. 4B579: REVERTIVE OFFHOOK ANNOUNCEMENT

1. BACKGROUND

When a Multi-Party subscriber originates a call to another subscriber on the same local loop, the originator normally hears busy tone and must hang up so that the 5ESS Switch can "ring back" the called party on the same loop. When the called party answers, they hear silence until the originator goes back offhook to talk to the terminator on the same loop.

2. FEATURE DESCRIPTION

Available with 5E9(1) and later, the Revertive Ringing Announcement feature is an extension to Option 578 (Revertive Ringback Announcement (see Division 2, Section 4B578)) and allows the Service Provider to provision an announcement using the fixed route REVOHANN on the 10.1 Recent Change View. This announcement is played to subscribers who go offhook after revertive ringing has been applied, in place of the distinctive tone provided by Option 578. The announcement is intended to inform the called party that a revertive ringing call is in progress, and that the calling party will go offhook shortly.

This option also provides for a distinctive tone (three Call Waiting beeps) to be played to the called party when they go offhook, in place of silence, before the originator of the call goes back offhook

3. FEATURE ASSIGNMENT

The Revertive Ringing Announcement feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 578 on the FOSYS form (5713-2 Record) to "Y".

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFS ID 578 on the FOSYS form must be "Y" to enable this feature.

SEC. 4B587: PRI ECHO CANCELER OPTIONS

1. BACKGROUND

For Primary Rate Interface (PRI) data calls, the echo canceler (if present) must be disabled. This is done at the terminating office by applying an in-band 2.1KHz tone over the B-channel for 3 seconds. This tone must not reach the far party at either end of the PRI. Option IDs 587 and 588 are created to provide an option to disable echo cancelers for PRI data calls.

2. FEATURE DESCRIPTION

For an outgoing call (PRI Terminating Terminal Process), the path is opened for 4.1 seconds after the connect

message is received. For an incoming call (PRI Originating Terminal Process), the path is opened for 3.5 seconds and the tone is applied after the connect message is sent.

The PRI echo canceler controller has three modes of operation. Your configuration will determine which mode to select.

1. Mode 1 - This involves no change from the current operation. This mode provides no 5ESS Switch echo canceler control. No echo canceler disabling tone is applied and no tone blocking (delay of cut-through) is done. If echo cancelers are in the path, they must be controlled by another switch (i.e. the 4ESS Switch) or the echo cancelers must be capable of monitoring the Q.931 data to turn themselves on or off based on the call type (voice or data).
2. Mode 2 - This mode is used when the echo canceler devices can provide their own control based on Q.931 messaging. However, the PRI is connected to a Definity Switch that is still sending the disabling tone for incoming data calls. With this mode, the 5ESS Switch does tone blocking on outgoing PRI data calls only.
3. Mode 3 - This mode is used when the echo canceling control is done by the switches connected by the PRI. This mode requires the far switch to be able to send the disabling tone for incoming PRI data calls and block the tone on both incoming and outgoing data calls.

The modes of operation are based on two feature option parameters. On an SM (Switching Module), every PRI on that SM uses the same mode. The feature option parameters used are 587 for echo tone blocking and 588 for echo tone control. The following table maps the various feature option parameter values to the corresponding mode of operation from the three modes listed above:

OFID 587 (echo block)	OFID 587 (echo tone)	Mode
N	N	1
Y	N	2
Y	Y	3

3. FEATURE ASSIGNMENT

To use mode 1 (default), on each SM containing PRI trunks that are used for outgoing data calls, perform the following ODA (Office Data Administration)/Recent Change operation:

Update the FOSYS form (5713-2 Record); RC/V (Recent Change and Verify) view 8.22 (or 8.31 for 5E9(1)).

For FEATURE ID 587 and FEATURE ID 588, set ACT/ACTIVE field to "N".

To use mode 2, on each SM containing PRI trunks that are used for outgoing data calls, perform the following ODA/Recent Change operation:

Update the FOSYS form (5713-2 Record); RC/V view 8.22 (or 8.31 for 5E9(1)).

For FEATURE ID 587, set ACT/ACTIVE to "Y".

For FEATURE ID 588, set ACT/ACTIVE to "N".

To use mode 3, on each SM containing PRI trunks that are used for data calls (incoming, outgoing, or both),

perform the following ODA/Recent Change operation:

Update the FOSYS form (5713-2 Record); RC/V view 8.22 (or 8.31 for 5E9(1)).

For FEATURE ID 587 and FEATURE ID 588, set ACT/ACTIVE to "Y".

For each PRI B-channel trunk group that is used for data calls to a switch that may provide echo tone, set DATA CUT THRU to "DELAY". This prevents a short burst of tone from reaching the originating CPE (Customer Premise Equipment) when the terminating office has applied the tone, but the originating office has not received and processed the CONNECT message in order to open its path.

Activation of OFIDs 587 and/or 588 in an SM which services PRIs which do not have the proper echo canceler equipment causes a 3.5 second delay on incoming CSD (Circuit Switched Data) calls over the PRI or a 4.1 second delay on outgoing CSD calls.

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

SEC. 4B588: PRI ECHO CANCELER OPTIONS

For information on this feature, see Division 2, Section 4B587.

SEC. 4B591: CENTREX TIE LINE UNANSWERED CALL RECORD

1. FEATURE DESCRIPTION

The Centrex Tie Line Unanswered Call Record feature uses OFID (Optioned Feature ID) 591. FX (Foreign Exchange) charging occurs when a PFA (Private Facilities Access) or ARS (Automatic Route Selection) call encounters a charge index with AMA TYPE of FX (AMA Call Code 011 - FX, Automatic Flexible Routing). Normally, calls encountering FX charging get simulated answer supervision for all calls. This causes AMA records to be generated for both answered and unanswered calls. Some customers prefer not to generate AMA for unanswered calls with AMA Call Code 011, thus this option was created.

1.1 Limitations and Restrictions

This option ID does not apply to ISDN Tie Tandem trunks (e.g. PRI) because of the never-provided simulated answer supervision. Regardless of the setting of option ID 591, ARS and PFA calls to ISDN tie tandem trunks start billing when the Q.931 CONNECT (answer supervision) is received. This option ID does not apply to Foreign Exchange trunks because hardware-triggered answer supervision is received on these trunks. Regardless of option ID 591, ARS and PFA calls to FX trunks start their billing cycle when the connection is made to the FX trunk and hardware answer supervision is seen.

2. FEATURE ASSIGNMENT

The Foreign Exchange, Automatic Flexible Routing option is activated by setting the ACT field for OFID (Optioned Feature System ID) 591 on the FOSYS form (5713-2 Record) to "Y".

With OFID 591 active, any ARS or PFA origination encountering AMA Call Code 011 (FX, Automatic Flexible Routing) will not generate an AMA record until "true" answer supervision is received over the tie trunk (line). Thus, unanswered calls do not generate AMA records, and answered calls start the billing when "true" answer supervision is received.

With OFID 591 not active, all ARS and PFA calls encountering AMA Call Code 011 generate an AMA record starting at the point they are connected to the outgoing tie trunk (line).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFID 591 on the FOSYS form (5713-2 Record) must be "Y" to enable this feature.

SEC. 4B592: CALL PACK - FEATURE ASSIGNMENT ENHANCEMENT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions*.

SEC. 4B593: INHIBIT 800 POST DIAL DELAY MF SIGNALLING RESPONSE REDUCTION

1. FEATURE DESCRIPTION

The Inhibit 800 Post Dial Delay MF (Multi-Frequency) Signalling Response Reduction feature uses OFID (Optioned Feature ID) 593. Secured Feature ID 29, 800 Post Dial Delay MF signalling Response Reduction, is a special feature that reduces the PDD (Post-Dial Delay) for SSP 800 calls by approximately 1.29 seconds when a 5ESS Switch acts as an AT (Access Tandem) switch and is receiving MF impulsing. This feature reduces the call setup time associated with SSP 800 calls by compressing the components that account for the processing and hand-off of data to the IC (Interexchange Carrier) office.

Some Subtending End offices to the AT have experienced SSD (Start Second Dial) wink timeout errors when the access tandem has 800 Post Dial Delay active. Some components of 800 Post Dial Delay feature causes the wink timeout, so OFID 593 was created to bypass some parts of the 800 Post Dial Delay feature. For complete details about the operation of the 800 Post Dial Delay MF signalling Response Reduction feature, please see document number *235-190-115 Local and Toll System Feature Document*.

For complete details on the operation of the 800 Post Dial Delay MF Signalling Response Reduction feature, refer to document number *235-190-115 Local and Toll System Feature Document*.

2. FEATURE ASSIGNMENT

The Inhibit 800 Post Dial Delay MF Signalling Response Reduction feature is activated by setting the ACT field for OFID (Optioned Feature System ID) 593 on the FOSYS form (5713-2 Record) to "Y".

With OFID 593 and SFID 29 active:

The delay before the AT sends the SSD wink to the EO remains 800 ms just as it is without SFID 29 active.

The delay before the AT sends the ACK wink to the EO is 200 msec.

With OFID 593 not active and SFID 29 active:

The delay before the AT sends the SSD wink to the EO is reduced from 800 ms down to 200 ms. This meets Bellcore requirements which specifies a wait of a minimum of 200 ms. The total post-dial delay reduction is 600 ms.

The delay before the AT sends the ACK wink to the EO is 200 msec.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFID 593 on the FOSYS form (5713-2 Record) must be set to "Y" to enable this feature.

SEC. 4B598: CLOCK SYNCHRONIZATION CIRCUIT

1. BACKGROUND

Without this feature, customers with 5ESS Switch ORMs (Optical Remote Modules) with stand alone capability do not have the ability for the ORM to be able to derive its timing from an external source instead of from the umbilicals. This prevents the 5ESS Switch ORMs from providing external timing from a BITS clock. This condition can cause service degradation in stand alone mode.

2. FEATURE DESCRIPTION

Available with 5E8 and later, this feature provides customers who have ORMs with standalone capability the ability for an ORM to derive its timing from an external source instead of from the umbilicals. This feature enables the 5ESS Switch ORMs to provide external timing from a BITS clock via the TN2518 ORM CSC (ORM clock synchronization circuit) circuit pack. The TN2518 provides the interface between the customer BITS clock and the DLI (Dual Link Interface) of the MCTU2 (Module Controller/Time Slot Interchanger Unit 2). The TN2518 interface pack fits in EQL (Equipment Location) slot 120 of the MCTU2 and is cabled to the DLI. When the TN2518 is installed, the DLI diagnostics must be modified to disable the DLI diagnostics that detect slips with the Network Clock.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. This feature is a special feature and is enabled by setting the ACT field for OFS ID 598 to "Y" on the FOSYS form (5713-2 Record).

SEC. 4B605: OSPS FEATURE GROUP D INCOMING SIGNALING FOR SPECIAL APPLICATION - RELEASE 2

1. FEATURE DESCRIPTION

For detailed information on the OSPS Feature Group D Incoming Signaling for Special Application - Release 2 feature, see Division 2, Section 4A373.

SEC. 4B608: COT DUPLICATE ACTIVATION REQUEST TREATMENT OPTIONED FEATURE

1. FEATURE DESCRIPTION

Available as a Software Update for 5E8 and 5E9(1) and as BMI (Beginning Managed Introduction) for 5E9(2), COT (Customer Originated Trace) Duplicate Activation Request Treatment Optioned Feature provides the ability to have subscribers receive the COT Not Available Announcement when more than one COT Activation is attempted for a single incoming call. The present operation of the feature provides the COT Success Announcement for all subsequent activations of COT for a single incoming call.

Thus, this Option, when active, causes the COT originating subscriber to receive COT Not Available treatment when requesting a duplicate trace. The default operation, when this option is inactive, is to provide the subscriber with a success indication even though no additional trace is performed.

1.1 Scenario:

1. A 5ESS Switch has the COT feature provisioned as either generally available or available by subscription.
2. A subscriber in the office receives an incoming call, answers the call and hangs up.
3. The subscriber now goes offhook and dials the COTUSE dialcode as provisioned in the Office Dialing Plan or in an Individualized Dialing Plan that is assigned to the line.
4. The subscriber hears the COT Success announcement and hangs up.
5. The subscriber goes offhook again and dials the COTUSE dialcode a SECOND time.
6. When the COT Duplicate Activation Request Treatment Optioned Feature (Option ID 608) is DISABLED, the subscriber hears the COT Success announcement. When the feature is ENABLED, the subscriber will hear the COT Not Available Announcement and the COT Denied measurement counter is incremented.

2. FEATURE ASSIGNMENT

The COT Duplicate Activation Request Treatment Optioned Feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 608 on the FOSYS form (5713-2 Record) to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFS ID 608 on the FOSYS form must be "Y" to enable this feature.

SEC. 4B613: OSPS 800 ACCESS USING FEATURE GROUP D SIGNALING**1. FEATURE DESCRIPTION**

For detailed information on the OSPS 800 Access Using Feature Group D Signaling feature, see Division 2, Section 4A377.

SEC. 4B620: OSPS INTERNATIONAL BILLED NUMBER SCREENING RELEASE 2**1. FEATURE DESCRIPTION**

For detailed information on the OSPS International Billed Number Screening Release 2 feature, see Division 2, Section 4A386.

SEC. 4B623: ABILITY TO DROP FULLY RESTRICTED TERMINATING LEG OF A MULTIWAY CALL**1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-190-103 BRCS Feature Description Document*.

SEC. 4B627: OSPS TOLL FREE NPA EXPANSION**1. FEATURE DESCRIPTION**

For detailed information on the OSPS Toll Free NPA Expansion feature, see Division 2, Section 4A405.

SEC. 4B633: OSPS IN LANGUAGE SERVICES CALL TRANSFER USING ROUTE NUMBER**1. FEATURE DESCRIPTION**

For detailed information on the OSPS In Language Services Call Transfer Using Route Number feature, see Division 2, Section 4A398.

SEC. 4B646: ENHANCED 911 TERMINAL GROUP STATION RESTRICTION INTERACTION OPTION**1. FEATURE DESCRIPTION**

Available as a Software Release for 5E10 and with Beginning Managed Introduction for 5E11 and later, the Enhanced 911/TGSR (Terminal Group Station Restriction) Interaction Option feature provides the ability to restrict or allow E911 calls from lines with originating TGSR restrictions. This feature is controlled by OFID (Optioned Feature ID) 646 on the FOSYS form (5713-2 Record).

The E911/TGSR Interaction Option affects the following call scenario:

In a 5ESS Switch a line has a Terminal Group feature with originating restrictions - either semi-restricted (i.e. /TGSA) or fully-restricted (i.e. /TGFA).

The office translations use either Enhanced 911 or the "EMER" or 911 CALL TYPE to route 911 calls to a

destination that is not a line on the switch with a 911 class of service. For example, the call may route to a PSAP (Public Safety Answering Point) via a CAMA (Centralized Automatic Message Accounting) or TSPS (Traffic Service Position System) trunk group.

The subscriber goes offhook and dials 911 (using the office dialing plan).

When ACT field for OFID 646 is set to "N" on the FOSYS form, the subscriber hears the error treatment specified by the TGSr feature because the TGSr restrictions prevent this call from completing. This is the current operation of the 5ESS Switch for this scenario.

When the ACT field for OFID 646 is set to "Y" on the FOSYS form, the call will complete to the 911 destination and TGSr checks will be overridden for this call.

This Option will allow TGSr checks to be overridden for the following types of 911 translations:

E911 is provisioned in the 5ESS Switch (i.e. Recent Change views 9.40 and 9.41 are populated for all Digit Analysis Selectors in the office).

The digits 911 are given a CALL TYPE of EMER or 911 on the LDIT form (5300-3 Record).

This Option will NOT allow TGSr checks to be overridden for Automatic Recall/Automatic Callback of a 911 call. This means that if a subscriber dials 911, the TGSr checks will be overridden and the call will complete. If the subscriber then hangs up and re-originates using an Automatic Recall feature, intending to reconnect to 911, the TGSr checks for this call will not be overridden and the call will be given the error treatment specified by the subscriber's TGSr feature.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to activate/deactivate Optioned Features. Setting the ACT field for OFID 646 controls the functionality of this feature.

SEC. 4B648: ASP INTRA LATA PIC INTERWORKING

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4B653: ICLID ENHANCEMENT FOR MLHG

1. FEATURE DESCRIPTION

For detailed information on the ICLID Enhancement for MLHG feature, see Division 2, Section 4A192.

SEC. 4B654: Block No ANI on Non-Equal Access Calls Option

1. FEATURE DESCRIPTION

Available with as a Software Update for 5E10 and BMI (Beginning Managed Introduction) for 5E11, the Block No ANI on Non-Equal Access Calls Option feature allows the Service Provider to restrict incoming non-Equal Access calls from completing if there are no Automatic Numbering Information digits provided on the call. This feature is controlled by OFS ID 654 on the FOSYS form (5713-2 Record).

The BLK NO ANI field on the TKGRP form (5202 Record) allows the Service Provider to restrict the completion of Equal Access signalling calls that do not provide ANI digits. Currently this option only affects incoming Equal Access signalling calls that have II (information digits) digits that are marked as "EABLOCK" on the EASID form (5317 Record) (RC View 9.17).

The Block no-ANI on Non-Equal Access Calls Option affects the following call scenario:

In a 5ESS Switch an incoming trunk that has a trunk class of "LATA CONN" may carry traffic that uses Equal Access signalling or Non-Equal Access signalling.

The incoming trunk group has the BLK NO ANI field set to "Y" on the TKGRP form.

An incoming call is received and the II digits are not marked as "EABLOCK" on the EASID form.

There are either NO ANI digits provided for this call, or an invalid number of ANI digits are provided, so the call is marked as non-Equal Access signalling, and a NOANI MDII is printed to the ROP.

When the ACT field for OFS ID 654 is "N" on the FOSYS form, the call completes to its destination.

When the ACT field for OFS ID 654 is "Y" on the FOSYS form, the call is routed to the fixed route "ESMRT" (FIXED ROUTE TYPE field on the FIXRT form (5301-1 Record)) and announcement is provided.

2. FEATURE ASSIGNMENT

The Block No ANI on Non-Equal Access Calls Option feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 654 on the FOSYS form (5713-2 Record) to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFS ID 654 on the FOSYS form must be "Y" to enable this feature.

SEC. 4B659: OSPS RECORD AND PLAYBACK

1. FEATURE DESCRIPTION

For detailed information on the OSPS Record and Playback feature, see Division 2, Section 4A415.

SEC. 4B660: OPTION TO REMOVE E911 PSAP OUTPULSING DELAY

1. FEATURE ASSIGNMENT

Available as a Software Update for 5E9(1), 5E9(2), 5E10, and as BMI (Beginning Managed Introduction) for 5E11, the Option to Remove E911 PSAP Outpulsing Delay feature gives Service Providers the ability to remove a delay that occurs before outpulsing digits to an E911 PSAP to allow E911 calls to complete more quickly.

The Option to Remove E911 PSAP Outpulsing Delay feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 654 on the FOSYS form (5713-2 Record) to "Y".

When a 5ESS Switch routes calls to an E911 PSAP, there is an additional 500 millisecond delay in the 5ESS Switch between the time the START signal has been received from the PSAP and the time that the 5ESS Switch will begin to outpulse digits to the PSAP. This delay is required by some E911 PSAP equipment to allow sufficient time for the PSAP to allocate tone decoder circuits to collect the digits. The 500ms delay is in addition to the normal 200-300ms required to process the START signal from the PSAP and prepare to outpulse digits.

Some PSAP equipment does not require this additional 500ms delay, and this time is unnecessarily added to the call setup time. The additional 500ms delay can be removed by activating the Option to Remove E911 PSAP Outpulsing Delay feature using OFD ID 660.

The Option to Remove E911 PSAP Outpulsing Delay affects the following call scenario:

An E911 call is routed through a 5ESS Switch and terminates to an E911 PSAP trunk group. The trunk group member is seized and a START signal is received from the PSAP.

When the ACT field for OFS ID 660 is set to "N" on the FOSYS form, the 5ESS Switch will wait an additional 500 milliseconds before beginning to outpulse digits to the E911 PSAP.

➤ **NOTE:** This is the default operation of the feature.

When the ACT field for OFS ID 660 is set to "Y" on the FOSYS form, the 5ESS Switch begins to outpulse digits to the E911 PSAP immediately.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFS ID 660 on the FOSYS form must be "Y" to enable this feature.

SEC. 4B663: CALL WAITING WITH 3-WAY CALLING INTERACTION

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions*.

SEC. 4B664: BILLING OPTION FOR SPONTANEOUS USAGE SENSITIVE 3-WAY CALLING

1. FEATURE DESCRIPTION

Billing Option for Spontaneous Usage Sensitive Three-Way Calling is a transparency feature having feature number 99-5E-3910. The feature is being deployed on the 5ESS-2000 Switch in a software update for the 5E10(1) Switch Software release.

The feature can be enabled/disabled with Office Optioned Feature System ID 664.

The Billing Option feature provides a new version of the existing call type 48 charge record. The new version provides the total elapsed time of a Spontaneous Usage Sensitive Three-Way Call, but only for those calls where all parties have reached a valid answer state. If Billing Option feature is not enabled, it has no effect on the existing operation of the call type 48 charge record.

The connect time field in this charge record is dependent on the sequence of the merge and the answer of the second leg. If the second leg of the call is answered, and then the controller flashes to form the Three-Way conference, the connect time will be the time the merge occurred.

If the controller flashes to form the 3-way conference, and then the second leg of the call is answered, the connect time will be the time the added leg answered.

The elapsed time field is the connect time minus the unmerge time. The unmerge time is when the Three-Way connector is dropped. The connector is dropped when:

- the controller goes on hook, or
- the controller flashes to drop the added party, or
- either one of the other two parties disconnects.

This feature can be deployed in the disabled state, which requires no action. The default is the disabled state.

For more information, see Div. 2, Sec. 4A156.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. This feature is enabled by setting the ACT field for FID 664 to "Y".

SEC. 4B665: LOCAL NUMBER PORTABILITY AMA BILLING

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-127 Number Portability User's Guide*.

SEC. 4B666: DENY AUTO CALLBACK ON INTRALATA PIC CALLS — PER CIC CONTROL

1. FEATURE DESCRIPTION

For detailed information on the Deny Auto Callback on IntraLata PIC Calls - Per CIC Control feature, see Division 2, Section 4A201.

SEC. 4B668: SELECTIVE NPA DELETION FOR ASP MULTIPLE RATE CENTER SUPPORT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4B669: LINE BLOCKING ENHANCEMENT FOR ISVM

1. FEATURE DESCRIPTION

For more information on the Line Blocking Enhancement for ISVM (Interswitch Voice Messaging) feature, see Division 2, Section 4A240.

SEC. 4B678: ACCESS CODE OPTION FOR SPONTANEOUS USAGE SSENSITIVE THREE-WAY CALLING

1. FEATURE DESCRIPTION

Available as a Software Upadate for 5E11 and 5E12 and for 5E15 BMI (Beginning Managed Introduction), the Access Code Option for SUSTWC (Spontaneous Usage Sensitive Three-Way Calling) is a special feature (OFS ID 678).

The Access Code Option for Spontaneous Usage Three-Way Calling feature allows the switch to provide recall dial tone after the initial flash and provide recall dial tone again after the access code is dialed, if the Access Code Option for SUSTWC is activated on the FOSYS form (RC/V 8.31), and an access code is defined on the PDIT form (RC/V View 9.2).

After dialing the access code, the customer can then dial as one normally would. However, if the switch does not receive an access code after the initial flash but receives any other digits, then the switch provides re-order treatment. Upon a subsequent flash, the switch reconnects the subscriber to the soft-held party; or upon disconnect, if ring-back is applicable, ring-back the soft-held party to the subscriber. The Access Code Option (OFS ID 678) also has interactions with the existing Billing Option for SUSTWC, feature number 99-5E-3910, OFS ID 664.

For more information on this feature, refer to the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions*.

2. FEATURE ASSIGNMENT

To activate this feature, the ACT field for OFS ID 678 must be set to "Y" on the FOSYS form (5713-2 Record)

On the PDIT form (5300-2) the following assignments are:

- set CALL TYPE to "FEATURE"
- set TYP CI CALL to "NONCI"
- set ACTION to "US3WC"

- set FEATURE to "/MWUS3WC".

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22
PDIT	5300-2	3	3B	9.2

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 678 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

PDIT form (5300-2 Record) - This form is used to define the Prefix/Feature Digit Interpreter in a 5ESS Switch and provides information defining feature and operator access and prefix information for dialed codes which will be analyzed in the LDIT (Local Digit Interpreter Table).

SEC. 4B680: ADSI ACKNOWLEDGMENT TIMER OPTIONAL VALUE

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-103 Business and Residence Feature Descriptions*.

SEC. 4B681: TRANSFER TWO OUTGOING ISUP/PRI TRUNKS TOGETHER

1. FEATURE DESCRIPTION

The Transfer Two Outgoing ISUP/PRI Trunks Together feature is available with the 5E10 Software Release. It is controlled by OFS ID (Optional Feature System ID) 681.

This feature allows ISDN (Integrated Services Digital Network) lines to make two outgoing calls over trunks with either ISUP (Integrated Services User Part) signaling or service class EDSL (Electronic Documentation Service Line) PRI (Primary Rate Interface), and transfer those two calls together if at least one of the two calls is answered. This Option ID does NOT allow analog lines to transfer two outgoing ISUP/PRI trunks together.

2. FEATURE ASSIGNMENT

If the Option to Allow Custom ISDN to Transfer Two Outgoing ISUP/PRI Trunks Together is INACTIVE, when an ISDN line makes two outgoing calls over ISUP/PRI trunks, the line will NOT be able to transfer these two calls together.

If the Option to Allow Custom ISDN to Transfer Two Outgoing ISUP/PRI Trunks Together is ACTIVE, when an ISDN line makes two outgoing calls over ISUP/PRI trunks, the line WILL be able to transfer these two calls together if at least one of the calls is answered.

This feature is activated by setting the ACT field for OFID (Optional Feature System ID) 681 on the FOSYS form (5713-2 Record) to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				

Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The OFID 681 must be set to "Y" to enable this feature.

SEC. 4B682: SS7 RESPONSE TO PSU ISOLATION

1. FEATURE DESCRIPTION

The SS7 (Signaling System 7) Response to PSU (Packet Switching Unit) Isolation feature is a Transparency Feature using OFS (Optioned Feature System) ID 682 that is available with the 5E16(2) FR4 (Feature Release 4) and later Software Releases. The feature number for this feature is 99-5E-8410.

If the GSM (Global Switching Module) becomes isolated from the non-GSMs then it is not possible for MTP3 (Message Transfer Part Layer 3) to send messages to the level 4 ISUP (Integrated Services User Part) terminal processes resident on those switching modules. The use of links supporting signalling traffic originating or terminating at unreachable switching modules is thus precluded for reasons at a higher functional level than MTP. This situation is defined as a local processor outage.

Previously, the 5ESS did not treat this as a local processor outage; rather an ISUP agent in the global switching module sending a release message in response to any incoming IAM (Initial Access Message).

This feature causes the 5ESS to use the local processor outage procedure defined in American National Standard T1-111-2001 when links cannot be used due to global switching module isolation, rather than the previous method.

2. FEATURE ASSIGNMENT

In order to activate this feature, the ACT field for OFID 682 on the FOSYS form (5713-2 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 682 must have the ACT field on the FOSYS (5713-2 Record) form set to "Y" in order to activate this feature for the office.

SEC. 4B692: RECENT CHANGE (HASHSUM FAILURE) BLOCKING FEATURE

1. FEATURE DESCRIPTION

The Recent Change (Hashsum Failure) Blocking feature is available with the 5E10 Software Release. It is controlled by OFS ID (Optioned Feature System ID) 692.

Database splits may occur when the ODD (Office Dependant Data) is in hashsum failure and when Recent Change use the portion of ODD memory where the hashsum checks are failing. This feature provides the capability to inhibit Recent Change when a hashsum check failure is detected in ODD memory.

2. FEATURE ASSIGNMENT

If the OFID 692 is active, when a hashsum check failure occurs on ODD memory, Recent Change is automatically inhibited.

If the OFID 692 is not active (default), Recent Change is not inhibited when a hashsum check failure is detected in ODD memory.

The Recent Change (Hashsum Failure) Blocking Feature is activated by setting the ACT field for OFID (Optioned Feature System ID) 692 on the FOSYS form (5713-2 Record) to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The OFID 692 must be set to "Y" to enable this feature.

SEC. 4B693: ASI-PROXY OPTION FOR OLHB POPULATION FEATURE

1. FEATURE DESCRIPTION

The ASI (Application Service Interface)-Proxy Option for OLHB (Outgoing Line History Block) Population feature, OFS (Optioning Feature System) option 693, is available for use by the ASP (Advanced Services Platform) Interface Proxy feature that is documented in Division 2, Section 4A93.

The rules associated with this capability are as follows:

If this OFS option is set to "Y" (i.e., prevent placement in OLHB, the explicit mode access code is not placed in the OLHB when it is dialed.

If this OFS option is set to "N" (i.e., do not prevent placement in OLHB), the explicit mode access code is placed in the OLHB when it is dialed.

If the IP (Intelligent Peripheral) extends a call while in the explicit mode, the digits dialed by the IP are populated into the OLHB without regard to the value of the OFS option.

The setting of this OFS option is on an office wide basis. The default setting is "N".

During a RASI (Remote Access to Advance Services Interface) connection, if a valid ASI (Advanced Services Interface) explicit access code is dialed, the impact on the OLHB is determined by the OFS setting.

SEC. 4B694: MINIMIZE SS7 LINK DOWNTIME DURING RETROFIT

1. FEATURE DESCRIPTION

The Minimize SS7 Link Downtime During Retrofit feature is available as 5E10 and 5E11 Software Updates and in the Beginning Managed Introduction of the 5E12 Software Release. This is an Office Optioned Feature with OFS ID (Office Optioned Feature System ID) number 694. The feature number is 99-5E-4193.

This feature provides the capability for controlling how SS7 signaling links behave during a retrofit, update, or LTG (Large Terminal Growth).

2. FEATURE ASSIGNMENT

The Minimize SS7 Link Downtime During Retrofit feature is secured by the FOSYS (Feature Optioning System). In order to turn the option on, the ACT field for OFS ID (Optioned Feature System ID) 694 on the FOSYS form (5713-2 Record) must be set to "Y". If OFS ID 694 is set to "Y" for any or all SMs (Switching Modules), the SS7 signaling links are only out of service during the switch forward of the AM (Administrative Module) as part of the Retrofit/Update/LTG procedure when using AM Off-Line Boot. If, however, OFS ID 694 is set to "N", no change is made in the behavior of the SS7 signaling links. The SS7 links will restore to an In-Service state upon the successful initialization of the first SM and its ability to perform call processing through the CM (Communication Module) and AM.

NOTE: The ACT field for OFS ID 694 must be set to the desired value prior to the office's final database dump. This change impacts only CNI (Common Network Interface)-based SS7 signaling.

3. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS IDs for Special and Transparency Features. To activate this feature for any or all SMs, the ACT field for OFS ID 694 must be set to "Y".

SEC. 4B695: AUTOMATIC ISDN LINE ASSIGNMENT

1. FEATURE DESCRIPTION

The AILA (Automatic ISDN Line Assignment) is a Transparency Feature (OFID 695) that is available with 5E11 and later Software Releases. The feature number for this feature is 99-5E-3777. For more information on this feature, see Division 2, Section 1BO.

SEC. 4B696: 911 BILLING FOR TOLL TRANSFERRED CALLS

1. FEATURE DESCRIPTION

The 911 Billing for Toll Transferred Calls feature is available as 5E10 and 5E11 Software Updates and in the Beginning Managed Introduction of the 5E12 Software Release. This feature is a Call Processing Special Feature with a OFID (Optioned Feature ID) of 696. The feature number for this feature is 99-5E-4414.

Prior to this feature, when a subscriber calls an E911 PSAP (Public Safety Answering Point), and the PSAP transfers the call to a carrier, the carrier receives the billing number of the subscriber. The number is delivered as ANI (Automatic Number Identification) on a MF (Message Forwarder) trunk or in the charge number parameter for CCS7 (Common Channel Signaling, Version 7) trunks.

With this feature activated, the service provider has the office-wide option to send the billing number of the PSAP to the carrier. Only PSAP transfers which involve a carrier will be affected by this feature. Note that the calling party number parameter for CCS7 trunks will not be affected by this feature.

- ▲ **WARNING:** If the Recent Change View 5.1 attribute billing DN is blank for a CAMA PSAP, the switch will send a null billing number when this feature is activated.

To activate this feature, OFID 696 must be enabled on the Optioned Features form (5713-2 Record).

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to activate/deactivate Optioned Features. The ACT field for OFID 696 must be set to "Y".

SEC. 4B697: ALTERNATE LOCAL SERVICE PROVIDER ROUTING

1. FEATURE DESCRIPTION

For detailed information on the Alternate Local Service Provider Routing feature, see Division 2, Section 4A269.

SEC. 4B698: PINNACLE ACD (AUTOMATIC CALL DISTRIBUTOR) TPCC (THIRD PARTY CALL CONTROL) FEATURE ENHANCEMENT

1. BACKGROUND

Currently, with the PINNACLE ACD TPCC feature, DNs received from an external host by an Originate Call and Redirect Alerting Call request are translated using the ODP (Office Dialing Plan) that is assigned to the PINNACLE ACD line.

2. FEATURE DESCRIPTION

Available with 5E11 and later Software Releases, this feature enhancement allows for DNs, received from an external host by an Originate Call and Redirect Alerting Call request, to be translated through the IDP (Individualized Dialing Plan) that is provisioned on the PINNACLE ACD line. This feature is implemented by call processing only. The only data impact is the addition of OFID 698 to enable this feature. When OFID 698 is activated (ACT = "Y"), the TPCC feature translates DNs based on the IDP. When this OFID is deactivated, DN translation takes place using the ODP.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer the OFIDs (Optioned Feature Identifiers) for the many available feature options. The ACT field for OFID 698 must be set to "Y" in order to enable this feature for the office.

SEC. 4B699: LOCAL NUMBER PORTABILITY NPA-NXX GROWTH

1. FEATURE DESCRIPTION

Although the Number Portability NPA-NXX Growth Enhancement feature uses OFID (Optioned Feature ID) 699, SFID (Secured Feature ID) 198 must be active in order for OFID 699 to have any impact. The Number Portability - NPA-NXX Growth feature (i.e., SFID 198) allows up to 8,190 office codes (also referred to as NXXs), populated with DNs (Directory Numbers), to be supported on each 5ESS Switch and allows DNs with the same office code, but in different NPAs (Numbering Plan Areas) to be served by the same switch.

Prior to this feature, the 5ESS Switch only supported DNs from 250 office codes, and each of these office codes had to be unique within the switch-DNs with the same office code, but in different NPAs. Unique DNs with the same office code and different NPAs were not supported by the 5ESS Switch. With the increasing frequency of NPA changes and the implementation of number portability, switches must be able to serve DNs from multiple NPAs and to serve office codes that appear in more than one NPA. Therefore, seven digits are no longer sufficient to uniquely identify a DN within a switch. The original requirement stated that SCP responses with a 7-digit Called Party Number be rejected and the call provided error treatment (reorder) when SFID 198 was active. Currently, this requirement is optional.

2. FEATURE ASSIGNMENT

The Number Portability NPA-NXX Growth Enhancement feature is activated by first setting the ACT field for SFID (Secured Feature ID) 198 to "Y" on the SFSYS form (5713-1 Record), and then setting the ACT field for OFID (Optioned Feature ID) 699 to "Y" on the FOSYS form (5713-2 Record) to "Y". (See Division 2, Section 4A198 for more detailed information on SFID 198.)

■ **NOTE:** SFID 198 must be active for OFID 699 to have any impact.

When OFID 699:

is not active (default) and SFID 198 is active, an SCP response with a Called Party Number parameter with a length of 7 digits completes.

is active and SFID 198 is active, an SCP response with a Called Party Number parameter with a length of 7 digits is provided reorder.

When SFID 198 is not active, an SCP response with a Called Party Number parameter with a length of 7 digits completes regardless of the value of OFID 699.

■ **NOTE:** This feature is an OFFICE feature, and cannot be enabled or disabled on individual SMs.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. SFID 198 must be activated before OFID 699 can be enabled (see Division 2, Section 4A198 for more detailed information on activating SFID 198). OFID 699 on the FOSYS form (5713-2 Record) must be set to "Y" to enable this feature.

SEC. 4B700: INTER-EXCHANGE CARRIER OPTION FOR SCREENING ENHANCEMENTS TO OUTSIDE CALLING AREA ALERTING

1. FEATURE DESCRIPTION

The IC (Inter-Exchange Carrier) Option for Screening Enhancements to OCAA (Outside Calling Area Alerting) feature is being deployed as a Software Update for the 5E10 and 5E11 Software Releases and for the Beginning Managed Introduction of the 5E12 Software Release. The OFS ID (Office Optioned Feature System ID) number for this feature is 700.

The IC Option for Screening Enhancements to OCAA feature (99-CP-3441) is a call waiting feature that provides normal ringing and tones for local calls and distinctive ringing and tones for long distance calls.

This feature is an enhancement to the Call Waiting with Distinctive Tones and Distinctive Ringing for Long Distance Calls feature (99-5E-1105) (SFID 91) and provides the following changes:

Provides screening of incoming calls over SS7 inter-exchange carrier class of service designated trunks. The 99-5E-1105 feature treated all IC calls as long distance calls.

Allows creating a screening table for each DAS (Digit Analysis Selector) (up to 99 screening tables can be created). The switch first determines whether an incoming call is local or long distance. To do this, the service provider must create a separate NPA (Numbering Plan Area) - NXX (Office Code) local call screening table for each DAS. The NPA-NXX of each incoming call is compared against the screening table. If the NPA-NXX is included in the screening table, the call is treated as local; otherwise, the call is treated as long distance. The switch then alerts the subscriber with either ringing (for idle lines) or call waiting tones (for busy lines). The 99-5E-1105 feature allowed only one screening table per switch to be created.

If the subscriber's line is idle, the subscriber is alerted with normal ringing if the incoming call is local, or distinctive ringing (typically three rings) if the call is long distance. The feature can also be provisioned (on a per-office basis) such that the subscriber receives normal ringing for all calls.

If the subscriber's line is busy on another call, the subscriber is alerted with normal call waiting tone if the call is local, or distinctive call waiting tone (typically three beeps) if the call is long distance.

Screens intra-switch calls. The 99-5E-1105 feature treated all intra-switch calls as local calls.

Removes charge party number from being included in the decision on whether a call is long distance or local. The 99-5E-1105 feature used this parameter as part of the screening process if CPN (Calling Party Number) information was not available.

Provides an option to treat SS7 calls where the CPN information is not available or cannot be determined as either local or long distance. The 99-5E-1105 feature treated all of these calls as long distance calls.

The feature can also be provisioned (on a per-line basis) for the following options:

- the subscriber receives distinctive tone for long distance calls and no tone for local calls,
- the subscriber receives distinctive ringing for long distance calls, but no distinctive call waiting tones,
- the subscriber receives both distinctive tone and distinctive ringing for long distance calls.

This feature was designed to treat all non SS7 (Signaling System 7) incoming inter-exchange carrier trunk calls as local. The new IC option will allow these calls to be treated as either local or long distance.

If the IC option is enabled, incoming IC calls which are not SS7, will be considered as outside the calling area (i.e., long distance).

If the IC option is disabled, incoming IC calls which are not SS7, will be considered as inside the calling area (i.e., local).

This option can be deployed in the disabled state for 5ESS Switch operation, which requires no action. The default is the disabled state.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for OFS ID 700 must be set to "Y" on FOSYS form (5713-2 Record).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. The ACT field for OFS ID 700 on the FOSYS (5713-2 Record) form must be set to "Y" to enable this feature in all operational SMs.

SEC. 4B704: NP - SERVICE PROVIDER PORTABILITY AMA ENHANCEMENT

1. FEATURE DESCRIPTION

For detailed information on the NP - Service Provider Portability AMA Enhancement feature, see Division 2, Section 4A276.

SEC. 4B705: NP - SERVICE PROVIDER PORTABILITY AMA ENHANCEMENT

1. FEATURE DESCRIPTION

For detailed information on the NP - Service Provider Portability AMA Enhancement feature, see Division 2, Section 4A276.

SEC. 4B708: SECURITY ENHANCEMENTS FOR CALEA

1. FEATURE DESCRIPTION

For information concerning the Security Enhancements for CALEA feature (99-5E-8199), see Division 2, Section 4A628.

SEC. 4B709: DENY TRANSFER OF INTERNATIONAL CALLS

1. FEATURE DESCRIPTION

For information on this feature refer to TG-5 (Translation Guide - 5) Division 2, Section 4A291, Deny Transfer of Digit Screened Calls.

SEC. 4B710: BELLCORE CAUSE CODES AND LOCATION VALUES

1. FEATURE DESCRIPTION

The feature number for the Bellcore Cause Codes and Location Values feature is 99-5E-3887. This feature is being deployed in the 5E13 Software Release.

This feature provides Bellcore-defined information values in standard Q.931 messages on the PRI (Primary Rate Interface) and BRI (Basic Rate Interface) under selected circumstances. The information values, called Cause Codes and Location values, indicates the reason for selected actions by the switch, and the location at which that action or reason was initiated.

The 5ESS-2000 Switch or the CPE (Customer Premises Equipment) can send or receive information about the evolution of a call with the Cause and Progress Indicator IE (Information Elements). The Cause IE describes the reason for generating certain messages, provides diagnostic information in the event of procedural errors, and indicates the location of occurrence with the LI (Location Indicator). The LI is used with both the Cause and Progress Indicator IEs. For the sake of uniformity, specific cause values and location indicators have been standardized so that the same cause value is used for a given condition and always sent by the Switch or the CPE at the same stage of call processing. Once standardized, these cause codes and LI values can be very useful to users. For example, if the CPE receives National cause #10, "Prefix 1 not dialed" during call origination, then the CPE can prompt the user to retry the call with "1" plus the original number. The cause value and the progress indicator can convey different meanings depending upon the location. For example, if the CPE receives cause value #17, "User busy" with the location coded "user", the CPE can determine that the call was offered at the terminating interface. However, if the location was instead coded with "public network serving the remote user", then the CPE can determine that the call was not offered to the remote interface and the cause was generated by the public network. Therefore, it is necessary that the location should be coded appropriately to indicate the location that generated the condition indicated in the cause value or progress indicator.

2. FEATURE ASSIGNMENT

For 5E13 and later, to enable this feature, the ACT field for OFID 710 on the FOSYS form must be set to "Y".

See Figure 1 for provisioning form flow.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
SCRNRNG	5212	3	2N	7.5
TKGRP	5202	3	2A	5.1

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency features. This feature is activated by setting the ACT field for OFID 710 to "Y".

SCRNRNG form (5212 Record) - This form contains up to 20 ranges of DNs (Directory Numbers) to be used for screening CPNs (Calling Party Numbers) delivered over a PRI (Primary Rate Interface) from a PBX (Private Branch Exchange) or CPE (Customer Premises Equipment). For 5E13 and later, the PBX ID field is renamed PBX/CPE ID.

TKGRP form (5202 Record) - This form defines each Trunk Group in a 5ESS Switch. The trunk information entered is information common to the entire group. Trunk information for an individual member is entered on a TRUNK form. For 5E13 and later, the PBX ID field is renamed PBX/CPE ID.

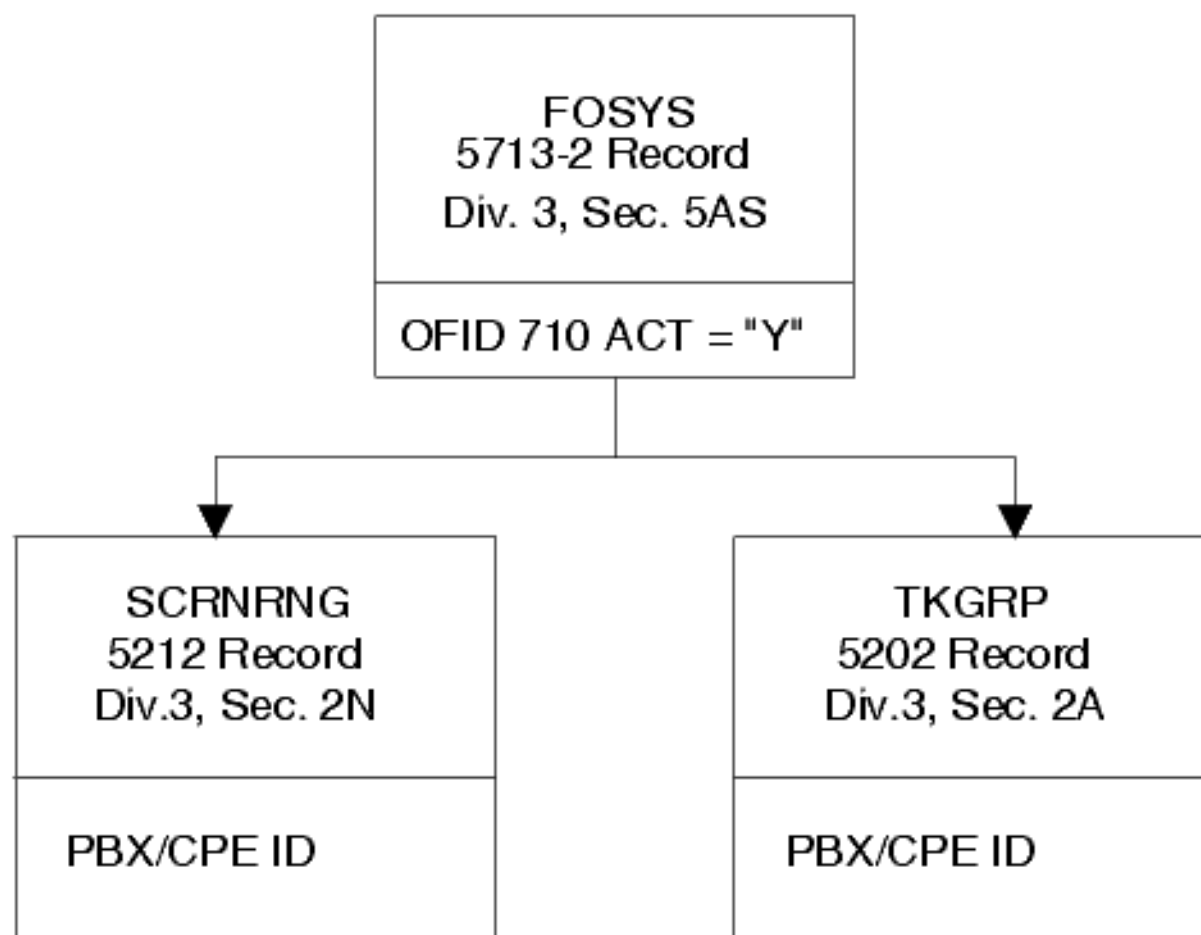


Figure 1 FORM FLOW FOR BELLCORE CAUSE CODES AND LOCATION VALUES

SEC. 4B712: DENY TRANSFER OF DIGIT SCREENED CALLS

1. FEATURE DESCRIPTION

For information on this feature see Division 2, Section 4A291.

SEC. 4B713: MCG (MANUAL CALL GAPPING) INTERACTIONS WITH LNP

1. BACKGROUND

Previously, the 5ESS Switch was not compliant with Telecordia (Bellcore) GR-2936-CORE "LNP (LOCAL NUMBER PORTABILITY) CAPABILITY SPECIFICATION: SERVICE PROVIDER PORTABILITY" in regards to the handling of LNP and MCG (Manual Call Gapping). The 5ESS Switch applied the NM (Network Management) Code Controls after the LNP query was performed. This resulted in a large number of LNP queries performed for calls that would not be completed and a possibility of overloading the LNP SCP (Service Control Point) with a large number of queries.

With the implementation of option ID 713 in 5E11 and later, the 5ESS Switch is now in compliance with GR-2936 requirements [383], [384], and [385].

2. FEATURE DESCRIPTION

When option ID 713 is active, for calls encountering a LNP query (field LNP TRIG NBR populated for the LDIT form/RCV), NM code controls are applied before the query is performed. If code controls are applied against the dialed digits and the call is gapped, no LNP query is performed and the appropriate NM announcement (either Emergency announcement 1, Emergency announcement 2, or No circuit announcement) is supplied to the caller. If code controls are not applied against the dialed digits or are applied and not gapped, the LNP query is performed. If the LNP query response is a "CONTINUE" or "ANALYZE ROUTE" with the same CALLED PARTY NUMBER information as in the LNP query, no additional NM checks are performed (since they were previously applied). If the LNP query response is an "ANALYZE ROUTE" with a different CALLED PARTY NUMBER information as in the LNP query (a LRN (Local Routing Number) was returned), NM controls is applied against the returned digits.

When the option ID 713 is not active, LNP queried calls are handled exactly like ASP (Advanced Services Platform) queried calls. NM code controls are applied on the digits used after the query response is processed.

3. FEATURE ASSIGNMENT

The MCG Interactions with LNP feature is activated by setting the ACT field for OFID (Optional Feature System ID) 713 on the FOSYS form (5713-2 Record) to "Y".

■ **NOTE:** This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMS.

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

SEC. 4B716: E911 CALL ERROR DETECTION AND ALARM

1. FEATURE DESCRIPTION

For detailed information on the E911 Call Error Detection and Alarm feature, see Division 2, Section 4A293.

SEC. 4B717: SIMPLIFIED CUSTOM ISDN ATTENDANT CONSOLE

1. FEATURE DESCRIPTION

For detailed information on the Simplified Custom ISDN Attendant Console feature, see Division 2, Section 4A292.

SEC. 4B718: ASP CDI/RTI IGNORE ON LNP

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-127 Number Portability User's Guide*.

SEC. 4B719: CNA TRUNK GROUP BILLING NUMBER

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-127 Number Portability User's Guide*.

SEC. 4B723: BALANCE

1. FEATURE DESCRIPTION

The Balance feature (formerly known as "Identification of High Hundred Call Seconds Lines") is available with the 5E13 Software Release and as a 5E11 and 5E12 Software Update. This feature is available for the SM, SM-2000, CDX (Compact Digital Exchange), and the VCDX (Very Compact Digital Exchange) switches.

This feature provides the capability to identify blocked call information on analog line units. With the onset of high usage lines (e.g., internet services), call hold times can increase dramatically. With such long hold times, the switching system service provider may experience traffic blocking and distribution problems. Having the capability to identify the lines that are being blocked, and the lines in use which could potentially be the source of the blockage, provides information which can be used to "balance" the traffic load.

This is an optional feature with Option Feature ID Number 723. This feature is activated on the FOSYS (Special and Transparency Feature Optioning System) form by placing a "Y" in the Optioned Feature ID List for feature number 723.

Upon activating this feature, the customer must designate where the collected data is to be directed for review. The data may be directed to an existing TTY (Teletype Data Terminal) port (e.g. ROP0 printer designation), a dedicated TTY port (i.e., TTY23) or directed to a 3B log file. The dedicated TTY for this feature is TTY23 and its corresponding name is "Balance".

TTYs are defined via the DEVICE TYPE field on the ECDOPT form (5706 Record) during ODA (Office Data Administration) system initialization. For Recent Change updates, TTY updates are handled procedurally via the UNIX RTR system.

The feature number for this feature is 99-5E-4421.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	not applicable
FOSYS	5713-2	3	5AS	8.31

ECDOPT Form (5706 Record) - This form is used to define all optional features in the AM (Administration Module).

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The FID 723 must be set to "Y" to enable this feature.

SEC. 4B724: NP SERVICE PROVIDER PORTABILITY AMA ENHANCEMENTS

1. FEATURE DESCRIPTION

For information concerning the NP Service Provider Portability AMA Enhancement feature, see Division 2, Section 4A276.

SEC. 4B729: ASP ALTERNATE ROUTING BEFORE ANNOUNCEMENT**1. FEATURE DESCRIPTION**

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4B733: SEND PANI TO 8-DIGIT PSAP**1. FEATURE DESCRIPTION**

The Send PANI (Pseudo Automatic Number Identification) to 8-Digit PSAP (Public Safety Answering Point) feature is available as a 5E12 Software Update and with the 5E13 Software Release. The OFS ID number for this feature is 733. OFS ID 733 is dependent upon the Wireless E911 feature (SFID 298, feature number 99-5E-4543). See Division 2, Section 4A298.

This feature provides the ability to support sending the pANI to 8-Digit CAMA PSAP facilities instead of sending the MDN (Mobile Directory Number (default used as part of the Wireless 911 feature)) when the OFS ID 733 is active. The following table illustrates the functioning of this feature.

PSAP Termination			
PSAP Type	Wireline	Wireless	OFS ID 733
CAMA	ANI (NPD + 7-digit)	MDN (NPD + 7-digit)	N
CAMA	ANI (NPD + 7-digit)	MDN (NPD + pANI)	Y

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 733 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" which allows the ability to send the pANI to 8-Digit CAMA PSAP facilities instead of sending the MDN.

SEC. 4B734: TRUNK TRIGGER FOR TOLLS**1. BACKGROUND**

The TTT (Trunk Trigger for Toll) secured feature 159 provides a new ASP (Advanced Services Platform) trigger on a 5ESS Switch that is configured as a toll switch. For more information on this feature, see Division 2, Section 4A159). The new trigger generates an SCP (Service Control Point) Info_Collected Query for every call on a given toll trunk group, except when the incoming digits are 800, 888, 877, 866, 855, 844, 833, 822, and 00Y (where Y is 0-9). For the 8YY and 00Y digits, an SSP800 (Service Switching Point for basic 800 service) query is performed. The TTT feature is assigned to a LDP (Long Distance Platform) trunk of trunk class TTOLLCON by populating the TKGRP form (5202 Record) or RCV 5.1 TRIG NBR and setting ASP TOLL to "Y".

The Carrier Routing/Call Processing By Facility Presence feature 243 provides a new trigger on a 5ESS Switch that is configured as an Access Tandem or Interexchange Carrier switch. For more information on this feature, see Division 2, Section 4A243. The functionality provided by the new "Carrier Routing" Trigger provides the ability to launch an ASP R0.1 Info_Collected Query at the switch for designated carriers. Incoming traffic to the switch can detect the Carrier Routing Trigger when the following conditions are met:

The incoming trunk group is provisioned to allow Carrier Triggers (TKGRP form or RCV 5.1 field CARRIER TRIG equal "Y").

A Carrier ID is received in the trunk signaling or is provisioned on the trunk group.

The signaled or derived Carrier ID is provisioned with an ASP R0.1 Trigger number (RTIDX form or RCV 10.3 field ASP TRIG NBR is populated)

When these conditions are satisfied and the dialed digits are not 8YY or 00Y, an ASP R0.1 Info Collected Query is launched. When these conditions are satisfied and the dialed digits are 8YY or 00Y, an SSP 800 query is launched.

2. FEATURE DESCRIPTION

When OFID 734 is active, and when the requirements for either Trunk Trigger for Toll or Carrier Routing/Call Processing By Facility Presence features are met, a INFO COLLECTED query is launched for ALL calls including 8YY and 00Y.

When OFID 734 is not active, and when the requirements for either Trunk Trigger for Toll or Carrier Routing/Call Processing By Facility Presence features are met, an SSP800 query is launched for 8YY and 00Y calls.

3. FEATURE ASSIGNMENT

The Trunk Trigger for Toll Enhancement is activated by setting the ACT field for OFID (Optioned Feature System ID) 734 on the FOSYS form (5713-2 Record) to "Y".

NOTE: This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs.

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

SEC. 4B735: INHIBIT TGC NPA DELETION ON REROUTE

1. FEATURE DESCRIPTION

The Inhibit TGC (Trunk Group Control) NPA (Numbering Plan Area) Deletion on Reroute feature is available as a 5E11, 5E12, 5E13 Software Update and with the 5E14 Software Release. The OFSID number for this feature is 735.

RR (Reroute) is a trunk group control currently available on the 5ESS Switch via an input command. If a RR control is placed in a trunk group, the percentage of calls specified by the DRPCT (Direct Route Percentage of Traffic to Control) for a direct route and ARPCT (Alternate Route Percentage of Traffic to Control) for an alternate route will route to the trunk group specified by the VIARR (An ordered list of one to seven trunk group numbers representing the out-of-chain trunk groups).

An example of the I/O command is:

set:rr, tg=438, dprct=100, aprct=0, viato=n, alg=rglr, viarr=455, dl=all, dltype=inc (For more information, see the

IMOM pages for set:rr)

If trunk group 438 is busy or out of service, the specified percentage of calls will reroute to trunk group 455. Currently, on the reroute attempt, the NPA of the original call, which is either obtained from the PREFIX DIGITS field on the RTIDX form (PREFIX DIG field on RCV 10.2) for the original RTI (Route Index) or the Far End NPA of the original trunk, is compared to the Far End NPA of the reroute trunk. If the two NPAs match, only 7 digits are outpulsed over the reroute trunk. If the two NPAs do not match, 10 digits are outpulsed over the reroute trunk. For example, suppose there was no prefixing or deleting from the original RTI and the Far End NPA of trunk group 438 is 816. If the Far End NPA of trunk group 455 is 816, then only 7 digits are outpulsed. If the Far End NPA of trunk group 455 is something other than 816, then 816-xxx-xxxx is outpulsed. Some switches are now expecting 10 digits and are deleting the 7 digit dialing plans. Calls that are affected by a Reroute trunk group control, may end up sending 7 digits when the far switch expects 10 digits. The result is that the rerouted calls fail. The solution was to add Software Option 735 - Inhibit TGC NPA Deletion. When this Software Option is NOT active, the switch will continue to work as it does today. With the Software Option 735 active, the switch will always send 10 digits on calls that are affected by a Reroute trunk group control. For 7 digit calls, the NPA will be prefixed. If 10 digits, the NPA will never be deleted.

2. FEATURE ASSIGNMENT

To enable this feature, the ACT field for OFSID 735 must be set to "Y" on the FOSYS form.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 735 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" which allows the ability to Inhibit TGC NPA Deletion on Reroute.

4. GLOSSARY

NPA	Numbering Plan Area
RR	Reroute
RTI	Route Index
TGC	Trunk Group Control

SEC. 4B736: INHIBIT FLASH ON E911 CALLS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4B737: CALL FORWARD DON'T ANSWER - RING CONTROL

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-103 Business and*

*Residence Feature Descriptions.***SEC. 4B738: 30-SECOND T310 TIMER FOR PRI****1. FEATURE DESCRIPTION**

The 30-Second T310 Timer for PRI uses OFID (Optioned Feature ID) 738. For terminating/outbound PRI calls, the 5ESS Switch transmits a Q.931 SETUP message. If a CALL PROCEEDING message is received as the first response, then Timer T310 is started and the call state transitions to the incoming call proceeding state. If no further response is received (ALERTING, PROGRESS, or CONNECT message) and Timer T310 expires, the call is released with a RELEASE message containing cause code value of 102 "recovery on timer expiration." OFID 738 makes the 30-second T310 timer an optionable change.

ISDN PRI timer T310 was hard coded as 30 seconds for international and 10 seconds for all other calls, but in 5E11(1) and later, the T310 was changed to 30 seconds for all calls. This was done because when the next switch sends an IAM (Initial Address Message), ISUP timer T7 is set waiting for an ACM (Address Complete Message) or ANS (Answer Message). The length of T7 is typically between 20 and 30 seconds. Thus, a PRI T310 timer could expire after 10 seconds and terminate the call.

After the T310 timer change was completed, some offices experienced ATO (Address Timeout) MDIIs that were previously not seen. The reason is that when a originating office calls over ISUP to a PRI terminator which has T310 as 30 seconds and the PRI does not receive the correct response within 20-30 seconds, the call is torn down and an ATO MDII occurs at the originating switch. If the PRI terminator had T310 as 10 seconds, the call would have been torn down after 10 seconds and no ATO MDII or other office index impacting output is seen in either office.

2. FEATURE ASSIGNMENT

The 30-Second T310 Timer for PRI feature is activated by setting the ACT field for OFID (Optioned Feature ID) 738 on the FOSYS form (5713-2 Record) to "Y".

With OFID 738:

active, PRI terminations always have T310 timer set as 30 seconds.

not active, PRI terminations have T310 timer set to 30 seconds for international and wireless APX (on Recent Change View 5.1, the APPLICATION field is either "INBLDG" or "IWF") calls and 10 seconds for all other calls.

- **NOTE:** This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFID 738 on the FOSYS form (5713-2 Record) must be "Y" to enable this feature.

SEC. 4B740: USE NPA TO GET NPD FROM ESCO

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll System Feature Document*.

SEC. 4B742: NPA AND NPD TRANSLATION TABLE FOR E911 CALLS

1. FEATURE DESCRIPTION

For detailed information on the NPA to NPD Translation Table for E911 Calls feature, see Division 2, Section 4A337.

SEC. 4B743: PRE-QUERY SCREENING FOR TYPE CI CALL TCONF

1. FEATURE DESCRIPTION

Available as a Software Update for 5E10 through 5E13 and generally available for 5E14 and later, Pre-Query Screening for Type CI CALL TCONF is a special feature controlled by OFID 743. When the ACT field for OFS ID 743 is set to "N" on the FOSYS form (5713-2 Record), pre-query screening (secured feature 152) is not done for TYP CI CALL TCONF. When the ACT field for OFS ID 743 is set to "Y" on the FOSYS form and ASP (Advanced Services Platform) 3/6/10 Digit Trigger Pre-Query Screening secure feature is active (the ACT field for SFID 152 is set to "Y" on the SFSYS form (5713-1 Record)), pre-query screening is done for TYPE CI CALL TCONF.

For more information, see the ASP (Advanced Services Platform) 3/6/10 Digit Trigger Pre-Query Screening secure feature in Division 2, Section 4A152.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. The ACT field for OFS ID 743 must be set to "Y" on the FOSYS form and ASP (Advanced Services Platform) 3/6/10 Digit Trigger Pre-Query Screening secured feature must be active (the ACT field for SFID 152 is set to "Y" on the SFSYS form (5713-1 Record)), for pre-query screening to be done for TYPE CI CALL TCONF.

SEC. 4B744: ASP TOLL FREE SERVICE INTERACTION WITH FLEXIBLE ANI FEATURES

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-127 Number Portability User's Guide*, or see Division 2, Section 4A528 of the TG-5 (Translation Guide - 5).

SEC. 4B745: ASP TOLL FREE SERVICE INTERACTION WITH FLEXIBLE ANI FEATURES

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-127 Number Portability User's Guide*, or see Division 2, Section 4A528 of the TG-5 (Translation Guide - 5).

SEC. 4B746: CALL FORWARD DON'T ANSWER DURING RINGBACK OF A CALL WAITING CALL

1. FEATURE DESCRIPTION

Available as a Software Update for 5E12, 5E13, 5E14 Software Releases and as BMI (Beginning Managed Introduction) for 5E15, the CFDA (Call Forward Don't Answer) During Ringback of a CW (Call Waiting) Call Option is controlled by OFS ID (Optional Feature System ID) 746.

Call Forward Don't Answer After Call Waiting does not forward a Call Waiting call if the terminating party goes onhook instead of answering the Call Waiting call.

This Option, when activated, will allow the Call Forward Don't Answer feature to forward an unanswered Call Waiting Call that is ringing back the subscriber. This interaction occurs when a subscriber has a Call Forward Don't Answer feature (i.e. /CFDAAC) and a Call Waiting Terminating feature (i.e. /CWT) and the CFDA AFTER CW option on the CFWMPA form (5614-4 Record) (1.22 Recent Change View) is set to "Y".

The following scenario assumes that the analog line has a Call Waiting Terminating feature (/CWT) and a Call Forward Don't Answer feature (/CFDAAC) with CFDA AFTER CW set to "Y".

Analog line A has /CWT and /CFDAAC, and is talking to Party B. Party C calls party A, and A receives Call Waiting tone. Party A hangs up without flashing to answer the call from C. Line A now starts ringing with the call from C. If Party A does not answer the ringing call, and the Call Forward Don't Answer During Ringback of a Call Waiting Option is ACTIVE, the call from Party C will Call Forward using the /CFDAAC feature when the CFDA timer has expired.

In the same scenario, if the Call Forward Don't Answer During Ringback of a Call Waiting Option is INACTIVE (the default case), the call from Party C continues to ring at Party A and will NOT forward.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) IDs for Special and Transparency Features. This feature is enabled by setting the ACT field for OFS ID 746 to "Y".

SEC. 4B747: ASP/LDP MODULE 21 220 RECORD ENHANCEMENT

1. FEATURE DESCRIPTION

The ASP/LDP (Advanced Services Platform/Long Distance Platform) Module 21 220 Record Enhancement feature is available with the 5E13 and later Software Releases. It is controlled by OFS ID (Optional Feature System ID) 747.

The purpose of this feature is to address two functionalities for LDP AMA (Automatic Message Accounting) recording involving an SCP (Service Control Point) transaction. The first change modifies the manner in which the IEC/INC (InterExchange Carrier/Incoming) Prefix field of the 710 (Originating Toll), 713 VPN (Virtual

Private Network), and 714 DAL (Dedicated Access Line) Call Type Records are populated for INTER and INTRA TYPE_CI Calls. The second change affects the creation of module 021 for the ASP 220 recording.

- **NOTE:** The capabilities provided by this OFID affects ONLY calls whose TYPE CI value is INTRA or INTER. This update does not change the rules for when ASP AMA records are produced. Normal rules apply for determining when ASP AMA records are generated. The SCP response message is expected to contain an AMAslpID parameter to get the expected results of this OFID. The AMAslpID parameter is provisionable on the SCP node.

2. FEATURE ASSIGNMENT

This feature is activated by setting the ACT field for OFID (Optional Feature System ID) 747 on the FOSYS form (5713-2 Record) to "Y".

AMA 710, 713, 714

When OFID 747 is active, the manner in which the AMA 710 Call Type IEC/INC Prefix field is populated for the INTER and INTRA TYPE CI call, and an SCP query is involved, changes as follows:

The IEC/INC Prefix field (table 57) of the Originating Toll AMA 710 Call type record is populated with the Carrier Identification Code in the following manner:

If the CIC (Carrier Identification Code) is included in the incoming signaling, then that CIC is recorded.

If the CIC is not included in the incoming signaling, the CIC that is populated on the incoming trunk group is recorded,

If the CIC is not populated on the incoming trunk group, then the CIC populated in the LDP CARRID field on the OFCOPT form (5509 Record) (RC/V (Recent Change/View) 8.1) is recorded for the 710 and 713 Call types. For 714 (DAL) Call Type, the CIC populated in the LDP CARRID field on the OFCOPT form or RC/V 8.1 is recorded.

When a SCP query is invoked the IEC/INC prefix field is still recorded as described above.

Module 021

When OFID 747 is active, module 021 is appended to the ASP 220 record under the following conditions:

The SCP returns an AMAslpID,

the call egresses the toll switch via a LATA (Local Access and Transport Area) or IC (Incoming) trunk group where LDP is set to "Y",

TERM BILL is set to "Y", and

OFID 747 is activated.

If serial triggers are invoked which results in multiple 220 records being generated, then module 021 is appended to only the last 220 record. Note, if the response in the last SCP transaction do not contain an AMAslpID then module 021 is not present in any of the ASP 220 AMA records.

When appended to the 220 records, module 021 populates the IEC/INC prefix field, table 57, as follows:

If a CIC is returned in the SCP response, then that CIC is recorded in the IEC/INC prefixed field. If values are returned in the Primary, Alternate, and Second_Alternate parameters of the SCP response message, the last CIC analyzed by call processing is recorded in the IEC/INC Prefix field.

If no CIC is returned in the SCP response, then the CIC included in the incoming signaling is recorded.

If no CIC is returned in the SCP response, and if the CIC is not included in the incoming signaling, then the CIC that is populated on the incoming trunk group (TKGRP form (5202 Record) or RC/V 5.1) is recorded. If RC/V 5.1 does not have a CIC populated for the incoming trunk group, then the Office CIC that is populated in the LDP Office Carrier Field on the OFCOPT form or RC/V 8.1 is recorded for the 710 and 713 call types. Or if TKGRP form or RC/V 5.1 does not have a CIC populated for the incoming trunk group, then the CIC that is populated in the LDP CARRID Field on the OFCOPT form or RC/V 8.1 is recorded for the 714 (DAL) Call Type.

The carrier connect date and time fields in module 021 is populated with the date and time the Toll 5ESS Switch recognized terminating trunk seizure for MF (Multi-Frequency) connections, or the time the IAM (Initial Access Message) is forwarded for SS7 (Signaling System 7) connections.

The Carrier Elapsed Time field (table 190) in module 021 contains the duration of the connection from Carrier Connect until circuit release.

2.1 Other important notes

The functionality provided by this OFID is for calls whose TYP CI CALL value on the LDIT form (5315 Record) or RC/V 9.25 is INTER or INTRA. If other TYP CI CALL values on this form/view (LDIT) are used with this OFID activated, i.e. OFID 747 is activated, then information recorded in the AMA can be misleading.

If an OHD (Off Hook Delay) trigger is invoked and a carrier is returned in the SCP response, but without returning an AMAslpID, the IEC/INC Prefix field in the 710 record will contain the carrier returned from the SCP instead of the original carrier.

If A DNT (Dialed Number Trigger) is invoked then the original carrier is recorded.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The OFID 747 must be set to "Y" to enable this feature.

SEC. 4B748: STANDARD PRI XMIT PROGRESS INSTEAD OF ALERTING WHEN INTERWORKING NON-ISDN

1. FEATURE DESCRIPTION

Available with a 5E13 and 5E14 Software Update, and 5E15 and later Software Release, the Standard PRI

(Primary Rate Interface) XMIT (Transmit) Progress Instead of Alerting when Interworking non-ISDN (Integrated Services Digital Network) is a Transparency Feature using OFS (Optioned Feature System) ID 748.

When OFID 748 is active, PRI originations over a Standard PRI (the PRIGRP form (5211 Record) or RCV (Recent Change View) 5.2 for the PRI group has PRI TYPE of "STD") which terminate intra-office to an analog line causes the 5ESS Switch to send a Q.931 PROGRESS message containing a progress indicator of 1, "Call is not end-to-end ISDN and/or further call progress information may be available in-band".

When OFID 748 is not active (default), PRI originations over a Standard PRI which terminate intra-office to an analog line causes the 5ESS Switch to send a Q.931 ALERTING message containing a progress indicator of 8, "In-band information or appropriate pattern now available".

Custom PRI (the TKGRP form (5202 Record) or RCV 5.1 for the PRI group has PRI TYPE of "CUSTOM") are not affected by the status of OFID 748.

2. FEATURE ASSIGNMENT

The Standard PRI transmit PROGRESS instead of ALERTING when interworking with non-ISDN line option is activated by setting the ACT field for OFID (Optioned Feature System ID) 748 on the FOSYS form (5713-2 Record) to "Y".

NOTE: This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs (Switching Modules).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31
TNTYP	5504	3	5D	8.6

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 518 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

TNTYP form (5504 Record) - This form is used to define "ROH", "REORDER", "HIGHTONE", and "BUSY" tones.

There are no new fields or new forms added for this feature

SEC. 4B749: SELECTIVE DESTINATION SCREENING FOR SOFTWARE DEFINED NETWORK

1. FEATURE DESCRIPTION

Available as a Software Update for 5E11 Software Release and as BMI (Beginning Managed Introduction) for 5E15, Selective Destination Screening for Software Defined Network is controlled by OFS ID (Optioned Feature System ID) 749.

ARS (Automatic Route Selection) does not allow SDS (Selective Destination Screening) to be used on calls that are marked as using SDN (Software Defined Network). This prevents the service provider from easily screening out unwanted calls from an SDN dialing plan.

The Selective Destination Screening feature forces the Software Defined Network indicator SELECT DEST SCRIN on the PNDP form (5608-10 Record) to be "N", even if the "previous" set of digits in the digit string on

the PNDP form has SELECT DEST SCRIN set to "Y". This means that SDS cannot be used to screen routes on SDN networks.

The following scenario assumes that the analog line has a Call Waiting Terminating feature (/CWT) and a Call Forward Don't Answer feature (/CFDAAC) with CFDA AFTER CW set to "Y".

OFS ID 749 provides the ability to use Selective Destination Screening on SDN calls. The SDN indicator, SELECT DEST SCRIN, is copied from the "previous" form, meaning that if digits 1201 are marked as SDN and digits 1201555 are marked as SDS, 1201555 is also marked as SDN.

In the same scenario, if the Call Forward Don't Answer During Ringback of a Call Waiting Option is INACTIVE (the default case), the call from Party C continues to ring at Party A and will NOT forward.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) IDs for Special and Transparency Features. This feature is enabled by setting the ACT field for OFS ID 749 to "Y".

SEC. 4B750: INCLUDE CSI IN IAM FOR ASP CALLS

1. BACKGROUND

The CSI (Carrier Selection Indicator) parameter is not normally included in the IAM (Initial Address Message) for an outgoing CCS7 (Common Channel Signaling, CCITT Version 7) carrier call if the call has encountered an ASP (Advanced Services Platform) trigger. This can cause the call to fail at the carrier if the carrier requires the CSI parameter to be included for all calls.

2. FEATURE DESCRIPTION

Available as a Software Update for 5E14 Software Release and as BMI (Beginning Managed Introduction) for 5E15, the Include CSI in IAM for ASP Calls feature is controlled by OFS ID (Optional Feature System ID) 750.

The Include CSI in IAM for ASP Calls feature provides the ability to include the CSI parameter in the IAM for ASP calls. The default operation will NOT include the CSI parameter for ASP calls. When the ACT field for OFS ID 750 is set to "Y" on the FOSYS form (5713-2 Record), this feature is enabled, and the CSI parameter will be included in the IAM for outgoing carrier calls that have encountered an ASP trigger.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) IDs for Special and Transparency Features. This feature is enabled by setting the ACT field for OFS ID 750 to "Y".

SEC. 4B788: RELEASE LINK FOR TOLL

1. FEATURE DESCRIPTION

For detailed information on the Release Link for Toll feature, see Division 2, Section 4A520.

SEC. 4B948: POPULATE CALL TYPE WITH ASP DEFAULT FOR CONTINUE WITH SLIP

1. BACKGROUND

Customers desired ASP (Advanced Services Platform) queries with a CONTINUE response which route intraLATA to get AMA (Automatic Message Accounting) call type of 47 (ASP default) instead of the charge index derived from digit analysis.

2. FEATURE DESCRIPTION

The Populate Call Type with ASP Default for Continue with SLIP feature uses OFID (Optioned Feature ID 948. This feature provides ASP queries with a CONTINUE response which route intraLATA to get an AMA call type of 47 (ASP default) instead of the charge index derived from digit analysis.

3. FEATURE ASSIGNMENT

The Populate Call Type with ASP Default for Continue with SLIP feature is activated by setting the ACT field for OFID (Optioned Feature ID) 948 on the FOSYS form (5713-2 Record) to "Y".

With OFID 948:

active, call scenarios in which the first ASP query receives a CONTINUE response and the call routes intraLATA (TYPE CI CALL of either INTRA or NONCI) generates an AMA record with call type 47 (ASP default).

not active, the same call scenario generates an AMA record with a call type associated with the digit analysis derived charge index.

NOTE: This feature is an OFFICE feature, and cannot be enabled or disabled on individual SMs.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Transparency Feature Optioning System) IDs for Special and Transparency Features. OFID 948 on the FOSYS form (5713-2 Record) must be set to "Y" to enable this feature.

SEC. 4B950: NP - DID PBX QUERY ENHANCEMENT

1. BACKGROUND

The NP - DID PBX Query Enhancement feature is available in the 5E13FR2 Software Release. This is an Office Optioned Feature with OFID (Office Optioned Feature System ID) number 950. The feature number is 99-5E-7168.

The NP (Number Portability) - DID (Direct Inward Dialed) PBX Query Enhancement feature addresses how

customers charge for NP TCAP (Transaction Capability Application Part) queries for calls to PBXs. NP TCAP queries are launched whenever the NPA-NXX of the called party DN has a NP trigger associated with it, the query had not been previously launched, and there are no translations associated with the DN (DNTRAN). For DID PBXs, a simple method of provisioning is to assign an HRI (Hundreds Group Route Index) against 100 consecutive DNs in a large PBX without building individual DNTRANS for each DN. The algorithm used to determine whether DNTRAN exists does not consider an HRI as being a DNTRAN; i.e., DNTRAN does not exist for the given DN. Because of the existing algorithm, all previously unqueried calls to a portable DID PBX DN without an individual DNTRAN but associated with an HRI will be queried.

2. FEATURE DESCRIPTION

The NP - DID PBX Query Enhancement feature

provides an office option controlled by OFID 950 that, when set, would prevent NP queries from being launched for portable DID PBX DN associated with an HRI.

When this OFID is not set (default), the existing NP functionality would be followed.

Typical Scenarios:

Existing (default) Functionality:

DN 630-220-0000 through DN 630-220-0099 are associated with a HRI on RC/V 4.14. 630-220 has the NP trigger associated with it.

1. Call originated to a DID PBX DN, 630-220-0001
2. Digit analysis
 - A. Encounters the NP trigger on 630-220.
 - B. Determines that DNTRAN doesn't exist.
 - C. 630-224-0001 has a HRI, and
 - D. Determines there was no previous NP query.
 - E. Launches a NP query.
3. The SCP returns a CONTINUE message indicating that the DN, 630-220-0001, has no LRN associated with it.
4. The querying switch continues Digit Analysis and routes the call via the HRI from RC/V 4.14.
5. Any AMA records associated with this call indicate that a query was launched, allowing the querying service provider to charge the originating network for the query.

NP - DID PBX Query Enhancement Functionality:

DN 630-220-0000 through DN 630-220-0099 are associated with a HRI on RC/V 4.14. 630-220 has the NP trigger associated with it. The OFID for NP - DID PBX Query Enhancement is set.

1. Call originated to a DID PBX DN, 630-220-0001.
2. Digit analysis
 - A. Encounters the NP trigger on 630-220.
 - B. Determines that DNTRAN doesn't exist.
 - C. 630-224-0001 has an HRI.
 - D. Determines there was no previous NP query.
 - E. Determines that the OFID for NP - DID PBX Query Enhancement is set, and
 - F. Does not launch a NP query.
3. The querying switch continues Digit Analysis and routes the call via the HRI from RC/V 4.14.

3. FEATURE ASSIGNMENT

The NP - DID PBX Query Enhancement feature is activated by setting the ACT field for OFID (Optioned Feature System ID) 950 on the FOSYS form (5713-2 Record) to "Y". This feature must be purchased before it can be activated.

NOTE: This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs.

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate this feature, the ACT field for OFID 950 must be set to "Y".

SEC. 4B951: PCN REQUEST HANDLING PARAMETER

1. BACKGROUND

The PCN (Privacy of Calling Name) Request Handling Parameter feature is available as a 5E14 Software Update and BMI for the 5E15 Software Release. This is an Office Optioned Feature with OFS ID (Office Optioned Feature System ID) number 951.

The CNAM-P (Calling Name for PRI) secured feature (SFID 220) is based on Bellcore GR-1367. (For more information concerning this feature, see Division 2, Section 4A220.) Originally, the requirement was to release the call with cause of "requested facility not subscribed" (#50) when:

the SFID 220 was active

a properly coded PCN (Privacy of Calling Name) request was received by the switch in a STANDARD FACILITY IE (Information Element) within a SETUP message

and the customer does not subscribe to PCN (PCN ALW = "N" on the TKGRP form (5202-1 Record)).

Since the first issue, GR-1367 has been modified to provide specified treatment based on the value of the Interpretation component of the PCN request in the STANDARD FACILITY IE. Option ID 951 allows the 5ESS Switch to operate according to the updated specification.

2. FEATURE DESCRIPTION

The PCN Request Handling Parameter feature will:

Provide an office option controlled by an OFS ID that, when set (activated), will modify the handling of a PCN request. When SFID 220 is active, a PCN request is received in a SETUP message, and PCN ALW is "N" on the TKGRP form (5202-1 Record), discard the Invoke component, log a PER (Protocol Error Record) indicating "unrecognized operation" (key=7076), and process as follows based on the Interpretation component:

- If an Interpretation component was not received, the switch shall return a FACILITY message with a Reject component containing an Invoke-problem tag and problem value of "unrecognized operation".
- If an Interpretation component was coded "Discard any Invoke component containing an unrecognized Operation Value", the switch shall NOT return a Reject component to the originating PRI.
- If an Interpretation component was received coded "Discard any Invoke component containing an unrecognized Operation Value and return a Reject component", the switch shall send a FACILITY message with a Reject component containing an Invoke-problem tag and a problem value of "unrecognized operation".
- If an Interpretation component was received coded "Clear call if any Invoke component contains an unrecognized Operation Value", the switch shall initiate call clearing and return a Reject component containing an Invoke-problem tag and a problem value of "unrecognized operation" to the originating PRI in the call clearing message (e.g. RELEASE, RELEASE COMPLETE, or DISCONNECT). The switch shall code the call clearing message with cause value #31 "normal unspecified", and a location of "public network serving the local user".

When this OFS ID is not set (default) the existing PCN functionality would be followed. When SFID 220 is active, a PCN request is received in a SETUP message, and PCN ALW is "N" on the TKGRP form (5202-1 Record), the switch will clear the call and include a cause value of #50 "requested facility not subscribed" and a cause location of "public network serving the local user".

Sites which do not have CNAM-P active (SFID 220 no set) may want to activate Option ID 951 prior to activating CNAM-P. This will prevent individual PRI customers from experiencing loss of originating calls service if they include a PCN request within incoming Q.931 SETUP message and do not subscribe to PCN service (PCN ALW = "N" on the TKGRP form (5202-1 Record)).

Sites which currently have CNAM-P active (SFID 220 set) may want to activate Option ID 951. This will prevent individual PRI customers from experiencing loss of originating calls service if they activate the PCN feature within the PBX and begin sending a PCN request within incoming Q.931 SETUP message but do not subscribe to PCN service (PCN ALW = "N" on the TKGRP form (5202-1 Record)).

3. FEATURE ASSIGNMENT

The The PCN Request Handling Parameter feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 951 on the FOSYS form (5713-2 Record) to "Y".

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS IDs for Special and Transparency Features. To activate this feature, the ACT field for OFS ID 951 must be set to "Y".

SEC. 4B954: EASY ACCESS TO VOICE MAIL

1. FEATURE DESCRIPTION

For detailed information on the Easy Access to Voice Mail feature, see Division 2, Section 4A540.

SEC. 4B955: 1000 Block Number Pooling Using Number Portability

1. FEATURE DESCRIPTION

Available with 5E14 and later Software Releases, the 1000 Block Number Pooling Using Number Portability feature builds upon the existing 5ESS Switch implementation of the Number Portability feature. Besides requiring OFID 955 to be turned on, this feature also requires the activation of SFID 530. For further details on this feature, please refer to Division 2 Section 4A530.

2. TRANSLATION REQUIREMENTS

Refer to Division 2 Section 4A530 for detailed translation requirements information.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate this feature, the ACT field for OFID 955 must be set to "Y". When suppression of the ported out restriction is desired, then the ACT field for OFID 956 must be "Y".

SFSYS form (5713-1 Record) - This form is used to administer SFIDs for Special and Transparency Features. To provision data for this feature, the ACT field for SFID 530 must be "Y". Refer to Division 2, Section 4A530 for further Translation Requirements.

SEC. 4B956: 1000 Block Number Pooling Using Number Portability

1. FEATURE DESCRIPTION

Available with 5E14 and later Software Releases, the 1000 Block Number Pooling Using Number Portability feature builds upon the existing 5ESS Switch implementation of the Number Portability feature. OFID 956 is provided to allow the ability of overriding the ported out setting on an individual TN, a hundreds block or a thousands block. When PORTED OUT is "Y" the TN, or TNs in the associated block, are not allowed to be

assigned by this office. Activating OFID 956 removes this restriction and allows assignment of TNs regardless of the PORTED OUT value. For further details on this feature, please refer to Division 2 Section 4B955 and Division 2 Section 4A530.

2. TRANSLATION REQUIREMENTS

Refer to Division 2 Section 4A530 for detailed translation requirements information.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31
SFSYS	5713-1	3	5AR	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate the ability to override the ported out setting, the ACT field for OFID 956 must be set to "Y".

SFSYS form (5713-1 Record) - This form is used to administer SFIDs for Special and Transparency Features. To provision data for this feature, the ACT field for SFID 530 must be "Y". Refer to Division 2, Section 4A530 for further Translation Requirements.

SEC. 4B970: DA CUSTOM BRANDING BY ACCOUNT OWNER

1. FEATURE DESCRIPTION

For detailed information on the DA Custom Branding By Account Owner feature, see Division 2, Section 4A543.

SEC. 4B971: AUDIBLE CALLING NAME ON *69 (AUTOMATIC CALLBACK)

1. FEATURE DESCRIPTION

For detailed information on the Audible Calling Name on *69 (Automatic Callback) feature, see Division 2, Section 4A549.

SEC. 4B972: ALLOW SCP DAL CARRIER COMPARE

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-110 Long Distance Platform*.

SEC. 4B973: ASP MONITOR FOR BRI AND MULTILINE HUNT GROUP

1. FEATURE DESCRIPTION

For detailed information on the ASP Monitor for BRI (Basic Rate Interface) and MLHG (MultiLine Hunt Group) feature, see Division 2, Section 4A563.

SEC. 4B974: COMMERCIAL CREDIT CARD ALTERNATE ACCESS METHODS

1. FEATURE DESCRIPTION

For detailed information on the Commercial Credit Card Alternate Access Methods feature, see Division 2, Section 4A568.

SEC. 4B975: PSAP (Public Safety Answering Point) Trunk Reports OOS BLKD When Originator Hangs Up Before PSAP

1. FEATURE DESCRIPTION

OFID 975 was added for 5E13 and later Software Releases and controls whether the switch times for 10 seconds before taking the PSAP trunk OOS BLKD. When the ACT field for OFID 975 is set to "N" on the FOSYS form (Record 5713-2), the PSAP trunk idles and goes OOS BLKD immediately after the originator disconnects. When the ACT field for OFID 975 is set to "Y" on the FOSYS form, the switch will wait for on hook from the PSAP trunk for 10 seconds when originator disconnects. If the PSAP trunk goes on hook within 10 seconds, the PSAP trunk will immediately idle, avoiding the OOS BLKD printouts. If PSAP trunk stays off hook for more than 10 seconds, the trunk will idle and go OOS BLKD.

SEC. 4B976: TALKING CALL WAITING

1. FEATURE DESCRIPTION

For detailed information on the Talking Call Waiting feature, see Division 2, Section 4A331.

SEC. 4B977: DA AUTOMATIC POSITION RELEASE

1. FEATURE DESCRIPTION

For detailed information on the DA Automatic Position Release feature, see Division 2, Section 4A559.

SEC. 4B978: GETS EGRESS QUEUING AND OFFICE QUEUING

1. BACKGROUND

One capability provided by the GETS (Government Emergency Telecommunications Service) HPC (High Probability of Completion) feature is the GETS TG (Trunk Group) Queue. GETS TG queues are individual queues which can be assigned to outgoing public trunk groups. These queues are transparent to non-GETS calls, but allow a GETS call to queue for a trunk when all members of the trunk group are unavailable.

Existing GETS TG queues must be individually assigned to trunk groups. As such, the switch-owner must identify trunks for which a GETS TG queue is appropriate, and perform the necessary Recent Change operations to assign the queue to the trunk group. These GETS TG queues may be assigned only to public facility trunk groups, and are not assignable to PF (Private Facility) trunks or PRIs (Primary Rate Interfaces).

2. FEATURE DESCRIPTION

The GETS Egress Queuing and Office Queuing feature is being deployed as a 5E15 Feature Release 3 Software Update. The feature number for this feature is 99-5E-7321. This feature is an enhancement to the GETS High Probability of Completion feature (99-5E-3945) that was deployed in the 5E13 Software Release. For more information on this base feature, see Division 2, Section 4A279.

This feature provides two enhancements to existing GETS capabilities (controlled by OFIDs (Office Feature System IDs) 978 and OFID 979):

GETS Office Queuing (OFID 979)

- Allows the user the ability to use a switch-wide GETS Office Queuing Resource for public trunk groups. When the Office Queuing Resource is provisioned, any GETS call which is unable to hunt an idle member of an outgoing public trunk group will queue for the trunk group in the Queuing Resource if the trunk group does not have a GETS queue assigned to it.
- This capability also provides office-wide GETS queuing without having to specifically identify and provision individual trunk groups with GETS queues.

GETS Egress Queuing (OFID 978)

- This functionality allows the use of the switch-wide GETS Egress Queuing Resource for PF (Private Facility) trunk groups and PRIs (Primary Rate Interfaces). This resource is similar to that described above for use when a GETS call is hunting a public trunk group, and it operates identically. It applies when a GETS call is attempting to terminate to a PF trunk group or PRI and is unable to hunt an idle trunk member.
- This capability also provides GETS queue coverage, on an office-wide basis, for calls attempting to terminate to a private facility. It provides a better probability of completion to a GETS call which has fought its way across a congested or damaged network so that it does not necessarily die if the outgoing PF/PRI trunk group has no idle member.

3. FEATURE ASSIGNMENT

3.1 Provisioning at a high level:

- Activate the feature by setting the ACT fields for OFIDs 978 and 979 to "Y" on the FOSYS form (5713-2 Record).
- On the QUGPA form (5617 Record):
 - Set GROUP NUMBER to 0.
 - Set GROUP TYPE to "TRK".
 - QUEUE MODULE and FEATURE NAME are required fields.
 - Set or leave blank the following optional fields:
 - OFC Q NUM TRK GRPS
 - EGR Q NUM TRK GRPS
 - OFC Q TIMEOUT
 - EGR Q TIMEOUT
 - OFC Q SIZE
 - EGR Q SIZE

3.2 GETS HPC versus GETS EQ/OQ Provisioning Differences

The GETS HPC and the GETS EQ/OQ queuing capabilities are provisioned differently. This is based on the different design and operational philosophies between the two features. As described above in the background information section, GETS HPC assigns queuing to specific trunk groups, whereas GETS EQ/OQ assigns queuing on an office-wide basis, and not to specific trunk groups.

RCV (Recent Change View) 5.1 (ODA form TKGRP)

- When assigning queuing to specific trunk groups for GETS HPC, the RCV 5.1 fields of "QUEUE ALLOWED" and "NQUEUE ACT" are set to "Y" and the "Q FEATURE" field is assigned the appropriate value.
- When assigning queuing to specific trunk groups for GETS HPC, the RCV 5.1 fields of "QUEUE ALLOWED" and "ENQUEUE ACT" are set to "Y" and the "Q FEATURE" field is assigned the appropriate value. When assigning queuing on an office-wide basis for GETS EQ/OQ, RCV 5.1 will, under most cases, not need to be provisioned. With office-wide queuing, the basic assumption is all office trunk groups are available for use. (NOTE: trunk groups must have the correct class of service. This is why specific trunk groups do not have to be provisioned for use by the feature. A new field entitled "INH EGR OFC Q" has been added which enables the user to exclude specific trunk groups from being entitled for GETS EQ/OQ. When this field is set to "N" (default), the trunk group can be entitled for either GETS EQ or OQ. When the field is set to "Y", the trunk group will not be entitled for either GETS EQ or OQ. The user only needs to exclude those trunk groups they do not want considered for use by GETS EQ/OQ. Otherwise, all trunk groups (with the correct class of service) will be considered by default. The "QUEUE ALLOWED" and "ENQUEUE ACT" are set to "N", which is the reverse of GETS HPC, and the "Q FEATURE" field is not assigned since the queuing feature is not assigned to the trunk group. (SEE NOTE UNDER PROCEDURE A FOR MORE INFO.)
- In addition to the above mentioned 5.1 fields, the trunk group must have the correct class of service for either EQ or OQ to be performed. Private Facility Egress Queuing can be performed on a GETS call terminating to a PF/PRI trunk with any of the following classes of service: PBXDID, PF, PFLASH, PFITT, EDSL, or EDSLHM. Office Queuing for Public Trunks can be performed on a GETS call attempting to egress the switch over a trunk group with any of the following classes of service: IC, LTOLLCON, TTOLLCON, or LATA. The user should ensure there are sufficient trunk groups in the office with the respective classes of service for both Egress Queuing and Office Queuing.
- A final note concerning the use of trunk groups for the two features. A trunk group can not be used for both GETS HPC and GETS EQ/OQ. It can only be used for one or the other. It is possible to provision a trunk group so it appears to qualify for use by both GETS EQ/OQ and another queuing feature, like GETS HPC. In reality, there is an order of precedence.

If a trunk group is provisioned for a specific queuing feature (GETS HPC), the trunk group can also be provisioned for GETS EQ/OQ by setting "INH EGR OFC Q" to "N". (The default value for this field is "N", so unless the user changed it to "Y" nothing needs to be done.) However, as mentioned above, the trunk group cannot be used for both GETS EQ/OQ and another queuing feature. The specifically provisioned queuing feature will always take precedence in this situation, and

consequently, the trunk group will never be used for GETS EQ/OQ. So, for clarity's sake, and ease of understanding, it is recommended when assigning queuing to the trunk group for GETS HPC or any other queuing feature, "INH EGR OFC Q" should always be set to "Y", implying its use is inhibited or disallowed for both EQ or OQ.

- As stated three paragraphs above, the only way to assign a trunk group for GETS EQ/OQ is for all the queuing-specific fields ("QUEUE ALLOWED", "ENQUEUE ACT") to be set to "N", which also includes "Q FEATURE" be blank. Then, with the office-wide queuing field set to "N" (default) which allows office-wide queuing, the trunk group will be considered for use by GETS EQ/OQ, only, and not for any other queuing feature. If the user does not want a particular trunk group available for use on an office-wide basis, even though it is not assigned for other types of queuing, the user should set this field to "Y".

RCVs 3.40 and 7.12 (ODA form QUGPA)

- Provisioning RCV 3.40 and 7.12 for the new GETS EQ/OQ feature is different than its predecessor, GETS HPC. GETS HPC assigns queuing to the trunk group, and there is a 1-to-1 relationship between a trunk group's RCV 5.1 entry and its 3.40/7.12 (modular queuing parameters) entry. Since GETS EQ/OQ employs an office-wide queuing mechanism, queuing is not assigned to the trunk group. This operational philosophy breaks the convention of the 1-to-1 relationship between a trunk group entry and a modular queuing parameter entry. Instead, the GETS EQ/OQ feature does not have to be defined for any trunk group, and only a single modular queuing parameter entry (GRPNUM = 0, GRPTYPE = "TRK") needs to be defined. Specifically, GETS EQ/OQ requires the following fields: GRPNUM = 0, GRPTYPE = "TRK", Q MODULE = user_specified, and the respective queuing data parameters for EQ and OQ, found in fields the queuing fields of screen 4 (user_specified means user will have to enter the appropriate value).

When inserting the single modular queuing parameter entry, default values are initially provided for the queuing data parameters in the Queuing fields of screen 4. (See PROCEDURE C for a list of default values.) If the user wants to specify different values than the default values presented on the view, they need to overwrite the default values with their chosen user_specified value. (See PROCEDURE C for the range of acceptable values. Also, read the NOTES under PROCEDURE C for more guidelines/restrictions concerning population of the queuing data parameters.)

GETS EQ/OQ Feature Activation/Deactivation (RCV 8.31)

When activating the GETS EQ/OQ feature, a specific, orderly, sequence of steps should be followed. This sequential order of steps will help the user maintain a consistent relationship between queuing data entered on the view, and the state (on/off) of the feature capability (EQ or OQ). More precisely, whenever GETS EQ or OQ are activated with their corresponding OFIDs using RC 8.31 (GETS EQ - 978, GETS OQ - 979), their respective queuing data fields on screen 4 of either RC 3.40 or 7.12 should already have been populated with valid data. For example, if the user wants to activate OQ, they should first assign values to queuing data fields (OFC Q NUM TRK GRPS, OFC Q TIMEOUT, and OFC Q SIZE) on RC 3.40/7.12, or enter the default values presented on the view. Next they should activate the OQ OFID, number 979, on RC 8.31. An identical process should be followed to activate EQ. The user should first assign values to queuing data fields (EGR Q NUM TRK GRPS, EGR Q TIMEOUT, and EGR Q SIZE), or enter the default values presented on the view, followed by turning on the EQ OFID, number 978.

NOTE: The situation to avoid is having the feature capability activated by turning on the OFID "without" having the appropriate feature capability queuing data already setup. The

user wants to first setup the feature capability queuing data, and then activate the feature.

When deactivating the GETS EQ/OQ feature, a similar sequence of steps should be followed, but in reverse. As stated above, this sequential order of steps will again help the user to maintain a consistent relationship between data entered on the view and the state (on/off) of the feature capability. Whenever GETS EQ or OQ is deactivated, the first step should be to turn off the respective OFID using RC 8.31. Next, the feature capability's respective queuing data fields on screen 4 of either RC 3.40 or 7.12, should be returned to a null value or blank. For example, if EQ is to be deactivated, the EQ OFID, number 978, should be turned off using RC 8.31, followed by setting queuing data fields (EGR Q NUM TRK GRPS, EGR Q TIMEOUT, and EGR Q SIZE) to a null value or blank using RC 3.40/7.12. Likewise for OQ, the OQ OFID, number 979, should be turned off, followed by setting queuing data fields (OFC Q NUM TRK GRPS, OFC Q TIMEOUT, and OFC Q SIZE) to null or blank. Retaining this sequence of steps will help maintain the 1-to-1 relationship between queuing data entered on RC 3.40 or 7.12 and the state (on/off) of the feature capability (EQ or OQ).

• **NOTE:** NOTE: The situation to avoid is setting a feature capability's queuing data fields to blank "without" having deactivated the feature capability first. The user wants to first deactivate the feature capability by turning off the corresponding OFID, and then initialize the queuing data fields for that feature capability.

▲ **WARNING:** WARNING: The user should never try to deactivate a feature capability (EQ or OQ) by setting its respective queuing data fields to zero, null, or blank. The aforementioned process should always be used. First turn off the OFID, which deactivates the feature capability, and then initialize its queuing data fields.

Miscellaneous

- GETS EQ/OQ can be deployed in the disabled state for 7R/E 5ESS operation, which requires no action. The default is the disabled state. To enable or disable this feature, select from one of the detailed procedures G through H, given below. To verify the current status of a feature, use Procedure I below.

• **NOTE:** GETS EQ/OQ IS BUILT UPON THE "GETS HPC" FEATURE, FEATURE NUMBER 99-5E-3945. UNDER MOST FIELD SITUATIONS, "GETS HPC" WILL BE PROVISIONED WITHIN THE SWITCH FIRST AND ITS SECURED FEATURE ID NUMBER (SFID), 279, ACTIVATED. GETS EQ/OQ WILL THEN BE PROVISIONED ON TOP OF IT, AND ACTIVATED WITH OFID 978 (EQ) AND/OR OFID 979 (OQ).

PROCEDURE A - ENABLING OR ALLOWING A TRUNK GROUP TO BE USED FOR EQ/OQ

• **NOTE:** All trunk groups will be defaulted to the correct states for GETS EQ/OQ to execute. Therefore, the user doesn't really have to provision RCV 5.1 since all trunk groups, by default, will be considered for use. "QUEUE ALLOWED", "ENQUEUE ACT", and "INH EGR OFC Q" will all default to "N", and "Q FEATURE" will default to blank, which qualifies the trunk group for GETS EQ/OQ. If queuing is not specifically assigned to the trunk group, it will be considered for use by GETS EQ/OQ.

- There are only two conditions under which a trunk group will not be considered for use by GETS EQ/OQ. One, it is already provisioned to be used by a different queuing feature. In this case, "QUEUE ALLOWED", "ENQUEUE ACT", and "INH EGR OFC Q" will be set to "Y". "Q FEATURE"

will also be assigned an appropriate queuing feature value. The second condition is where the trunk group is not being used for a different queuing feature, and the user does not want it used for GETS EQ/OQ. In this case, only "INH EGR OFC Q" will be set to "Y". Under both conditions, the trunk group does not qualify for use for GETS EQ/OQ.

- Under normal conditions, where trunk groups default for use for GETS EQ/OQ, and the user does not want the trunk group used, they should simply set "INH EGR OFC Q" to "Y". This will probably be the most common use of RCV 5.1 for this feature. See PROCEDURE B below. Otherwise, if the user wants to change the use of the trunk group from GETS EQ/OQ to a different queuing feature, they will need to set "QUEUE ALLOWED", "ENQUEUE ACT", and "INH EGR OFC Q" to "Y", and assign the appropriate queuing feature to the "Q FEATURE" field.

1. Select RCV 5.1 in 5E15 and later

2. Enter "U" for update mode.

3. Enter the following input data:

- TGN (key field)

4. The following fields will be defaulted to "N". If the user wants to provision a trunk group which was previously provisioned for a different queuing feature, these fields will have to be set to "N".

QUEUE ALLOWED
ENQUEUE ACT
INH EGR OFC Q

5. The following field will be defaulted to "blank". If the user wants to provision a trunk group which was previously provisioned for a different queuing feature, this field will have to be blank.

Q FEATURE

6. If provisioning for EQ, make sure the following field is set to one of the following:

"PBXDID", "PF", "PFLASH", "PFITT", "EDSL", or "EDSLHM"

7. If provisioning for OQ, make sure the following field is set to one of the following:

"IC", "LTOLLCON", "TTOLLCON", or "LATA"

8. Enter "U" to update the form.

PROCEDURE B - INHIBITING OR DISALLOWING A TRUNK GROUP TO BE USED FOR EQ/OQ

1. Select RCV 5.1 in 5E15 and later.

2. Enter "U" for update mode.

3. Enter the following input data:
TGN (field 1)
4. Change the following field to "Y".
INH EGR OFC Q
5. If inhibiting for EQ, make sure the following field is set to one of the following:
"PBXDID", "PF", "PFLASH", "PFITT", "EDSL", or "EDSLHM"
6. If inhibiting for OQ, make sure the following field is set to one of the following:
"IC", "LTOLLCON", "TTOLLCON", or "LATA"
7. Enter "U" to update the form.

PROCEDURE C - INSERTING MODULAR QUEUING PARAMETERS FOR THE GETS EQ/OQ FEATURE

1. Select either RCV 3.40 or 7.12 in 5E15 and later.
2. Enter "I" ' for insert mode.
3. Enter the following input data. These fields pre-exist GETS EQ/OQ.

GRPNUM = 0
GRPTYPE = TRK

■ **NOTE:** Recommended Q Module SM type is SM-2000.

Q MODULE = (SM number, 1 - 192)

4. Enter the following input data. These fields are new for GETS EQ/OQ.

■ **NOTE:** These fields can only be entered when GRPNUM = 0. The following equation is presented to help guide the user in provisioning an allowable number of queue cell resources for the feature. The upper limits stated, 255 for a classic, and 4000 for SM-2000, are the maximum number of queue cell resources allowable, assuming there are NO other queuing features with queue cell resources already allocated within the SM. If queue cells resources have already been provisioned for other queuing features, then the maximum limits will be correspondingly less by the number of queue cell resources provisioned for those queuing features.

$(\text{OFC Q NUM TRK GRPS} * \text{OFC Q SIZE}) + (\text{EGR Q NUM TRK GRPS} * \text{EGR Q SIZE})$
must not exceed 255 for a classic SM, or 4000 for SM2000.

■ **NOTE:** User can provision either EQ or OQ individually, or both at the same time. To

not provision EQ, set the queuing field (EGR Q NUM TRK GRPS, EGR Q TIMEOUT, and EGR Q SIZE) to "blank". To not provision OQ, set the queuing field (OFC Q NUM TRK GRPS, OFC Q TIMEOUT, and OFC Q SIZE) to "blank".

OFC Q NUM TRK GRPS - classic SM : 0-255, SM2000 : 0 - 500; default for classic SM is 25, SM2000 is 127

EGR Q NUM TRK GRPS - classic SM : 0-255, SM2000 : 0 - 500; default for classic SM is 25, SM2000 is 127

OFC Q TIMEOUT = 0 - 90; default is 15

EGR Q TIMEOUT = 0 - 90; default is 30

OFC Q SIZE = 0 - 255; default is 5

EGR Q SIZE = 0 - 255; default is 5

5. If Queue Announcement is desired, enter the following input data:

DELAY ANNOUNCEMENTS

TYPE = NBARGE

CYCLES = 0 to 4

ANNPORT = Trunk equipment number

PRIORITY ANNOUNCEMENTS

TYPE = NBARGE

CYCLES = 0 to 4

ANNPORT = Trunk equipment number

6. Enter "I" to insert the form.

PROCEDURE D - UPDATING MODULAR QUEUING PARAMETERS FOR THE GETS EQ/OQ FEATURE

1. Select either RCV 3.40 or 7.12 in 5E15 and later.
2. Enter "U" for update mode.
3. Enter the following input data.

GRPNUM = 0

GRPTYPE = TRK

4. Update the following input data.

➤ **NOTE:** The following maximum limit must be applied when provisioning the next six fields:

$(\text{OFC Q NUM TRK GRPS} * \text{OFC Q SIZE}) + (\text{EGR Q NUM TRK GRPS} * \text{EGR Q SIZE})$
must not exceed 255 for a classic SM, or 4000 for SM2000.

➤ **NOTE:** User can provision either EQ or OQ individually, or both at the same time. To not provision EQ, set the queuing fields (EGR Q NUM TRK GRPS, EGR Q TIMEOUT, and EGR Q SIZE) to "blank". To not provision OQ, set the queuing (OFC Q NUM TRK GRPS, OFC Q TIMEOUT, and OFC Q SIZE) to "blank".

- ▶ **NOTE:** The user cannot update EGR/OFC Q SIZE or EGR/OFC Q TIMEOUT if GETS EQ/OQ calls are queued. Also, the user cannot update EGR/OFC Q NUM TRK GRPS to a number than is less than the number with active calls.

OFC Q NUM TRK GRPS = classic SM : 0-255, SM2000 : 0 - 500; default for classic SM is 25, SM2000 is 127
 EGR Q NUM TRK GRPS = classic SM : 0-255, SM2000 : 0 - 500; default for classic SM is 25, SM2000 is 127
 OFC Q TIMEOUT = 0 - 90; default is 15
 EGR Q TIMEOUT = 0 - 90; default is 30
 OFC Q SIZE = 0 - 255; default is 5
 EGR Q SIZE = 0 - 255; default is 5
 Q MODULE = (SM number, 1 - 192)
 DELAY ANNOUNCEMENTS
 TYPE = NBARGE
 CYCLES = 0 to 4
 ANNPOR = Trunk equipment number
 PRIORITY ANNOUNCEMENTS
 TYPE = NBARGE
 CYCLES = 0 to 4
 ANNPORT = Trunk equipment number

5. Enter "U" to update the form.

PROCEDURE E - VERIFY MODULAR QUEUING PARAMETERS FOR THE GETS EQ/OQ FEATURE

1. Select either RCV 3.40 or 7.12 in 5E15 and later.
2. Enter "U" for update mode.
3. Enter the following input data.

GRPNUM = 0
 GRPTYPE = TRK

4. Review the fields which should be set correctly for EQ/OQ. The following possible fields could have values for GETS EQ/OQ. Their acceptable values are listed above under INSERT and UPDATE. Review the fields which should be set correctly for EQ/OQ. The following possible fields could have values for GETS EQ/OQ. Their acceptable values are listed above under INSERT and UPDATE.

Q MODULE
 DELAY ANNOUNCEMENTS
 PRIORITY ANNOUNCEMENTS
 OFC Q NUM TRK GRPS
 EGR Q NUM TRK GRPS
 OFC Q TIMEOUT
 EGR Q TIMEOUT
 OFC Q SIZE
 EGR Q SIZE

PROCEDURE F - TO DELETE MODULAR QUEUING PARAMETERS FOR THE GETS EQ/OQ FEATURE

1. Select either RCV 3.40 or 7.12 in 5E15 and later.
2. Enter "D" for delete mode.
3. Enter the following input data.

■ **NOTE:** The user cannot remove queue data and its associated memory while GETS EQ/OQ queuing is being performed. Also, if the user wants to deactivate the GETS EQ/OQ feature capabilities, they should follow the steps outlined under "GETS EQ/OQ Feature."

Activation/Deactivation Order

GRPNUM = 0
GRPTYPE = TRK

4. Enter "D" to delete the form.

PROCEDURE G - TO ENABLE (TURN ON) AN OPTION FEATURE ID (OFID) IN ALL OPERATIONAL SMs:

1. Select RCV 8.31 in 5E15 and later.
2. Enter "U" for update mode
3. Enter the following input data:

FEATURE IDs 978 for Egress Queuing, & 979 for Office Queuing
MODULE = OFC
ACTIVE = Y
Leave all remaining fields blank.
4. Enter "U" to update the form.

PROCEDURE H - TO DISABLE (TURN OFF) AN OPTION FEATURE ID (OFID) IN ALL

1. Select RCV 8.31 in 5E15 and later.
2. Enter "U" for update mode
3. Enter the following input data:

FEATURE IDs 978 for Egress Queuing, & 979 for Office Queuing
MODULE = OFC
ACTIVE = N
Leave all remaining fields blank.

4. Enter "U" to update the form.

PROCEDURE I - TO VERIFY FEATURE STATUS IN ALL OPERATIONAL SMs:

1. Select RCV 8.31 in 5E15 and later.
2. Enter "R" for review mode
3. Enter the following input data:

OPTION FEATURE ID 978 for EQ, & 979 for OQ
MODULE = OFC

4. If field 3 (ACTIVE) is equal to "Y", then the feature capability is enabled in the Office. Otherwise, if ACTIVE is equal to "N", the the feature capability is disabled.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
QUGPA	5617	4	18B	3.40
TKGRP	5202	3	2A	5.1

FOSYS form (5713-2 Record) - This form is used to administer TFOS (Transparency Feature Optioning System) bits for Special and Transparency Features. For 5E9(1) and later, these TFOS IDs (Transparency Feature IDs) are called OFS IDs (Optioned Feature System IDs). Transparency Features have been developed to replicate features that exist on the 1A ESS Switch. To activate this feature set the ACT fields for OFID 978 and 979 to "Y".

QUGPA form (5617 Record) - This FORM defines the Modular Queuing parameters for a group if the default parameters associated with the Modular Queuing feature on the QUFD form (5617-1 Record) are inappropriate or unspecified. Added the OFC Q NUM TRK GRPS, EGR Q NUM TRK GRPS, OFC Q TIMEOUT, EGR Q TIMEOUT, OFC Q SIZE, and the EGR Q SIZE fields and associated data rules.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). Added the INH GETS OFC Q field and associated data rules.

SEC. 4B979: GETS EGRESS QUEUING AND OFFICE QUEUING

1. FEATURE DESCRIPTION

The GETS (Government Emergency Telecommunications Service) Egress Queuing and Office Queuing feature (99-5E-7321) is being documented in Division 2, Section 4B978.

SEC. 4B980: CARRIER COMPARE FOR VPN

1. FEATURE DESCRIPTION

The Carrier Compare for VPN (Virtual Private Network) is an Office Optioned Feature with OFS ID (Office Optioned Feature System ID) number 980 and is available with 5E14 FR6, 5E15 FR2, and 5E16 BMI (Beginning Managed Introduction) and later Software Releases. The feature number for this feature is 99-5E-7800.

This feature enhances the process of routing calls out of an LDP (Long Distance Platform) Switch. The "carrier compare" process examines the CIC (Carrier Identification Code) returned by the AIN (Advanced Intelligent Network) SCP (Service Control Point) query and attempts to match it against the carriers provisioned on either the LDP Carrier Table form (5562 Record) or the LDP office default on the Office Parameters form (5509 Record). It is not necessary that a carrier be returned from the SCP in order to perform the carrier compare operation. If no carrier is returned from the SCP, the pre-query carrier will be used to perform the carrier compare. Note that the carrier compare enhancement only applies to "EDSL" and "EDSLHM" trunk classes.

When the CIC matches one of the carriers on either the 5562 or 5509 records, "digit routing" of the call is performed according to the CalledPartyDN.

When the returned CIC does not match one of the carriers on either the 5562 or 5509 records, then carrier routing is performed, that is, routing is based on the CARRIER ID populated on the Carrier Administration form (5305 Record).

In order to activate this feature, a new office secured feature is introduced:

OFID 980: Carrier Compare for VPN

In addition, the following Secured Features must also be set to "Y" on the SFSYS form (5713-1 Record):

SFID 165: Basic LDP Call Processing

SFID 242: Basic VPN LDP Support

2. TRANSLATION REQUIREMENTS

After the above Secured Feature IDs have been activated, the feature is activated and the following forms provide the necessary data for call processing.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-21	3	5AS	8.31
ICF	5305	3	3R	10.3
LPDCTBL	5562	3	5BF	8.52
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.31

ICF form (5305 Record) - This form is used to define the characteristics of Inter-LATA (Local Access Transport Area) and Intra-LATA carriers.

LPDCTBL form (5908 Record) - This form provides an LDP Carrier Table and Default Carrier Table. The LDP Carrier Table applies to callers who used a carrier not shown in the ANI table or did not require ANI table processing and used a carrier that was not the home carrier ID. The default LDP Carrier Table applies to callers who used a carrier to which they have not subscribed or did not require ANI table processing and used

a carrier that was not entered in the LDP carrier table.

OFCOPT form (5509 Record) - This form is used to define various miscellaneous office options and parameters and is required at the time of initial translations for all offices.

FOSYS form (5713-2 Record) - This form is used to administer OFS IDs for Special and Transparency Features. To activate this feature for any or all SMs, the ACT field for OFS ID 980 must be set to "Y".

SEC. 4B981: NM 3 DIGIT REROUTE

1. FEATURE DESCRIPTION

Available with a 5E14 and 5E15 Software Updates, and 5E16(1) and later Software Releases, the NM (Network Management) 3 Digit Reroute feature is a Transparency Feature using OFS (Optional Feature System) ID 981.

Reroute is a NM trunk group control currently available on the 5ESS Switch. If a Reroute control is placed on a trunk group, the percentage of calls specified by the DRPCT (Direct Route Percentage) for a direct route and ARPCT (Alternate Route Percentage) for an alternate route routes to the trunk group specified by the VIARR (Via Alternate Reroute). An example of the I/O command is:

```
SET:RR,TG=438,DRPCT=100,ARPCT=0,VIATO=n,ALG=RGLR,VIARR=455,DL=ALL,DLTYPE=INC;
```

For the above example, if trunk group 438 is busy or out of service, for all dialed digits of length 7 or 10, 100% of direct calls and 0% of calls routed to this trunk group via an alternate RTI (Route Index) reroutes to trunk group 455 via a regular hunting algorithm.

Prior to this feature, NM would only attempt to reroute if the rerouted number is 7 or 10 digits. This feature was added to allow three digit numbers, e.g., 911.

With the Software Option 981 active, NM attempts to reroute 3 digit, as well as 7, and 10 digit calls.

When this Software Option is NOT active, the switch continues to work as it did previously. Reroute will only occur for 7 and 10 digits calls.

2. FEATURE ASSIGNMENT

There are no new fields or new forms added for this feature.

- NOTE:** This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs (Switching Modules).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 981 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B983: INHIBIT NO CIRCUIT PEG COUNTS ON FINAL ROUTE TYPE OF BUSY

1. BACKGROUND

Currently, when routing a call via a route index and the last route index in the chain is reached, NOCKT (no circuit) will be pegged. If the call is line originated, ORIGINAT and OUTGOING NOCKT will be pegged. If the call is trunk originated, INCOMING, TANDEM, and OUTGOING NO CKT will be pegged. Since "privately" owned trunk groups to end customers are sized by purchase agreement with that end customer, office personnel cannot increase the size of the trunk group to prevent pegging of NOCKT. When NOCKT is being pegged in an office, the office personnel cannot determine if the cause is a private or public trunk group. Therefore, the NOCKT count does not accurately reflect the health of an office. Therefore, no circuit peg counts, which appear on the Traffic 30 report Section 5, Call-Type Information, and the Plant 24 Part 1B, should not include counts when a "privately" owned trunk group overflows. Therefore, no circuit peg counts.

2. FEATURE DESCRIPTION

The Inhibit No Circuit Peg Counts on Final Route Type of Busy feature is controlled by OFID 983:

When the ACT field for OFID 983 is set to "Y" on the FOSYS form (5713-2 Record) this feature is active and prevents pegging no circuit counts when the final route type is busy treatment for route indexes pointing to ANY trunk group, public or private.

When the ACT field for OFID 983 is set to "N" on the FOSYS form, this feature is not active and the existing no circuit functionality is followed.

When OFID 983 is active, the feature will prevent NOCKT from being pegged for a private trunk group if the route type of the of the final route index in the chain is BUSY. If the final route index is either REORDER or HUNT to an announcement trunk, NOCKT will continue to be pegged. Conversely, the feature will allow NOCKT to be pegged for a public trunk if the final route index of the route index chain is either REORDER or HUNT to an announcement trunk. If the final route index is BUSY for the public trunk, NOCKT will not be pegged.

3. FEATURE ASSIGNMENT

The Inhibit No Circuit Peg Counts on Final Route Type of Busy feature is activated by setting the ACT field for OFID (Optional Feature System ID) 983 on the FOSYS form (5713-2 Record) to "Y".

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate this feature, the ACT field for OFID 983 must be set to "Y".

SEC. 4B984: NPA SPLIT ENHANCEMENT

1. FEATURE DESCRIPTION

The NPA Split Enhancement feature is an enhancement to the Announcement on Detection of NPA Split feature. The NPA Split Enhancement feature is also dependent on the secured feature, NPA Split Enhancement feature which is controlled by Secured Feature ID 347. The Lucent Technologies feature

number for NPA Split Enhancement is 99-5E-7999. The NPA Split Enhancement feature is used in conjunction with the Announcement on Detection of NPA Split feature to provide announcement on an Overlay in the office's dialing plan. On Overlay DN's where 7 digit numbers encounter Number Portability processing (i.e. LNP trigger populated or a ported in NXX) and have NPA SPLIT ANNC marked as "Y" on RC View 9.3 receive a message as follows:

"The call you are making is a local ten digit call. Next time please dial the area code before the seven digit number you are calling. Your call will now be completed. This is a recording".

After the announcement is played, the call is routed to its final destination. This special announcement is generated every time a DN involved in an overlay is dialed by a customer.

While OFS ID 347 is active, all 10 digit numbers which encounter LNP triggers do not play the NPA Split Enhancement announcement.

For additional information on this feature refer to the Lucent Technology document number *235-190-115 Local and Toll Systems Features*.

2. FEATURE ASSIGNMENT

On the LDIT form (5300-3 Record) (RC View 9.3):

The field NPA SPLIT ANNC must be set to "Y" for an announcement to be applied to this dialing sequence.

For 7 digit dialing sequences (NXX-XXXX), the existing Implied NPA field does not need to be populated as specified by Announcement on Detection of NPA Split feature.

All 10 digit dialing sequences (oldNPA or oldNPA-NXX) populate the new NPA on the NPANXX form (5580 Record) (RC View 8.33) to be used in the NPA Split Announcement.

On the ANNHD form (5580 Record) (RC View 8.61):

For the header ID related to the NPA_SP application, remove the phrase which contains the variable NPA phrase. This field is not used in the NPA Split Enhancement announcement.

On the FOSYS form (5713-2 Record) (RC View 8.31):

The ACT field for OFS ID 984 (NPA Split Enhancement) needs to be activated or set to "Y".

3. FEATURE INTERACTIONS

The NPA Split Enhancement feature alters the functionality of the Announcement on Detection of NPA Split feature to allow interaction with 7 digit LNP (Local Number Portability) DN's.

4. LIMITATIONS

Any 7 or 10 digit dialing sequence that encounters Advanced Services Platform (ASP) triggers do not invoke an NPA Split Announcement.

Because of the high penetration rate of this feature, SMs cannot handle this feature without significantly

reducing the capacity of the switch. Therefore, this feature is recommended for offices which are configured with SMs (Switch Modules) of type SM-2000.

5. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate this feature, the ACT field for OFS ID 984 must be set to "Y".

SEC. 4B985: LEA TPKT INHIBIT

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-200-400 Lawfully Authorized Electronic Surveillance Provisioning, Troubleshooting, and Maintenance*.

SEC. 4B986: USE ORIGINATORS SCREEN INDEX FOR ANI II DIGITS

1. FEATURE DESCRIPTION

For information on this feature refer to the Lucent Technology document number *235-190-126 Advanced Services Platform, Release 0.1B*.

SEC. 4B988: ENHANCEMENT FOR STAND-ALONE ROUTING FOR INTERNATIONAL

1. BACKGROUND

For 5E9(1) and later, Local SM (Switching Module) and Remote Sites can reroute up to 500 emergency TNs (Telephone Numbers) as follows:

A Remote Site or Local SM can reroute emergency calls when operating in the Stand-Alone call processing mode.

Telephone Numbers not directly assigned to the Remote Site or Local SM when dialed by a subscriber served by the Remote Site or Local SM, are rerouted to a local Telephone Number or Trunk Group served by the Remote Site or Local SM.

A local TN or Trunk Group is assigned to an equipment number (LEN (Line Equipment Number), SLEN (Slc 96 Line Equipment Number) or LCEN (Line Card Equipment Number)) on the Remote Site.

Stand-alone routing emergency TN reroute is administered via RC/V (Recent Change) 4.9/EMRNM form (5108 Record). The key EMER TN (Emergency Telephone Number) that is not served by the Remote Site or Local SM, and that is rerouted to either the local ALT TN (Alternate Telephone Number) or to an Outgoing Trunk Group when the Switching Module is in Stand-Alone mode can be of several forms:

A single digit is usually zero, used for zero minus calls.

A three-digit number might be a service type number such as 911.

If a three-digit number is to be rerouted in emergency Stand-Alone mode, the CONV form (5300-4 Record) or RC/V 9.4 must be checked to see if that three-digit number is being code converted.

If it is code converted, enter the CONV TN, not the three-digit number, in this field.

Seven- or ten-digit numbers of the type NXX-XXXX or NPA-NXX-XXXX may be also entered in this field.

Although International numbers may also be entered with either a 01 or 011 prefix, call processing will not reroute international calls.

Refer to Division 3, Section 1H (5108 Record): EMERGENCY TN (REMOTE SITE/LOCAL SM) ASSIGNMENT RECORD for complete details on feature operation.

2. FEATURE DESCRIPTION

The Enhancement for Stand-Alone Routing for International feature is available with the 5E14 and later Software Releases. It is controlled by OFS ID (Optioned Feature System ID) 988.

This feature allows the switch owner to provision stand-alone routing specifically for international calls in an SM equipped with the Stand Alone option. This routing can send international traffic to different trunk groups than NAR (North American Region) traffic when in stand-alone.

3. FEATURE ASSIGNMENT

This feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 988 to "Y", on the FOSYS form (5713-2 Record).

When the feature is INACTIVE, the Stand Alone Routing software does not use the 01 and 011 dialed prefixes to determine if any Emergency Routes have been provisioned via the CONV EMRNM form (5108 Record) or RC/V 4.9 (EMERGENCY TN RC View/form). The 01 and 011 prefixes can be used on this form/view even when the Option ID is INACTIVE, but call processing does not use the data for prefixes 01 and 011 until the Option ID is activated.

When this feature is ACTIVE, the Stand Alone Routing software uses the 01 and 011 dialed prefixes to determine if any Emergency Routes have been provisioned using the EMRNM form or RC/V 4.9.

NOTE: This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The ACT field for OFS ID 988 must be set to "Y" to enable this feature.

SEC. 4B989: ALTERNATE ASP ALGORITHM USED TO DELETE AN NPA

1. FEATURE DESCRIPTION

Available with a 5E14 and 5E15 Software Update, and 5E16(1) and later Software Release, the Alternate ASP (Advanced Services Platform) Algorithm Used to Delete an NPA (Numbering Plan Area) feature is a Transparency Feature using OFS (Optioned Feature System) ID 989.

When the ASP Selective NPA Deletion feature (SFID 239) is active, and the SCP (Service Control Point) returns a ten-digit CalledPartyID, an attempt to delete the NPA is always made regardless of the global office field (INH SCP NPA DEL on the EQIM form/RCV 8.1). Deleting the NPA is performed using the NPA Deletion Algorithm. Office Option ID (OFID) 989 controls which algorithm is performed.

2. FEATURE ASSIGNMENT

With OFID 989 active and SFID 239 active, for a ten-digit number returned from the SCP in the CalledParty ID, the following checks are made:

Does the NPA of the ten-digit number match the NPA specified in the IMPLD NPA field of the OFCOPT form (5509 Record).

Does the NPA of the ten-digit number match the NPA specified on either the NONE or 1+ IMPLIED NPAS entry on the LDIT form for the NXX. For example, the CalledPartyID field contains "7089715767". If the NPA was not deleted by step 1 of this list, then LDIT "971" entry is read, and if the NONE or 1+ IMPLIED NPAS field entry is "708", then "708" is stripped from the ten-digit number and seven digits are presented to digit analysis.

When any one of these conditions are met, the NPA Deletion Algorithm deletes the NPA and seven digits are the result.

When OFID 989 is not active, and SFID 239 is active, a ten-digit number returned from the SCP in the CalledParty ID, the following checks are made:

Does the NPA of the ten-digit number match the NPA specified in the IMPLD NPA field of the OFCOPT form.

The NPA of the ten-digit number matches the NPA specified on either the NONE or 1+ IMPLIED NPAS entry on the LDIT form (5300 Record) for the NXX. For example, the CalledPartyID field contains "7089715767". If the NPA was not deleted by step 1 of this list, then LDIT "971" entry is read and if the NONE or 1+ IMPLIED NPAS field entry is "708", then "708" is stripped from the ten-digit number and seven digits are presented to digit analysis.

The NONE or 1+ IMPLIED NPAS entry on the LDIT form for the NXX digits of the ten-digit number specify AMB (Ambiguity) and the NPA of the ten-digit number matches the NPA of the originator. For example, the CalledPartyID Digits field contains "7089715767". If the NPA was not deleted by step 1 or 2 of this list, and if either the NONE or 1+ IMPLIED NPAS field entry for the LDIT "971" digits is defined as "AMB", then "708" is compared to the NPA digits of the ASP trigger originator, and if a match is detected, "708" is stripped from the ten-digit number.

When any one of these conditions are met, the NPA Deletion Algorithm deletes the NPA and seven digits are the result.

Please refer to Division 2, Section 4A239 or 235-190-126 "Advanced Services Platform, Release 0.1B" for additional information on ASP NPA deletion.

OFID 989 does not affect the algorithm used for NPA deletion when SFID 239 is not active. When SFID 239 is not active and INH SCP NPA DEL is "N", a deletion algorithm is used. When SFID 239 is not active and INH SCP NPA DEL is "Y", no NPA deletion is performed under any conditions.

There are no new fields or new forms added for this feature

NOTE: This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMS (Switching Modules).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 989 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B990: 256K TRUNK SCALING FOR LARGE CAPACITY TANDEM

1. FEATURE DESCRIPTION

The feature number for the 256K Trunk Scaling for Large Capacity Tandem feature is 99-5E-4788. It is available with the 5E16(2) and later Software Releases. This is not a secured feature, but it is dependent upon the CNI/PSU (Common Network Interface/Packet Switching Unit) Support for 128k ISUP (ISDN (Integrated Services Digital Network) User Part) Trunks feature (99-5E-8110) which is controlled by SFID 622 with no associated RTU (Right To Use) fee. For information on this feature see Division 2, Section 4A622.

In addition to a direct dependency on 99-5E-8110 (SFID 622), this feature may also require any/all of the following features for proper implementation and/or support:

99-5E-4104 (NXTMS CM3; (see Division 2, Section 7BO)

99-5E-7894 (Increased DCI Throughput); (see Division 2, Section 1CJ)

99-5E-7851 (Increased Disk Space for AMADNS) ; (see Division 2, Section 4A610).

99-5E-7451 (SAAL High Speed Signaling Data Links; see Division 2, Section 7BB).

The need for the other features is dependent upon how many trunk terminations are desired.

An underlying need for this feature is support for double precision, 32 bit trunk data collection. This underlying need is satisfied by an existing feature, Trunk Group Register Expansion, 99-5E-7780 (SFID 596). Therefore, SFID 596 is also assumed to be active. For information on this feature, see Division 2, Section 4A596.

Prior to features 99-5E-8110 and 99-5E-4788, the 5ESS Switch supported up to 100K ISUP trunk terminations, independent of the signaling platform used.

This feature is part of the LCT (Large Capacity Tandem) solution which significantly increases the total number of ISUP trunk DS0 (Digital Signal, Level 0) terminations, as well as BHCA (Busy Hour Call Attempts).

When deploying this feature, the switch may be configured as a combination circuit/packet tandem, or as an all-circuit tandem.

The LCT solution does not require any new hardware units, but does introduce office-based software scaling to accommodate the increase in trunk terminations. This scaling is largely transparent to the end-user.

Per-Trunk Group, per-SM (Switching Module), and per-hardware unit trunk capacities are not impacted and do not change as a result of this feature.

No ISUP Trunk Group or BICC (Bearer Independent Call Control) Group engineering criteria are modified by this feature.

1.1 Application

This feature applies to 5ESS Switches that support SS7 (Signaling System 7) ISUP signaling using a GSM (Global Switching Module)/ SS7 PSU (Packet Switching Unit), and a CM3 (Communications Module 3).

This feature does not apply to CDX (Compact Digital Exchange), VCDX (Very Compact Digital Exchange), or DRM (Distant Reliable Module) Switch configurations, nor does it provide trunk capacity expansion for any 5ESS Switch that uses only CNI-based SS7 signaling.

In order to realize the maximum number of trunk terminations per office (i.e., 256K), some design constraints must be applied.

- Trunks must be provisioned on up to 23 SM-2000s equipped with a DNU-S (Digital Network Unit - Sonet) or OIU (Optical Interface Unit) trunk interface,

- SM-2000 TSIs (Time Slot Interchangers) must use "non-square engineering" (i.e., peripheral timeslots greater than network timeslots),

- CM3 must be NxTMS (N times Time-Multiplexed Switching) (where N= 3 or 4), and lastly,

- SS7 PSU must have HS-SDLs (High Speed Signaling Data Links) for SS7 signaling (when only one primary OPC (Originating Point Code) exists for the office).

Deviation from these design constraints results in a lesser trunk capacity.

1.2 Measurements (99-5E-4788.M)

The Measurements portion of this feature is controlled by OFS (Optioned Feature System) ID 990 and is also made available with the 5E16(2) and later Software Releases.

An underlying need for this feature is support for double precision, 32 bit trunk data collection. This underlying need is satisfied by an existing feature, Trunk Group Register Expansion, 99-5E-7780 (SFID 596). Therefore, SFID 596 is also assumed to be active. For information on this feature, see Division 2, Section 4A596.

This feature uses a new traffic data collection section, Traffic 30 Report, Section 183 (PSUCHAN). This section is controlled by OFID 990.

When OFS ID 990 is enabled, Section 183 may be allowed for collection using existing traffic data collection procedures.

When Traffic 30 Report, Section 183 is allowed, it replaces data formerly collected in Section 193. Enabling

OFS ID 990 automatically inhibits Section 193, and permits the switch owner to allow collection of Section 183. If OFS ID 990 is disabled, then Section 183 can not be allowed.

2. FEATURE ASSIGNMENT

Provisioning for this feature is as follows:

Activate the Measurements option by setting the ACT field for OFS ID 990 to "Y" on the FOSYS form (5713-2 Record).

3. TRANSLATION REQUIREMENTS

These are the forms that were impacted by this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31
MEASSUM	5563	3	5BG	13.9
SFSYS	5713-1	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate the Measurements functionality of this feature, the ACT field for OFS ID 990 must be set to "Y".

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Also removed all occurrences of the PSUCHAND value.

SEC. 4B992: BYPASS SUBSET OF CROSSCHECKS DURING RCV 10.10 SCREENING DELETE

1. FEATURE DESCRIPTION

Available with a 5E14 and 5E15 Software Update, and 5E16(1) and later Software Release, the Bypass Subset of Crosschecks during RCV (Recent Change View) 10.10 Screening Delete feature is a Transparency Feature using OFS (Optioned Feature System) ID 992.

When deleting RCV 10.10 [SCREENING (CHARGING)], the SCR (Screen Index) being deleted is checked if it is being used for any other views/features. Some sites have encountered long delays and DB (Database) transaction timeout errors while deleting RCV 10.10. This makes administration of this view very complicated if not impossible. This option ID was created to allow several lengthy checks during the RCV 10.10 delete operation to be bypassed, making the form delete much faster and to eliminate DB transaction timeout errors on this view.

2. FEATURE ASSIGNMENT

With OFID 992 active, while deleting RCV 10.10 (SCREENING), the Screen Index will not be checked if it is in use on the followings forms/RCV screens:

SCRIDX form (5543 Record); RCV 8.24 (SCREENING INDEX PARAMETER ASSIGNMENT)

OFCOPT form (5509 Record); RCV 8.1 (OFFICE PARAMETERS) field TCW SCR (Talking Call Waiting)

ACDTN form (5631 Record); RCV 6.10 (ACD AND DAA TN ASSIGNMENT)

With OFID 992 not active, all the standard checks during RCV 10.10 (SCREENING) will be performed.

Because some checks are bypassed, after a RCV 10.10 deletion with OFID 992 active, calls using a screen index which had the RAR (Rate and Route) deleted, generates a Manual Action Assert mnemonic RTSCRNING from RTscreen.c and the call will be sent a reorder tone. Manual action will be required to determine and modify the view (either 8.24, 8.1, or 6.10) which is using the deleted screen index.

There are no new fields or new forms added for this feature

- **NOTE:** This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMS (Switching Modules).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 992 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B994: CANADIAN 15-DIGIT INTERNATIONAL DIRECT DISTANCE DIALED

1. FEATURE DESCRIPTION

Available with a 5E13, 5E14, and 5E15 Software Update, and 5E16(1) and later Software Release, the Canadian 15-Digit International Direct Distance Dialed feature is a Transparency Feature using OFS (Optional Feature System) ID 994.

Sites that use traditional signaling (non Feature Group D) for IDDD (International Direct Distance Dialed) calls may have IDDD calls fail. Changes in the Canadian 15-digit IDDD feature (99-5E-7089) resulted in the SS7 (Signaling System 7) Initial Address Message's nature of address of the called party number being coded to "international" or "international operator" based on the call type being "IDDDSTST" or "IDDDTSPS".

2. FEATURE ASSIGNMENT

When OFID 994 is active on the the FOSYS form (5713-2 Record); RC (Recent Change) view 8.31, traditional signaled IDDD calls are coded with a "National" Nature of Address.

When OFID 994 is not active, the Nature of Address is set according to the call type. In addition, when the OFID 994 is not active international operator assisted calls which are processed by OSPA will be coded as "international" Nature of Address even though they were operator assisted.

This feature is intended for use in the North American Numbering Plan Area (World Zone 1) where equal access signaling is not used, e.g., Canada. It also could be used in the Dominican Republic and the Bahamas.

There are no new fields or new forms added for this feature

- **NOTE:** This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMS (Switching Modules).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 994 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B996: PRECEDENCE AND PREEMPTION TERMINATING FEATURE SELECTION ENHANCEMENT

1. FEATURE DESCRIPTION

Available with a 5E15 Software Update, and 5E16(2) and later Software Release, the Precedence and Preemption Terminating Feature Selection Enhancement feature is a Transparency Feature using OFS (Optional Feature System) ID 996.

On the ODA form PPLPA (5618 Record, the FWD IAGP PREC field, or RCV (Recent Change View) 1.31 (Precedence and Preemption Line Parameters), the FWDPREC field, these forms/views are used for Forward Intragroup Precedence. When Forward Intragroup Precedence is active (Y), an intragroup precedence call to an idle line that is not answered, this call will be forwarded to the number associated with PP (Precedence and Preemption) CFDA (Call Forwarding Don't Answer) feature of the terminating line. But for calls placed to a busy line which has the FWDCOND field on the CFWFD form (5614-1 Record) or RCV 12.12 set to "PBSY", the call will not forward and a busy tone is given.

This feature enhancement allows the call to get precedence busy call forwarding treatment. This means that for a call of equal or lower precedence, the call will forward. For a call of higher precedence, the call will preempt.

2. FEATURE ASSIGNMENT

An example of a precedence call from a line with Forward Intragroup Precedence active to a busy line with precedence call forwarding busy would be:

Line A has the FWDPREC field set to "Y" on the CWDFFD form or RCV 1.31. Line B has a call forwarding feature with FWDCOND set to "PBSY", Line B is active on a priority call.

With OFID 996 off:

If line A makes any precedence level call to line B, line A gets busy.

With OFID 996 on:

If line A places a priority or routine call to line B, line A call forwards.

If line A places an immediate, flash or flash override call to line B, line A preempts line B.

There are no new fields or new forms added for this feature.

NOTE: This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs (Switching Modules).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 996 must have field ACT on the FOSYS (5713-2 Record) form set to "Y" to activate this feature for the office.

SEC. 4B997: DELETE NETWORK IDENTITY DIGITS ON PRI PLI IE

1. FEATURE DESCRIPTION

The Delete Network Identity Digits on PRI (Primary Rate Interface) PLI (Precedence Level Indication) IE (Information Element) feature is available with the 5E15 and later Software Releases. It is controlled by OFS ID (Optioned Feature System ID) 997. The feature number for this feature is 99-5E-2336.

The MLPP (Multi-Level Precedence and Preemption) on PRI feature provided the ability for the 5ESS Switch to send and receive a PLI IE in a Q.931 SETUP message. Originally, a 7 octet PLI IE was used which did not include the NI (Network Identity) digits. Bellcore T1.619 was modified to include a 2 octet NI parameter in the PLI. This feature enhancement gives the option to send a 9 octet PRI PLI IE with the Network Identity digits.

2. FEATURE ASSIGNMENT

With this feature, Delete the Network Identity digits in PRI PLI IE, is activated by OFS ID (Optional Feature ID) 997 on the FOSYS form (5713-2 Record) by setting the ACT field to "Y".

With OFS ID 997 off (default): A 9 octet PRI PLI IE with Network Identity digits which meets the standards is sent and received in the Q.931 SETUP message.

With OFS ID 997 on: A 7 octet PRI PLI IE without the Network Identity digits is sent and received in the Q.931 SETUP message.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The ACT field for OFS ID 997 must be set to "Y" to enable this feature.

SEC. 4B999: DNIS ENHANCEMENT FOR CANADA - PARTS 1 - 3

1. BACKGROUND

This feature provides an LDP (Long Distance Platform) Switch with the capability to deliver the originally dialed number information on calls that terminate to a PBX (Private Branch Exchange) or similar CPE (Customer Premise Equipment).

DNIS provides a way to distinguish between multiple numbers that terminate at the same PBX/CPE. The need for this service arises when telephone agents in a central location must field calls for multiple customers, each with a distinct 8XX number. The agents must be able to recognize the original dialed number in order to determine the customer for whom the call is intended.

The original dialed number is transported from the originating LDP Switch via the SS7 (Signaling System 7) GAP (Generic Address Parameter) with Type of Address = "0000000" (DIALED NUMBER 0) to the terminating switch and outpulsed to a PBX/CPE. Because the original dialed number is transported in an SS7 parameter, interswitch trunks must be ISUP7 (Integrated Services User Part 7) trunks. In Canada, the primary carrier codes is the Dialed Number GAP with a Type Of Address = "11111101" or 253 (TRANSFER NUMBER 1). Thus, using the DNIS feature in the Canadian market is difficult.

2. FEATURE DESCRIPTION

The DNIS (Dialed Number Identification Service) Enhancement for Canada feature is being released with the 5E15 FR 5 (Feature Release 5) and later Software Releases. This feature has three parts which are controlled by OFS (Optional Feature System) IDs 999, 1000, and 1001. The feature number for this feature is 99-5E-8357.

2.1 Part 1

When OFID 999 is active, on incoming ISUP calls, treat a Generic Address Parameter (GAP) Type of Address value h'FD = 253 (Transfer Number 1) just as you do a Type of Address value of 0 (Dialed Number). This means the dialed digit information from an incoming IAM (Incoming Address Message) with GAP type of address of either 00 or 253 on an incoming LDP trunk is saved and passed onto an end user trunk group with DNIS USER set to "Yes" or sent over outgoing CCS7 LDP trunk in a dialed number GAP.

When the option ID is not active, current operations will be followed. Incoming IAM with a GAP type of Address 00 is saved on an LDP trunk and sent to a DNIS user or over another LDP trunk. Incoming IAM with Type of Address 253 is saved/sent to a DNIS user, but will be passed transparently over outgoing CCS7 trunk.

Secured feature 271 (DNIS) must be active in the office to take advantage of option ID 1000.

2.2 Part 2

When OFID 1000 is active, for all outgoing ISUP calls in the office, if a Dialed DN GAP will be included in the IAM (e.g. dialed DN is present, outgoing trunk is LDP), the Type of Address of the GAP will be coded as h'FD = 253 (Transfer Number 1).

When the OFID 1000 is not active, the GAP Type of Address of a dialed number GAP will be coded as 00 (Dialed Number).

Secured feature 271 (DNIS) must be active in the office to take advantage of option ID 1000.

OFID 1000 (DNIS Enhancement for Canada - Part 2) should ONLY be activated in an office in the Canadian region which connect to other offices that expect DNIS to be passed using GAP Type of Address 253 (TRANSFER NUMBER 1).

2.3 Part 3

When OFID 1001 is active, an incoming IAM with a Dialed Number GAP can be received on non-LDP and LDP trunks. Also, an outgoing IAM with a Dialed Number GAP can be included on both non-LDP and LDP trunks.

When OFID 1001 is active, it does not modify the operation of a Dialed Number query. For the originally dialed number to be saved, the incoming trunk must be LDP and the ASP DNT/SDS trigger must have DNIS=Y on the RCV 9.35 Trigger Definition view.

When OFID 1001 is not active, existing operation will be followed. Received IAM with dialed number GAP will be saved to be passed onto a DNIS USER=Y trunk if the incoming trunk is marked LDP=Y or MINT SIG TYPE is not NULL and SFID 271 (Dialed Number Identification Service) is active. When dialed number information is available, the dialed number GAP will be included in the outgoing IAM when outgoing trunk is marked LDP=Y or MINT SIG TYPE is not NULL and SFID 271 is active. When SFID 271 is not active, the received GAP will be passed transparently from incoming CCS7 trunk to outgoing CCS7 trunk.

Secured feature 271 (DNIS) must be active in the office to take advantage of option ID 1001.

Due to possible interactions, OFID 1001 (DNIS Enhancement for Canada - Part 3) should not be active in offices with the following types of traffic:

Offices which have SFID 298 [Wireless 911] active

AT&T Toll offices (offices with trunks marked CCS7 TYPE TOLL on RCV 5.1)

Offices which have SFID 218 [LN (Local Nodal) EO (End Office)] active

3. FEATURE ASSIGNMENT

The DNIS Enhancement for Canada - Part 1 is activated by setting the ACT field for OFID (Optioned Feature System ID) 999 (Part 1), 1000 (Part 2), and 1001 (part 3) on the FOSYS form (5713-2 Record) to "Y".

NOTE: This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs.

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

SEC. 4B1000: DNIS ENHANCEMENT FOR CANADA - PART 2

For information on this feature, see Division 2, Section 4A999.

SEC. 4B1001: DNIS ENHANCEMENT FOR CANADA - PART 3

For information on this feature, see Division 2, Section 4A999.

SEC. 4B1003: PRI CBC WITH BLANK/ZERO SFG SCREEN INDEX

1. BACKGROUND

SFG (Simulated Facility Group) is defined via RCV 7.3 (PFASFG form - Simulated Facility Groups). For SFG TYPE of 2WESSX, EDSL, EON, HM, M800, MEGACOM, OESSX, OUTWATS, SCOCs, and SDN, field SCRn IDX can be populated. For SFG TYPE OUTWATS, M800, MAGACOM, HM, and SCOCs, SCRn IDX must be populated with a value between 1 and 4095. For SFG TYPE of 2WESSX, EDSL, EON, OESSX, and SDN, SCRn index may be between 1 to 4095 or 0 for no data. When the field is 0, it is used by call processing for routing and charging of calls. Thus, the call completes according to the RCV 10.10 (RAR form - Rate and

Route form) for SCR of 0 and the call fails with assert 23365 if the RCV 10.10 does not exist for SCR N IDX of 0. Specifically, the PRI CBC (Call-By-Call) feature allows an SFG to be associated with a given call type. The number of simultaneous calls of a particular type can then be limited by the SFG size.

The SFG is defined via RCV 7.3 SFG TYPE of EDSL. It has been found to be desirable to have a SCR N IDX of 0 for EDSL so that cases where the screen index is changed by an ASP query to the POST QRY SCR N IDX defined in RCV 9.35 (NSTRIG form - NETWORK SERVICES TRIGGER DEFINITION), the call's screen index will not be overwritten by the SFG SCR N IDX. However, the current operation of the switch causes the existing screen index to be changed to 0.

With this feature active and PRI CBC SFG SCR N IDX of 0, the call will complete using the previously defined screen index. With OPTION ID (OFID) 1003 active, when a call encounters an SFG which has SFG TYPE of either 2WESSX, EDSL, EON, SSX, or SDN and has SFG SCR N IDX of 0, the call will complete using the existing screen index. With OPTION ID (OFID) 1003 deactivated, when a call encounters an SFG which has SFG TYPE of either 2WESSX, EDSL, EON, OESSX, or SDN and has SFG SCR N IDX of 0, the call will attempt to complete using screen index of 0.

2. FEATURE DESCRIPTION

Available with the 5E14(1), and 5E15(1), 5E16(1), 5E16(2) 5ESS Switch Software Releases, the PRI CBC with Blank/Zero SFG Screen Index feature is controlled by OFID 1003.

The PRI CBC with Blank/Zero SFG Screen Index feature provides an office option controlled by an OFID that, when set (activated), will check the SFG SCR N IDX in mgRT_FAIL message. If it is non-zero, it will overwrite the original screen index with it. If this OFID is not set (default), the SFG SCR N IDX is not checked, the original screen index is overwritten with it directly. Sites which do not have this fix active (OFID 1003 not set) may want to activate OFID 1003. This will prevent individual PRI customers from experiencing loss of originating calls service. Sites which currently have this fix active (OFID 1003 set) may want to activate OFID 1003. This will prevent individual PRI customers from experiencing loss of originating calls service.

3. FEATURE ASSIGNMENT

To activate the PRI CBC with Blank/Zero SFG Screen Index feature, the ACT field for OFS ID 1003 must be set to "Y" on the FOSYS form (5713-2 Record).

4. TRANSLATION REQUIREMENTS

These are the forms that were impacted by this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFIDs for Special and Transparency Features. To activate the PRI CBC with Blank/Zero SFG Screen Index functionality of this feature, the ACT field for OFS ID 1003 must be set to "Y".

SEC. 4B1004: INHIBIT PRINTING OF FC2CF_LTM ASSERT

1. FEATURE DESCRIPTION

The Inhibit Printing of FC2CF_LTM Assert feature is available with the 5E14 and later Software Releases. It is controlled by OFS ID (Optioned Feature System ID) 1004.

This feature allows the 5ESS Switch Owner to control the printing of the assert mnemonic FC2CF_LTM assert. This assert is a manual action assert that prints on the ROP (Read Only Printer) when an auto-activated CF (Call Forward) feature FWDTODN (Forward-to-Directory Number) is invalid for a primary DN (Directory Number) or MLHG (Multi-line Hunt Group) member. The FC2CF_LTM Assert number is 22046 in 5E14 and 5E15, 22146 in 5E16(1), and 22346 in 5E16(2) and 5E17(1).

2. FEATURE ASSIGNMENT

This feature is activated by setting the ACT field for OFS ID (Optional Feature System ID) 1004 on the FOSYS form (5713-2 Record) to "Y".

With OFID 1004 active, assert mnemonic FC2CF_LTM will not print when an auto activated CF feature's forward-to-DN is invalid and the call does not forward.

With OFID 1004 inactive, assert mnemonic FC2CF_LTM will print when an auto activated CF feature's forward-to-DN is invalid and the call does not forward.

This feature is an OFFICE feature, and CANNOT be enabled or disabled on individual SMs.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The OFS ID 1004 must be set to "Y" to enable this feature.

SEC. 4B1005: IAM CHARGE NUMBER

1. FEATURE DESCRIPTION

The IAM (Initial Address Message) Charge Number feature is made available as a Software Update for 5E15, 5E16.1, 5E16.2, and 5E17.1. This feature is controlled by OFS (Optional Feature System) ID 1005.

This feature prevents a 3 digit charge number from being sent in an outgoing IAM. If an incoming IAM has no charge number, and an ASP (Advance Services Platform) LNP (Local Number Portability) or SDS (Specific Digit String) trigger is encountered, and the SCP (Service Control Point) does not provide a charge number, and a charge number is derived, this feature prevents this derived charge number from being sent in an outgoing IAM, if the derived charge number is only 3 digits. This 3 digit charge number is allowed in the IAM in case some customers want to keep the existing functionality.

Option Feature ID (OFID) 1005 is used on an office wide basis to determine whether or not to allow these 3 digit derived charge numbers. If OFID 1005 is active, the 3 digit charge number is prevented from being sent in the outgoing IAM. If OFID 1005 is inactive, existing functionality allows the 3 digit charge number to be sent in the IAM.

If the incoming IAM had a 3 digit charge number, or the SCP provides a 3 digit charge number, then the 3 digit charge number can be sent in the outgoing IAM, regardless of whether or not the OFID is active. This is the existing functionality.

2. FEATURE ASSIGNMENTS

The provisioning for this feature is as follows:

To activate the feature:

Set the ACT field for OFID 1005 to "Y" on the FOSYS form (5713-2 Record) or RC/V (Recent Change View) 8.31.

To deactivate the feature:

Set the ACT field for OFID 1005 to "N" on the FOSYS form (5713-2 Record) or RC/V (Recent Change View) 8.31.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 1005 must have the ACT field on the FOSYS (5713-2 Record) form set to "Y" in order to activate this feature for the office.

SEC. 4B1006: 256K ISUP TANDEM SOLUTION

1. FEATURE DESCRIPTION

The 256K ISUP (Integrated Services User Part) Tandem Solution feature is available with the 5E14 and later Software Releases. It is controlled by OFS ID (Optioned Feature System ID) 1006.

In large capacity tandem offices with over 1.6 million Busy Hour Call Attempts (BHCA) [assume 10% NS800 traffic], some TRFC30 Sections will overflow. The overflow is seen in TRFC30 section 91, Network Services (NS), section 231, Advanced Services Platform (ASP), and section 232 ASP Toll Free (ASPTF). To prevent the overflow, three new TRFC30 sections have been created and replaces the existing sections when OFS ID 1006 is active.

2. FEATURE ASSIGNMENT

This feature is activated by setting the ACT field for OFS ID (Optioned Feature System ID) 1006 on the FOSYS form (5713-2 Record) to "Y".

With OFS ID 1006 off: Existing functionality is used. The following measurements are reported via single precision counters in:

Section 91 - NS (Network Services) Free (ASPTF)
 Section 231 - ASP (Advanced Services Platform)
 Section 232 - ASPTF (Advanced Services Platform Toll Free)

With OFS ID 1006 on: Existing TRFC 30 sections is not used. The following measurements are reported via double precision in new TRFC30 sections:

Section 84 - NSN (Network Services New)

Section 85 - ASPN (Advanced Services Platform New)

Section 86 - ASPTFN (Advanced Services Platform Toll Free New)

The TM OSS (Traffic Measurements Operation Support System) must be informed of the change when the OFID is activated.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS Form (5713-2 Record) - This form is used to activate and deactivate optional features. The OFS ID 1006 must be set to "Y" to enable this feature.

SEC. 4B1008: ON-HOOK DATA TRANSMISSION WITHOUT POWER RING

1. FEATURE DESCRIPTION

The feature number for the On-Hook Data Transmission without Power Ring feature is 99-5E-7686. It is controlled by OFID (Optioned Feature ID) 1008 and is made available with the 5E15 FR 4 and later Software Releases.

This feature allows sending an OSI (Open Signaling Interval) to analog CPE (Customer Premise Equipment) whenever an on-hook data transmission via FSK (Frequency Shift Keying) is invoked by a subscriber feature (e.g., MSS (message Service System) or ISVM (InterSwitch Voice Messagine)). The OSI is sent when the line is on-hook and when ringing is not applied. This allows the DLCs (Digital Loop Carrier Systems), also called "SLCs" or "slicks" to establish a path to the CPE before FSK data is sent, for example, to the CPE to allow the visual MWI (Message Waiting Indicator) (e.g., lamp light) on the CPE to be lit. In cases where the DLCs do not have a path established, the data will be blocked by the DLCs and will never reach the CPE.

This feature may be configured in one of two modes:

"Mostly on"

This mode of operation is achieved by setting a per-office parameter (OFC FSK OSI) to "Yes" (on), and then selectively inhibiting the signaling of OSI to an individual analog line (or groups of lines) via RC (Recent Change) procedures in order to set the per-line control (FSK OSI) to "No" (off).

"Mostly off"

This mode of operation (default mode) is achieved by setting a per-office parameter (OFC FSK OSI) to "No" (off), and then selectively activating the signaling of OSI for an individual analog line (or groups of lines) via RC procedures in order to set the per-line control (FSK OSI) to "Yes" (on) as needed.

This latter mode, "mostly off", is the recommended mode of feature operation to insure minimization of impact to lines that are not served by Univeral DLCs, or which are served by Integrated DLCs that do not need the OSI in order to insure an on-hook data transmission path (e.g., Mode I Integrated DLCs).

2. FEATURE ASSIGNMENT

To activate this feature:

Set the ACT field to "Y" for OFID 1008 on the FOSYS form (5713-2 Record).

For offices with most of the lines having this feature active:

Set the OFC FSK OSI field on the OFCOPT form (5509 Record) RC/V (Recent Change View) 8.1 to "Y".

For offices with most of the lines having this feature inactive:

Set the OFC FSK OSI field on the OFCOPT form to "N".

Activate/deactivate the feature for a specific line by setting the FSK OSI field on the LINE/MLHLN form (5109/5111 Records) or RC/V 1.8 to "Y" (activation) or "N" (deactivation). Blank values on these forms/views, indicates that the OFC FSK OSI on the OFCOPT form is a valid value for this line.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FOSYS	5713-2	3	5AS	8.31
LINE	5109	3	1L	1.8
MLHLN	5111	3	1K	1.6
OFCOPT	5509	3	5I	8.1

FOSYS form (5713-2 Record) - This form is used to enable Transparency and Special Features. The ACT field for OFID 1008 must be set to "Y".

LINE form (5109 Record) - This form defines BRCS (Business and Residence Custom Services) Features to a particular customer Telephone Number. Added the FSK OSI field and associated data rules.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular MLHG. Added the FSK OSI field and associated data rules.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the OFC FSK OSI field and associated data rules.

SEC. 4B1010: IMLT METALLIC A-LINK BLOCKAGE NOTIFICATION

For information on this feature, see Division 2, Section 4A685.

SEC. 4B1012: INHIBIT CGA (CARRIER GROUP ALARMS)

1. FEATURE DESCRIPTION

The Inhibit CGA (Carrier Group Alarms) feature is a Transparency Feature using OFS (Optioned Feature System) ID 1012 that is available with the 5E16(2) FR1 (Feature Release 1) Software Release. The feature number is 99-5E-7816.

This feature provides the 5ESS Switch with the capability to automatically inhibit or allow the reporting of CGAs and PM (Performance Monitoring) facility alerts on trunking facilities based on their current trunk provisioning status. The trunk provisioning status of a trunking facility refers to whether or not it has any trunk ports provisioned that are in the assigned state.

The terms "vacancy", "vacancy status", and "vacant" are generally used within the context of this document to refer to a facility's trunk provisioning status. A trunking facility is referred to as vacant if it has no assigned trunking ports provisioned, and non-vacant, if it is provisioned with at least one trunking port in the assigned state.

With reporting allowed, the reporting of CGAs and facility alerts is allowed on facilities regardless of their vacancy status.

The following list highlights the significant aspects of the feature:

This feature is applicable for the following trunking unit/facility types:

- DLTU (Digital Line and Trunking Unit),
- DNU (Digital Network Unit) (DS1 (Digital Signal Level 1) only),
- PLTU (Packet Line Trunk Unit), and
- OIU (Optical Interface Unit) (DS1 level only)

Note that for DNU and OIU, the feature only applies to the DS1 facility level in the hierarchical facility structure associated with the two units. Since DLTU and PLTU only support DS1 level facilities, the DS1 impact is not explicitly mentioned above but is implied. In general, unless explicitly stated otherwise, references to the word "facility" or "facilities" tend to imply DS1 level trunking facilities.

Non-trunking facilities (RISLU (Remote Integrated Service Line Unit), EAIU (Expansion Access Interface Unit), RSM (Remote Switching Unit) etc..) are always considered to be non-vacant and therefore should be unaffected by this feature.

Various reporting functions are impacted by this feature. When a CGA or PM event occurs on a vacant DS1 level trunking facility (with reporting inhibited), the following reporting functions are impacted:

- The various MCC (Master Control Center) pages associated with units which support digital facilities, will not reflect any DS1 level active CGA status.
- The Switching Module Summary Status Indicator will not have any CGA status contribution.
- A REPT (Report) CGA message is not generated at the time of a CGA event and if the CGA persists, it is reflected in any future manual or automatic OP (OutPut) CGA output.
- A REPT FAC (Report Facility) ALERT message is generated at the time of a PM event. However, the PM event will be identified in any future manual OP FAC request. It should be noted however, that any active CGA on the vacant facility will not be reflected in the CGA component of the OP FAC output. Additionally, the OP FAC and REPT FAC are extended to support the reporting of vacancy information (see fifth bullet below).

With the reporting inhibited, transitions in a facility's vacancy status requires that its current CGA status be

re-evaluated and the appropriate reporting actions be initiated.

An on-demand output report as well as an automatic daily output report which identifies all vacant facilities in the office is required. Note that the reports strictly identify the vacant facilities, and do not explicitly indicate anything about the facilities inhibit status. The current setting of the global parameter (Glinhvfac) controlling the CGA and PM reporting for vacant facilities, must be used in combination with the vacancy report to determine a facility's inhibit status.

The ability to inhibit or allow CGA and PM reports on vacant facilities on an office basis must be provided. Transitions from the non-inhibited reporting state to the inhibited state and vice versa must be supported.

2. FEATURE ASSIGNMENT

To activate this feature, set the ACT field for the OFS ID 1012 on the FOSYS form (5713-2 Record) to "Y".

To inhibit the CGA and PM reports on vacant DS1 level trunking facilities, set the INH VACANT FAC field to "Y" or "N" on the OFCOPT form (5509 Record), (RCV (Recent Change View 8.1) to activate or deactivate this capability, respectively.

Specify the hour of the day in which the daily automatic vacancy report will be generated by setting this time on the VACANT FAC REPT TIME on the OFCOPT form.

Define DLTU/PLTU/DNU or OIU:

for DLTU/PLTU2 unit go to the EQDUP form (5834 Record), RC/V view 20.4.

for DNU-S unit go to the EQVT form (5858 Record), RC/V view 20.24.

for PLTU unit go to the EQPCTT form (5871 Record), RC/V view 20.27.

Insert Trunk Group Member on the TRUNK form (5204 Record), RC/V view 5.5.

Insert Trunk Group on the TKGRP form (5202 Record), RC/V view 5.1.

Insert Trunk Group Member on the TRUNK form (5204 Record), RC/V view 5.5.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1
FOSYS	5713-2	3	5AS	8.31

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. Added the INH VACANT FAC and VACANT FAC REPT TIME fields.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated by setting the ACT field for the OFS ID 1012 on the FOSYS form (5713-2 Record) to "Y".

SEC. 4B1013: SS7 RELEASE MESSAGE

1. FEATURE DESCRIPTION

The SS7 (Signaling System 7) Release Message feature is a Transparency Feature using OFS (Optional Feature System) ID 1013 that is available as a 5E16(2) Software Update.

The purpose of this feature is to provide the coding of the location value in the SS7 RElease message when cause value 17 (user busy) is returned. This solution only applies to calls routed to an outgoing trunk (PF (Private Facility), MF (Multi-frequency), ISUP (Integrated Services User Part), or PRI (Private Rate Interface) where all members are busy and the final RTI (Route Index)) is provisioned as BUSY. When this option is OFF (Act field for OFID 1013 is set to "N" on the FOSYS form (5713-2 Record), the cause value in the SS7 RElease message is set to 17, and the location value is set to "user (0)". When this option is ON (Act field for OFID 1013 is set to "Y" on the FOSYS form), the location value is set to "local local network (2)" or "transit network (3)".

2. FEATURE ASSIGNMENTS

The provisioning for this feature is as follows:

To activate the feature:

Set the ACT field for OFID 1013 to "Y" on the FOSYS form (5713-2 Record) or RC/V (Recent Change View) 8.31.

To deactivate the feature:

Set the ACT field for OFID 1013 to "N" on the FOSYS form (5713-2 Record) or RC/V (Recent Change View) 8.31.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 1013 must have the ACT field on the FOSYS (5713-2 Record) form set to "Y" in order to activate this feature for the office.

SEC. 4B1014: NCA (No Circuit Available) MDII

1. FEATURE DESCRIPTION

The NCA (No Circuit Available) MDII (Machine Detected Interoffice Irregularity) feature is made available as a Software Update for 5E16(2). This feature is controlled by OFS (Optional Feature System) ID 1014.

When a not circuit/route available condition occurs, this feature, when active, will print an MDII. The "No Circuit Available" condition is met and a MDII is printed for outgoing MF (Multifrequency), ISUP (Integrated Services User Part), BICC (Bearer Independent Call Control), PRI (Primary Rate Interface) or DP (Data Processing) call types when:

the ROUTE TYPE field on the 5303-1 Record or the ETYPE field on RCV (Recent Change View) 10.2 is

given a REORDER or BUSY tone, or

zero treatment is applied (which means that the NEXT ROUTE field on the 5303-1 Record, or the NEXT RTI field on RCV 10.2 is blank), or

the NCA MDII when the final RTI in the chain has a route description type (for the CI ROUTE TYPE field on the 5303-1 Record or the RT DES TYP field on RCV 10.2) of either "GENANN", "DTGOFL", "STGOFL", "ALTRKBSY", or "NMFAIL".

The MDII will include the initial route index attempted to route the call, the calling and called party numbers, and the type of route (NORMAL or MC):

A REPT MDII NCA RTYPE NORMAL FIRST RINDEX yyy

*TIME hh:mm:ss OGT NORMAL CALL DISCARD 0
CALLED-NO npanxxxxxx CALLING-NO npanxxxxxx*

With OFID 1014 inactive, no NCA MDIIs will print.

1.1 Limitations and Restrictions

To prevent NCA MDIIs when the final route has a route type (5303-1 Record, field ROUTE TYPE, or RCV 10.2 field ETYP) of BUSY, activate OFID 983. Please refer to Division 2, Section 4B983 for details of OFID 983 (Inhibit No Circuit Peg Counts on Final Route Type of Busy).

The system will not generate NCA MDII for:

GETS (Government Emergency Telephone System) calls

All calls in a DSN (Defense Switch Network) office

Calls with busy treatment and Option Feature ID 983 is on (active)

No SFG (Simulated Facility Group) member is found idle

ROR (Reroute on Release) calls

When the last RTI in the chain has field ETYP set to "DNTRAN" (e.g., Call Forward on Trunks)

No NCA MDII will be printed if an announcement or a reorder is reached as part of a fixed route index, or is routed directly to announcement/reorder out of digit analysis (LDIT), or when routed to announcement/reorder via screening (5301 Record/RCV 10.10).

2. FEATURE ASSIGNMENTS

This feature, NCA MDII, is activated by Optional Feature ID (OFID) 1014 on the FOSYS form (5713-2 Record) or RCV 8.31 by setting the ACT field to "Y".

3. TRANSLATION REQUIREMENTS

There are no new fields or new forms added/modified for this feature.

SEC. 4B1015: PRI ORIGATION SEND DISCONNECT WITH CAUSE 34 FOR TRUNK BUSY CONDITION

1. BACKGROUND

Customers using ROR (Reroute on Release) have set ROR for cause code 34 (circuit/channel congestion), to allow the call to continue routing the route list when encountered. When the far switch is connected to the switch with ROR via PRI (Primary Rate Interface), and a network busy condition occurs at the far switch, a PROGRESS message is generated with cause code 31 (Normal Unspecified), and reorder is played over the channel. This prevents any subsequent reroute activity from attempting to complete the call.

2. FEATURE DESCRIPTION

The PRI (Primary Rate Interface) Origination send Disconnect with Cause 34 for Trunk Busy Condition feature is made available as a Software Update for 5E16(2). This feature is controlled by OFS (Optioned Feature System) ID 1015.

This feature provides the capabilities for handling PRI originations that encounters a trunk or network busy condition that has a final route treatment of REORDER.

With OFID 1015 off (default) the PRI OTP (Operational Test Plan) sends a Q.931 PROGRESS message with Cause 31 ("normal, unspecified") and apply in-band reorder tone over the bearer channel.

With OFID 1015 active, the PRI OTP will send a Q.931 DISCONNECT message with Cause 34 ("circuit/channel congestion") which causes the channel to be released.

2.1 Limitations and Restrictions

The option was developed as an enhancement to feature 99-5E-8239 (SFID 634 - ATP/Adjunct Migration & TCS), but SFID 634 does not have to be active to use the enhancement and turn on OFID 1015.

3. FEATURE ASSIGNMENTS

This feature, "PRI Origination send DISCONNECT with Cause 34 for Trunk Busy Condition," is activated by Optional Feature ID (OFID) 1015 on the FOSYS form (5713-2 Record) or RCV 8.31 by setting the ACT field to "Y".

4. TRANSLATION REQUIREMENTS

There are no new fields or new forms added/modified for this feature.

SEC. 4B1016: SHARED USE OF GDX COMPENSATORS ON PRIORITY BASIS

1. FEATURE DESCRIPTION

The Shared use of GDX (Gated Diode Crosspoints) Compensators on Priority Basis feature is a Transparency Feature using OFS (Optioned Feature System) ID 1016 that is available with the 5E16(2) FR4 (Feature Release 4) and later Software Releases. The feature number for this feature is 99-5E-8156.

This feature is replacing the existing strategy (reserving a GDX compensator for non-ALIT (Automatic Line Insulation Test) use) with a new strategy based on a "priority interrupt" mechanism. The priority interrupt mechanism will interrupt ALIT testing in favor of non-ALIT requests for test access (i. e., from the Trunk and Line Workstation, Integrated MLT (Mechanized Loop Test System), or non-integrated external test systems).

This feature allows all available testing resources to be used for ALIT testing, and at the same time provides prompt response to test requests from the TLWS (Trunk Line Work Station) and external testing systems.

When the TLWS or an external test system requests a test access that needs a GDX Compensator, the switch does the following:

Search for an available compensator using the existing "best fit" algorithms. The "best fit" algorithms first look for a compensator on the shelf and service group that has access to the line under test. If none is available, this feature allows checks to see if the customer had set the option to allow further searching to other shelves within the MMSU (Modular Metallic Switch Unit) and then other MMSUs.

If an idle compensator is not found, the switch will begin a search for a busy, pre-emptable compensator, again applying the "best fit" algorithm. That compensator would be camped-on for pre-emption. A pre-emptable compensator is one that is busy with ALIT testing.

The ALIT routine that is using the selected compensator will be interrupted as soon as it finishes the test of the current LUT (Line Under Test). ALIT tests are executed in 10 seconds or less per line.

The TLWS or external test system uses the compensator for as long as it needs to complete the test activity.

When the TLWS or external test system releases the test access, the compensator becomes available.

The two Recent Change values will be global parameters. The last bit of data, the OFID, is used to initially activate the feature, or to deactivate the feature in cases of incompatibility with an unusual switch or switch resource configuration.

2. FEATURE ASSIGNMENTS

The provisioning for this feature is as follows:

To activate/deactivate the feature:

Set the ACT field for OFID 1016 to "Y" or "N" on the FOSYS form (5713-2 Record), or RC/V (Recent Change View) 8.31.

Set the SHARED COMPENSATORE MODE to "Y" on the OFCOPT form (5509 Record).

Set the INHIBIT MTIBS USE field on the OFCOPT form to "Y" (if MTIBs by ALIT is disallowed).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31
OFCOPT	5509	3	5I	8.1,8.15

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optioned Feature System) bits for Special and Transparency Features. OFS ID 1016 must have the ACT field on the FOSYS (5713-2 Record) form set to "Y" in order to activate this feature for the office.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the SHARED COMPENSATOR MODE and INHIBIT MTIBS USE fields.

SEC. 4B1022: OCN SENDING WITH NO REDIRECTION INFORMATION

1. FEATURE DESCRIPTION

The OCN (Original Called Number) Sending with no Redirection Information feature (97-5E-8733) is made available with the 5E20(1) and later Software Releases.

This feature allows the OCN to be sent to the ECP from the 5E when there is no Redirection Information originally sent to the 5E. There is nothing in the Standards that states that we should not send the OCN if the Redirection Information is not present and the Telus Customer has a scenario where they need the OCN information for this case. This feature is providing an Optional Feature ID (OFID 1022) to allow a customer to turn on (if wanted) the functionality to send the OCN with no Redirection Information to the ECP from the 5E.

SEC. 4B1027: TRFO PATH MINIMIZATION

1. FEATURE DESCRIPTION

Currently, only some of the SDP (SIP (Session Initiated Protocol) Session Description Protocol) information is sent up from the SIP PH (Protocol Handler) to the SIP CP (Call Processing) SM (Switching Module). SIP CP SM takes the information and then sends new data to the SIP PH to be incorporated into a new SDP MIME.

With the TrFO (Transcoder Free Operation) Path Minimization feature (99-5E-8694), the SDP information has to be passed to the next MSC. The changes will be introduced to expand the SDP TLV interface between the SIP PH and the SIP CP SM to be able to exchange the complete SDP information. The SDP will now contain only 2 media lines with 10 codecs per line in order to fit into the size of MGSIPTDISP message between the SIP PH and SIP CP SM.

The purpose of this feature is to release all NPH (Network Protocol handler) Bearer Resources on the Home MSC (Mobile Switching Center) to optimize NPH Bearer Capacity and reduce RTP (Real Time Transport Protocol) Traffic. The removal of NPH Bearer on the H-MSC during the stable talk path allows RTP Traffic to bypass the SIP2SIP H-MSC intermediate exchange while minimizing NPH Bearer resources for Inter-MSC/Intra-MSC calls. Path Minimization Bearer Path Cut-Thru efficiently removes NPH Bearer Resources to support one Audio RTP Stream between the Originating and Serving MSC. CV (Circuit Vocoder) allocation still occurs on SIP2SIP H-MSCs based on RCP (Remote Call Progress) Provisioning and ECP Tone/E-Tone, Call Forwarding, and CRBT/ANNC (Customized Ringback Tone/Announcement) feature interaction.

Usage of the H-MSC NPH Bearer Resource during Path Minimization Call Setup resolves many issues in effectively handling RTP media streams and SDP (SIP Session Description Protocol) during call setup. Path Minimization support during MSC call forwarding/roaming call setup could not resolve several problems without NPH Bearer Resources due to Home MSC support of various RCP Tones, CRBT, Announcements. Primarily, the NULL PV (Packet Vocoder) bearer resource acts as an anchor between Origination and Termination MSC; supporting back-to-back RTP Sessions on H-MSC via NPH Pair Allocation via PV resource. Therefore, path minimization is not required to remove all NPH Bearer Resources on the Home MSC until Empty REINVITE Media Negotiation has been fully negotiated between the origination and termination MSC and the call has reached the stable talk path.

Path Minimization avoids dual RTP media stream from Duplicate or Different Source IP addresses for CRBT and Announcement Feature Interaction during call setup. The Dual Media Stream occurs when a RTP bearer

resource receives multiple streams of RTP Packets from the same or different IP Addresses. Depending on RTP Screening capability, this may cause A-Party to hear two streams of RTP Media (e.g. audible ring & CRBT). Note that the PHV6/7 only screens RTP Media based on Source IP (Internet) Address but UDP port (User Datagram Protocol). If the IP Addresses are the same, then the A-Party would hear the two RTP Media Streams. If the IP Addresses are different; then the second RTP Stream is discarded. However, certain vendors may not provide any RTP screening. The NULL PV also avoids SDP Version Sequencing issues and Talk Path Delay.

During H-MSC answer state, Path Minimization greatly increases SIP inter-process communication on SIP2SIP H-MSC to dynamically transit SDP information between Originating and Serving MSC Bearer Resources during answer state. The implementation of Path Minimization requires dynamic SDP Offer/Answer Storage enhancement via SIP CP (Call Processing)SM->SIP PH interface.

The TrFO Path Minimization feature is a Transparency Feature using OFS (Optional Feature System) ID 1027 that is available with the 5E21(1) and later Software Releases. The feature number for this feature is 99-5E-8694.

2. FEATURE ASSIGNMENTS

There is no specific provisioning for this feature.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.31
SIPTPARM	5882	5	3AD	5.82

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 1027 must have the ACT field on the FOSYS (5713-2 Record) form set to "Y" in order to activate this feature for the office.

SIPTPARM form (5882 Record) - This form is used to insert, review, update, or delete the SIP-T parameters. Added the REFRESHER, SESSION EXP, and MIN SE fields.

SEC. 4C: SPECIAL FEATURES

SEC. 4C0: SPECIAL FEATURES

1. GENERAL

This section describes the translations needed for Special Features that are not secured and are not transparency features. In the past these features have been referred to as "Field" or "Fast" features. See Division 2, Section 4A for Special Features that are secured. See Division 2 Section 4B for Transparency Features.

The Special Features in the section are organized chronologically, e.g., Division 2, Section 4C1 is the first special feature documented, Division 2, Section 4C2 is the second feature documented, and so on. The Table of Contents for this section lists the features first in chronological order and then in alphabetical order.

2. ON-LINE INFORMATIONAL SOFTWARE UPDATES

Informational Software Updates, which are available on SCANS (Software Change Administration And Notification System), provide information on features which are released during a Software Update. In addition to being transmitted to users via SCANS, these Informational Software Updates can also be accessed in the 5ESS Switch electronic media documentation. The Informational Software Updates are located on the menu for 5ESS Switch documentation on-line or on CD-ROM.

SEC. 4C1: TDAC (TIMING DELAY FOR ALL CALLS)

1. FEATURE DESCRIPTION

For 5E2 and later Software Releases, TDAC (Timing Delay For All Calls) was introduced to eliminate inter-digit timing and to allow overlap outpulsing for CONFLCT Call Types. Note that this does not eliminate interdigit timing in all CONFLCT Call Type instances on the LDIT form. Also, it does not allow overlap outpulsing on all CONFLCT Call Type instances on the LDIT form.

2. TRANSLATION REQUIREMENTS

The translation entries for TDAC are on the LDIT form (5300 3/5 Record). TDAC applies only to CONFLCT Call Types. The TDAC function depends upon the PREFIX and NBR OF DIGITS entries on the LDIT form. When a non-blank value of PREFIX is entered, call processing assumes that if a call is dialed matching the PREFIX value, then this call is dialed using the number of digits specified in NBR OF DIGITS field. For example:

1. An LDIT form is entered where the NBR OF DIGITS is 10, PREFIX is 1, and CONFLICT RESOLUTIONS ENTRIES are entered for 7- and 10-digit calls.

The end user dials the following prefix:

1+

An end user dialing a 1+ call would be routed using the 10 (NBR OF DIGITS) digit entry; no interdigit timing would be performed and overlap outpulsing would be performed.

0+

Interdigit timing would occur with no overlap outpulsing.

none+ (no prefix)

Interdigit timing would occur with no overlap outpulsing.

This scenario assumes that 1 + 7 digit dialing does not exist for this digit string. The 0 + scenario is very similar.

2. An LDIT form is entered where the NBR OF DIGITS is 7, PREFIX is "NONE", and CONFLICT RESOLUTIONS ENTRIES are entered for 7- and 10-digit calls.

The end user dials the following:

none+ (no prefix)

An end user dialing a none+ (no prefix) call would be routed using the 7 NBR OF DIGITS entry; no interdigit timing would be performed and overlap outpulsing would be performed.

0+

Interdigit timing would occur with no overlap outpulsing.

1+

Interdigit timing would occur with no overlap outpulsing.

This scenario assumes that NONE+ 10-digit dialing does not exist for this digit string.

3. An LDIT form is entered where the NBR OF DIGITS is 7, PREFIX is not entered, and CONFLICT RESOLUTIONS ENTRIES are entered for 7- and 10-digit calls.

The end user dials the following:

none+

An end user dialing a none+ call would be routed using the 7 NBR OF DIGITS entry, no interdigit timing would be performed and overlap outpulsing would be performed.

0+

Interdigit timing would occur with no overlap outpulsing.

1+

Call would be routed using the 10-digit entry (not NBR OF DIGITS), no interdigit timing would be performed, and overlap outpulsing would occur.

This scenario assumes that NONE + 10-digit dialing and 1- plus 7-digit dialing do not exist for this digit string.

The TDAC Conflict Resolution Table in Figure 1 represents the result of dialed calls which are interpreted by an LDIT form as Conflict Resolved calls based upon the following:

- the PREFIX entry on the LDIT form;

- the NBR OF DIGITS entry on the LDIT form;
- and the actual dialed prefix by the end user.

The corresponding Recent Change View for LDIT is 9.3.

STORED PFX (LDIT)	NBR OF DIGITS (LDIT)	DIALED PREFIX	CONFLICT RESOLVED BY
NONE	1 - 15	NONE	Prefix
		1+	Timing
		0+	Timing
1+	1 - 15	NONE	Timing
		1+	Prefix
		0+	Timing
0+	1 - 15	NONE	Timing
		1+	Timing
		0+	Prefix
NULL	1 - 15	NONE	Prefix
		1+	Prefix
		0+	Timing
NULL	NULL	any	Timing

Figure 1 TDAC CONFLICT RESOLUTION TABLE

PFX ASSIGNED (LDIT)	NBR OF DIGITS (LDIT)	PFX DIALED	NBR DIGITS DIALED	CONFLICT RESOLUTION	RESULTING CALL TREATMENT
NONE	7	NONE	7	PREFIX	1
NONE	7	1+/0+	7	TIMING	1
NONE	7	NONE	10	PREFIX	2
NONE	7	1+/0+	10	TIMING	3
NONE	10	NONE	7	PREFIX	4
NONE	10	1+/0+	7	TIMING	1
NONE	10	NONE	10	PREFIX	3
NONE	10	1+/0+	10	TIMING	3

EXAMPLE 1: Two conflict case - Two conflict resolution entries.

7/10 digit conflict for code 416.

PFX ASSIGNED (LDIT)	NBR OF DIGITS (LDIT)	PFX DIALED	NBR DIGITS DIALED	CONFLICT RESOLUTION	RESULTING CALL TREATMENT
NONE	6	NONE	6	PREFIX	5
NONE	6	NONE	7/10	PREFIX	6
NONE	6	1+/0+	7/10	TIMING	1
NONE	7	NONE	6	PREFIX	7
NONE	7	NONE	7	PREFIX	1
NONE	7	1+/0+	7	TIMING	1
NONE	7	NONE	10	PREFIX	2
NONE	7	1+/0+	10	TIMING	3
NONE	10	NONE	6/7	PREFIX	4
NONE	10	1+/0+	7	TIMING	1
NONE	10	NONE	10	PREFIX	3
NONE	10	1+/0+	10	TIMING	3

EXAMPLE 2: General conflict case - more than 2 conflict resolution entries.

6/7/10 digit conflict for code 416.

CALL TREATMENTS

1. Treatment based on 7 digit conflict entry.
2. Results in either misrouted call or vacant number error treatment. Since conflict is prefix resolved call processing collects quantity of digits specified in NBR OF DIGITS field (first 7 digits in this case). Hence if 416-220-1000 is dialed, call processing would attempt termination to 416-2201.
3. Treatment based on 10 digit conflict entry.
4. Partial dial error treatment. Since conflict is prefix resolved, call processing collects quantity of digits specified in NBR OF DIGITS field (10 digits in this case). However, fewer than 10 digits are dialed.
5. Treatment based on 6 digit conflict entry.
6. Results in either misrouted call or vacant number error treatment. Since conflict is prefix resolved, call processing collects quantity of digits specified in NBR OF DIGITS field (first 6 digits in this case). Hence if 416-xxxx or 416-xxx-xxxx is dialed, call processing would attempt termination to 416-xxx.
7. Partial dial error treatment. Since conflict is prefix resolved, call processing collects quantity of digits specified in NBR OF DIGITS field (7 digits in this case). However, only 6 digits are dialed.

Figure 2 TDAC CONFLICT RESOLUTION TABLE EXAMPLES

SEC. 4C2: MODIFIED CALLING LINE DISCONNECT PROCEDURE FOR FRAUD PROTECTION

This section has been moved to Division 2, Section 4B517.

SEC. 4C3: INCLUSION OF CALLED NUMBER IN LIDB PROTOCOL

1. FEATURE DESCRIPTION

For 5E6 and later Software Releases, the Called Number in LIDB (Line Information Database) Signaling Protocol feature provides the OSPS switch owner with an option to send the called number as part of the information in a LIDB card validation query. When this capability is activated, the called number is included in a LIDB card validation query whenever the called number is available and LIDB is the selected signaling type. To activate this feature for 5E6 and later, the CALLED NBR field on the OSPSOPT form (5424 Record) must be set to "Y". In addition, LIDB and EABS (Exchange Alternate Billing Services) features are required for this feature. See Division 2 Section 3I for more information on those features.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OSPSOPT	5424	3	4Y	8.9, 8.15

2.1 Translations

OSPSOPT form (5424 Record) - This form is used to define the OSPS office option parameters. Only one OSPSOPT form can be entered for an office. To activate this feature, "Y" must be entered in the CALLED NBR field.

SEC. 4C5: STAR (ENHANCEMENTS FOR SIMULTANEOUS TRUNK CONVERSION VIA AUTOMATIC RECENT CHANGE)

1. BACKGROUND

Prior to this feature, 5ESS Switch CCS7 (Common Channel Signaling 7) conversion functions were performed manually. The enhancements, along with the STAR library program, provide an automated CCS7 conversion process. The automatic CCS7 trunk conversion process between 1A ESS switches will also be extended to

any combination of 5ESS and 1A ESS Switching Systems.

2. FEATURE DESCRIPTION

Available with 5E5 and later Software Releases, the STAR Special Feature provides network service personnel with an automated process for converting PTS (Per Trunk Signaling) trunks to the CCS7 (Common Channel Signaling 7) protocol between 5ESS Switches and 1A ESS Switching systems. This automatic trunk conversion process provides positive identification of trunk members to be converted between offices, controls the passing of trunk and office information between the host and remote switches (via standard I/O channel), performs the conversion process by database manipulation, and activates all converted trunk members. The STAR feature can be applied to trunks between any combination of 1A ESS and 5ESS Switches. It allows operating telephone companies to make the conversion quickly and with the full assurance that the process will not interfere with ongoing services. The conversion is done automatically without the need for craft intervention or hands-on involvement. The conversion process can convert up to four trunk members per minute.

5ESS Switch STAR remote functions are performed by a library program. However, prior to the enhancements provided by this feature, the library program did not have the ability to detect incoming STAR Test Calls outpulsed from the host switch. This enhancement provides two essential operations:

- Detects STAR Test Calls
- Retrieves and sends incoming trunk group and office information to the STAR library program.

3. TRANSLATION REQUIREMENTS

The following form changes apply to 5E8 and later.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LDIT	5300-3	3	3C	9.3
MLDIT	5300-3	3	3C	9.15
RDIT	5300-7/8	3	3H	9.9

3.1 Translations

The Call Type "WETESTC" is added for ODA for 5E8 and later. There are no form changes for 5E5 through 5E7. For 5E5 through 5E7, "WETESTC" must be built via Recent Change. For 5E5 through 5E7, the new destination call type is inserted when doing trunk conversion and should be deleted after conversion is completed. The STAR feature should not be operated during a retrofit or Large Terminal Growth. "WETESTC" information should be deleted when performing a retrofit or Large Terminal Growth.

LDIT form (5300-3 Record) - This form is used to define all area, office and service codes (NPA, NXX, X11, etc.) in a 5ESS Switch. Any code from one to fifteen digits in length may be defined. The LDIT serves as both a "local" and "foreign" area translator.

The LDIT (Local Digit Interpreter Table) is used for further digit interpretation. For line originated calls, the LDIT is used after the PDIT (Prefix/Feature Digit Interpreter Table). For trunk originated calls, the LDIT is used after the INDIT (Incoming Trunk Digit Preliminary Interpreter Table) when the LDIT (Y or N)? filed equals "YWETESTC" was added to the non-conflict CALL TYPE field only and is not available in the conflict resolution tables for LDIT and RDIT. "WETESTC" is the test call associated with the 5ESS Switch Library Programs.

MLDIT form (5300-3 Record) - The Multiple Local Digit Interpreter Table form is similar to LDIT but allows multiple entries of incoming digits to be input when they have common attributes. Conflict or IMPLIED NPA entries are not allowed on the MLDIT form. Entries made on the MLDIT form can only be reviewed on the MLDIT form. The 5300-3 Record incorporates both LDIT and MLDIT entries. For 5E8 and later, the enumeration "WETESTC" was added for the field CALL TYPE. "WETESTC" is the test call associated with the 5ESS Switch Library Programs.

RDIT form (5300-7/8 Record) - The RDIT input form contains information for the translation of the remaining dialed digit strings for digit analysis. The RDIT translation is an extension of primary digit analysis that ascertains whether or not the remaining digit string is a selective dialing request. For 5E8 and later, the enumeration "WETESTC" was added to the non-conflict CALL TYPE field only and is not available in the conflict resolution tables for LDIT and RDIT. "WETESTC" is the test call associated with the 5ESS Switch Library Programs.

3.2 Translation Assignments Needed for STAR

For 5E8 and later, some translation changes are needed at the remote location before this feature can recognize a STAR test call. The following summarizes the translation changes that are needed for this feature at the remote location.

NOTE: These translation changes must be removed after the trunk conversion.

1. Determine a STAR digit string. The first three digits in this digit string must be unique to ensure that there will be no call processing interaction with existing features or capabilities.
2. Determine the DAS (Digit Analysis Selector) associated with incoming PTS trunk group(s) to be converted. This is ascertained from the TKGRP form (5202 Record) DAS field for PTS trunk group(s) that STAR will convert.
3. Determine the INDIT (Incoming Trunk Digits) and LDIT (Local Digit) associated with incoming PTS trunk group(s) that STAR will convert. This is ascertained from the INC TRUNK PRELIMINARY DIT and LDIT fields on the DAS form (5300-1 Record) associated with the trunk group(s) that STAR will convert.
4. Enter the first three digits of the STAR digit string in the INCOMING DIGITS field on the INDIT form (5309 Record), and enter "Y" in the LDIT field. This ensures the translation of the STAR digit string will continue in the STAR LDIT.
5. Into the key fields, LDIT and INCOMING DIGITS, on the LDIT form (5300-3 Record), enter the LDIT from the DAS form and the first three digits of the STAR digit string, respectively. Enter "WETESTC" in the CALL TYPE field, "NONCI" in the TYPE OF CI CALL field, a valid route index in the ROUTE INDEX field, and the total number of STAR DIGITS in NBR OF DIGITS field.
6. After the PTS to CCS7 conversion on all designated trunk group(s) are completed, STAR digit translations LDIT and INDIT must be removed to ensure database integrity.

SEC. 4C6: EXCESSIVE MDII ALARM

1. FEATURE DESCRIPTION

For 5E6 and later, the Excessive MDII (Machine Detected Interoffice Irregularities) Alarm feature provides the capability for an office to define the number of MDIIs within a specific time period that will set off either a

major or minor alarm. The alarm notifies the maintenance craft that excessive MDIIs have occurred within a certain time interval in the office.

2. FEATURE ASSIGNMENT

This feature is assigned on the OFCOPT form (5509 Record). Three fields define the office parameters for this feature; the time interval for counting MDIIs, the MDII count threshold that will trigger the alarm, and whether the alarm should be a major alarm or a minor alarm.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5l	8.1

3.1 Translations

OFCOPT form (5509 Record) - This form is used to define the office parameters. The following three fields define the office parameters for the Excessive MDII Alarm feature:

- MDII INTERVAL specifies the time interval in minutes for counting the number of MDIIs.
- MDII THRESHOLD specifies the MDII count threshold that will trigger an alarm.
- MDII MJR ALARM specifies whether a major or minor alarm should be generated.

SEC. 4C7: ESP (ESSENTIAL SERVICE PROTECTION) BACK-LIGHTING OPTION

1. BACKGROUND

The ESP (Essential Services Protection) feature in the 5ESS Switch is used to ensure that lines designated as essential (hospital, police, fire department, etc.) receive priority originating grade service during periods of excessive overloads. This is accomplished by giving preferred treatment to lines classified as essential over the nonessential lines by the office data. The ESP feature is used to implement LOC (Line Overload Control). When a switch is overloaded by a large volume of originating traffic, nonessential subscribers receive degradation or temporary denial of service, while essential subscribers are given priority service. The ESP feature has already been available on the 5ESS Switch and can be allowed or inhibited. The default state was "inhibited" so that all lines received the same priority on origination during switch overload.

Prior to this Special Feature option, when ESP was allowed, an indicator on the MCC (Master Control Center) page 109 (OVERLOAD) was back-lit yellow and the OVERLOAD indicator in the SSA (Summary Status Area) was back-lit blue indicating an off-normal condition. This original implementation of ESP was not consistent with the guidelines for video attributes on the MCC. Back-lighting yellow normally indicates an inhibit, not an allow. The indicator on MCC page 109 that is back-lit yellow should have been back-lit white which describes a low severity off-normal condition. For offices that always want ESP inhibited, none of the lines would have been designated as essential. Therefore, allowing ESP will have a null effect and be a low severity off-normal condition.

Some offices preferred to have ESP allowed at all times and wanted the ESP indicators on MCC Page 109 (OVERLOAD) to show an off-normal condition when ESP was inhibited. Other offices preferred not to have ESP allowed and wanted the indicators to remain as they were previously implemented (to show an off-normal

condition when ESP is allowed).

2. FEATURE DESCRIPTION

Available with 5E8 and later, the ESP Back-lighting Option Special Feature provides the ability to control how ESP status is indicated on the MCC.

Under the new operation, it is now possible for an office to set ESP allowed to be the normal condition. Then when ESP is allowed, no indicators are changed since this describes the normal condition. When ESP is inhibited, an indicator on MCC page 109 is back-lit yellow and the OVERLOAD indicator in the SSA is back-lit blue. This setting alerts office personnel that an off-normal condition exists. For offices that always want ESP allowed, this is a condition which requires some action. Lines that have been designated with ESP may be impacted if an overload develops.

A new field, ESP NORM ALW, on the OFCOPT form (Record 5509) allows each office to define the normal mode of operation of ESP. The ESP indicators will then show a normal or off-normal condition based on the value of the ESP NORM ALW field and the status of ESP. This feature does not affect the operation of ESP.

The ESP NORM ALW field defaults to "N" defining the normal mode of operation of ESP to be inhibited. If ESP is then set to allow (an off-normal condition), MCC page 109 is changed as follows:

- ESP indicator is back-lit white.
- SSA OVERLOAD indicator is back-lit blue.

If allowed is the normal mode, ESP NORM ALW should be set to "Y". If ESP is then set to inhibit (an off-normal condition), MCC page 109 is changed as follows:

- ESP indicator is back-lit yellow.
- SSA OVERLOAD indicator is back-lit blue.

Figure 1 describes how the indicators on MCC page 109 are affected by the value of ESP NORM ALW and the status of ESP.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	51	8.1

3.1 Translations

OFCOPT form (5509 Record) - This form supplies various miscellaneous office options and parameters. A new field, ESP NORM ALW, was added to allow each office to define the normal mode of operation of ESP. The ESP indicators will then show a normal or off-normal condition based on the value of the ESP NORM ALW field and the status of ESP.

MCC DISPLAY		ESP NORM ALW = N (inhibit is normal)	ESP NORM ALW = Y (allow is normal)		
PAGE INDICATOR	TERMINAL		ESP INHIBITED	ESP ALLOWED	ESP INHIBITED

MCC PAGE 109	Color	Back-Lit White	Not Back-Lit	Not Back-Lit	Back-Lit Yellow
ESP Indicator	Black/White	Back-Lit White	Not Back-Lit	Not Back-Lit	Back-Lit White
SSA OVERLOAD	Color	Back-Lit Blue	Not Back lit	Not Back-Lit	Back-Lit Blue
	Black/White	Back-Lit White	Not Back-Lit	Not Back-Lit	Back-Lit White

Figure 1 ESP BACK-LIGHTING OPTION TABLE**SEC. 4C8: FTS-2000 INTERCHANGEABLE NUMBERING PLAN AREA****1. FEATURE DESCRIPTION**

NPAs (Numbering Plan Area), also referred to as "area codes", were represented by 3-digit values in the following format:

- first digit: 2 - 9
- second digit: 0, 1
- third digit: 0 - 9

The pool of possible NPAs is rapidly being used up.

For 5E9(1) and later, to accommodate the need for a large pool of NPAs, the second digit was increased to 0 - 9.

1.1 Routing Calls Before INPA

A query to the NCP (Network Control Point) database at the FTS-2000 ACP (Action Point) may have resulted with the NCP returning an APN (Action Point Numbering Plan) routing number. The NCP indicated that the APN routing number was to be translated in the POTS routing domain. Both APN numbers and NANP (North American Numbering Plan) numbers cannot co-exist in the POTS routing domain. If it had been decided to egress a call with an APN routing number to a 4ESS Switch in the ASN, routing could be provisioned at the FTS-2000 egress switch to delete the APN digits and prefix NANP digits. The NANP call should have been successfully routed in the POTS routing domain (which was returned by the NCP) to the 4ESS switch.

1.2 Routing Calls After INPA

After INPA is provisioned, a query to the NCP database at the FTS-2000 ACP may result with the NCP returning an APN routing number. The NCP indicates that the APN routing number is to be translated in the DEV (Dedicated Egress Voice) routing domain. Both APN numbers and NANP numbers cannot co-exist in the POTS routing domain. If it is decided to egress a call with an APN routing number to a 4ESS Switch in the ASN, routing can be provisioned at the FTS-2000 egress switch to delete the APN digits and prefix NANP digits. The NANP call will be terminated at the 4ESS Switch since the 4ESS Switch will attempt to translate the NANP number in the DEV routing domain (which was returned from the NCP and passed to the 4ESS Switch).

When the digits of a call are changed from one dialing plan (APN) to another (NANP) by provisioning (deleting and prefixing of digits), a provisionable method of making corresponding changes in the routing category/dialing plan is necessary.

A RTE CAT field on the MCRTIDX form (5304 Record) provides the ability to change the routing category (i.e. POTS, Dedicated Egress, International Outbound, etc) of the call to correspond to changes made to the Called Number via deleting and prefixing of digits on this same record. The routing category is passed between toll/leased network offices in the RII (Routing Information Indicator) parameter of the CCS7 ISUP IAM. The routing category infers the dialing plan to be used. The 5ESS Switch maps the routing category to a specific

DAS (Digit Analysis Selector). The 4ESS Switch maps the routing category to a specific routing domain.

If RTE CAT is set to one of the values for that field, then the routing category for the call is to be overwritten with the specified routing category.

2. FEATURE ASSIGNMENT

See Division 2, Section 3E, OSPS 5ESS Switch Enhancements for more information on the OSPS INPA feature for 5E9(1).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MCRTIDX	5304	3	3Q	10.4
OFCOPT	5509	3	5I	8.1
SPABS	5319	3	3AF	10.20
SPAENXX	5320	3	3AG	10.21
TKGRP	5202	3	2A	5.1

MCRTIDX form (5304 Record) - This form is used to determine routing for various BRCS capabilities. The RTE CAT field was added for this feature to allow the routing category for the call to be overwritten with a specified routing category.

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The field OLDEST RELEASE was added for the FTS-2000 INPA feature. This field identifies the oldest (least recent) Software Release currently being run on any switch which networks into this switch. This feature cannot be active on this switch until all the switches on the network are operating on the 5E9(1) Software Release, i.e. the entry in this field is 901.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The new field, RTE NBR PLAN, was added for the FTS-2000 INPA feature. This field indicates the type of numbering plan to use for directly connected incoming or two-way trunks entered in the DIR CON DN field.

The following forms were updated to reflect expanding the range of the middle digit of the NPA code from 0/1 to 0 - 9.

SPABS form, 5319 Record
SPAENXX form, 5320 Record

SEC. 4C9: CALLING PARTY DISCONNECT INDICATION

This section was moved to Division 2, Section 4B515.

SEC. 4C10: LIMITED INTRAGROUP INCOMING CALLING LINE IDENTIFICATION

1. FEATURE DESCRIPTION

Available with 5E5 and later, LIGI (Limited IntraGroup ICLID (Incoming Calling Line Identification)) is a Special Feature, provisionable on a per-switching-office basis and uses OFS ID 504.

For 5E5 and later, CND (Calling Number Display) is provided to ISDN lines with display capability and to analog lines with LASS features and a display unit. LIGI restricts the ICLID CND to calls within the same Centrex Business group; any call to an ICLID customer that is originated outside their Centrex business group is marked "Private". In addition, all calls to lines which do not belong to a Centrex Business group will be marked as "Private". A Centrex Business Group is defined as lines that share a common TGID (Terminal Group Identifier).

Per-call privacy and the global office parameter to disable CND take precedence over LIGI. Per-call privacy is assigned to lines with features such as /DIDNP (Per-Call TN Privacy), /DIDLX (Deluxe Display Feature), etc. The CND office parameter is the field DN PRIVACY on the OFCOPT form (5509 Record).

1.1 Calling Scenarios

Several examples of LIGI call scenarios follow. In the examples, LIGI is assumed to be enabled, and for purposes of illustration, the following lines are assumed to exist:

220-0000: ISDN with display, Terminal Group 1, /LIDLXA

220-0001: ISDN with display, Terminal Group 1, /LIDLXA

220-0002: Analog line, Terminal Group 1,

979-0000: ISDN with display, Terminal Group 2, /LIDLXA

357-0000: POTS Analog line, not in a Terminal Group

879-0000: ISDN line with display, not in a Terminal Group, /LIDLXA

220-1030: Analog line with display unit, Terminal Group 1, /LIDLXA

653-2000: Analog line with display unit, Terminal Group 3, /LICNDP, /LAC1, /LAR1

653-3000: Analog line with display unit, not in a Terminal Group, /LICNDP, /LAC1, /LAR1

Example 1:

220-0000 calls 220-0001.

The calling number is displayed at 220-0001 because both lines are members of the same terminal group.

Example 2:

220-0000 calls 220-0001 while invoking per-call privacy.

The display on 220-0001 is marked "Private" since per-call privacy takes precedence over LIGI.

Example 3:

220-0000 calls 220-0002.

The calling number is not displayed at 220-0002 because the terminating party does not have display capability.

Example 4:

220-0000 calls 979-0000.

The display on 979-0000 is marked "Private" because the call originated from outside the called number's

terminal group.

Example 5:

220-0000 calls 879-0000.

The display on 879-0000 is marked "Private" because the called number is not in a terminal group, and therefore is not part of a Centrex Business group.

Example 6:

220-0002 calls 220-0000.

The calling number is displayed at 220-0000 because both lines are members of the same terminal group.

Example 7:

357-0000 calls 220-0000.

The display on 220-0000 is marked "Private" because the the originator is not in a terminal group, and therefore is not part of a Centrex Business group.

Example 8:

220-0000 calls 220-1030.

After the first ring, the calling number is displayed at 220-1030 on the analog display unit because both lines are members of the same terminal group.

Example 9:

357-0000 calls 220-1030.

The analog display unit on 220-1030 shows "Private" because the originator is not in a terminal group, and therefore is not part of a Centrex Business group.

Example 10:

LASS auto-recall.

653-2000 calls 653-3000; the call is not answered. 653-3000 sees "Private" on the analog display unit because the lines are not in the same terminal group. 653-2000 goes on hook.

653-2000 goes off hook, dials LASS AR (auto-recall) code. 653-3000 rings and sees "Private" on the analog display unit; the call is not answered. 653-2000 goes on hook.

Example 11:

LASS auto-recall with camp-on.

653-2000 calls 653-3000; the call is not answered. 653-3000 sees "Private" on the analog display unit because the lines are not in the same terminal group. 653-2000 goes on hook.

653-3000 goes off-hook (becomes busy). 653-2000 goes off-hook and dials LASS AR code, receives camp-on announcement, and goes on hook.

653-3000 goes on-hook (becomes idle). 653-2000 receives ringback and sees 653-3000 on the display unit because this was the number that was originally dialed.

653-2000 goes off-hook. 653-3000 rings and sees "Private" on the analog display unit.

Example 12:

LASS auto-callback.

653-2000 calls 653-3000; the call is not answered. 653-3000 sees "Private" on the analog display unit because the lines are not in the same terminal group. 653-2000 goes on-hook.

653-3000 goes off-hook and dials LASS AC (auto-callback) code. 653-3000 sees "Private" on the analog display unit. 653-2000 rings and sees "Private" the analog display unit

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
FOSYS	5713-2	3	5AS	8.22

FOSYS form (5713-2 Record) - This form is used to administer OFS (Optional Feature System) bits for Special and Transparency Features. OFS ID 504 must have field ACT on the FOSYSform (5713-2 Record) set to "Y" to activate this feature for the office. LIGI is provisionable on a per-switching-office basis.

SEC. 4C11: INTERCHANGEABLE NUMBERING PLAN AREA

1. BACKGROUND

NPAs (Numbering Plan Areas), also referred to as "area codes," are represented by 3-digit values in the following format:

first digit: 2 - 9
second digit: 0 - 1
third digit: 0 - 9

This pool of possible NPAs is rapidly being depleted, and a larger pool of NPAs is needed.

2. FEATURE DESCRIPTION

Available with 5E8 and later, the (INPA) Interchangeable Numbering Plan Area Special Feature has feature number 99-5E-1023. This feature accommodates the need for a larger pool of NPAs by expanding the range of the second digit of NPAs from 0 - 1 to 0 - 9.

3. TRANSLATION REQUIREMENTS

The following forms were updated to reflect expanding the range of the middle digit of the NPA code from 0 - 1 to 0 - 9.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
CTTU	5518	3	5R	14.4
INDIT	5309	3	3V	9.5
ISDNOPT	5941	5	5B	8.1
LASSCK	5946	5	5G	8.19
LASSPFX	5947	5	5H	8.20
LDIT	5300-3/5	3	3C	9.3
NOC	5501	3	5A	8.2
OFCOPT	5509	3	5I	8.1
ONPA	5312	3	3Y	8.8
ROTL	5512	3	5L	14.2
SCRNRNG	5212	3	2N	7.5

TKGRP	5202	3	2A	5.1
TLWS	5511	3	5K	14.3

SEC. 4C12: CONTROL OVER MF OUTPUTSING LEVEL

1. BACKGROUND

Without this feature, the MF (Multifrequency) loss on trunk outpulsing is set to -10dB and is not changeable.

2. FEATURE DESCRIPTION

Available with 5E7 and later, the Control Over MF Outpulsing Level Special Feature has feature number 99-5E-1405. This feature provides control over the MF outpulsing loss on a per-trunk basis. The additional loss can be specified on the TRUNK form (5204 Record) in 1dB increments over a range of 0 to 7dB. This will provide a net loss range of -10dB to -17dB. This feature only applies to trunks having the direction of 2-way or outgoing and outpulsing type of MF. Therefore, TRK DIR must be "2W" or "OUT" and OUTPLS type must be "MF" on the TKGRP form (5202 Record).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
TRUNK	5204	3	2C	5.5

TRUNK form (5204-1/2/3 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. A new field, MF LOSS, was added to allow for control over the MF outpulsing loss on a per-trunk basis. The MF outpulsing loss can be specified in 1dB increments over a range of 0 to 7dB. This will provide a net loss range of -10dB to -17dB.

SEC. 4C13: OSPS COMPIS CALL SERVICING INFORMATION DELIVERY PLATFORM

1. BACKGROUND

The OSPS operator terminal accesses databases via packet switching provided by the 5ESS Switch. These databases provide a variety of information to the operator. Prior to the COMPIS Call Servicing Information Delivery Platform feature, the interface between the database to the 5ESS Switch was through a DII (Direct ISDN Interface) Model 7B connected to an OSPS XDB (External Database) port. The DII interface supports either 9.6 KB or 19.2 KB. This feature replaces the DII with a ADTRAN ACT1 1241 channel bank, allowing transmission rates up to 64KB.

The AMLB (Automated Multileaf Bulletin) capability is derived from the MLB (Multi-leaf Bulletin) which was a hard copy binder containing frequently used information of an emergency or general nature such as hospital telephone numbers, emergency service telephone numbers and area codes used by the TSPS operators. The AMLB system is a computer based database system containing the same sort of information as the MLB and is accessed using the same OSPS terminals that handle Toll and Assist operator calls.

Prior to this feature, the COMPIS (Computer Information System) was co-located at each of the Toll and Assist switches. The CSIDP (Call Servicing Information Delivery Platform) special feature which replaces the COMPIS system is centrally located in Colorado with Toll and Assist sites remotely accessing the system through T1 lines.

2. FEATURE DESCRIPTION

For 5E8 and later, the AMLB CSIDP (Call Servicing Information Delivery Platform) special feature allows a database vendor to interface with an OSPS switch directly at rates of 64KB or 56KB. This is accomplished through an ADTRAN ACT1 1241 channel bank connected to OSPS XDB (External Database) ports (DSLs).

Because the CSIDP is being remotely connected to the switch, the DII 7B is being replaced with the ADTRAN channel bank, which has a high speed board that can run at rates up to 64KB. This feature is supported on either an ISLU (Integrated Services Line Unit) or on a RISLU (Remote ISLU). With this configuration, the number of virtual circuits over the XDB can be increased from 32 to 48.

3. FEATURE ASSIGNMENT

This special feature provides a standard X.25 interface at a rate of 56KB or 64KB. The rate of the XDB ports is assigned in the RATE field on the AMLBDSL form (5447 Record)

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AMLBDSL	5447	3	4AV	21.34

AMLBDSL form (55447 Record) - This form is used to collect data for the OSPS packet switching DSL. The RATE field allows the B1 channel of an OSPS XDB port to support rates of 56KB and 64KB on an ISLU. 64KB or 56KB are the only rates allowed on the RISLU.

SEC. 4C14: OSPS LESSON PRESENTATION SYSTEM

1. FEATURE DESCRIPTION

The LPS (Lesson Presentation System) feature is available with 5E9(1) and later Software Releases and provides OSPS operator training for a Conversant® processor attached to the 5ESS-2000 Switch. Each Conversant LPS processor uses eight IPIBs (Intelligent Personal-computer Interface Boards) to connect to the OSPS ports on the switch. Multiple LPS processors may be installed on a switch. Operators can access training from any position by logging-in to a pre-defined training serving team which connects to the LPS processor.

The LPS feature also supports database training (e.g. COMPIS) and allows lesson updates to be electronically distributed to the offices.

A training session is established at any position by logging-in to one of the special training logins associated (via office data) with a training serving team. The switch recognizes the training login and notifies the terminal that this is a training session. The terminal then places a packet-switched call (ISDN D-channel) to the LPS processor by way of a Multi-Line Hunt Group.

When the LPS computer receives the call, it logs-in to OSPS and establishes a conference connection (via the OSPS operator-to-operator conference feature) with the originating terminal. This establishes an ISDN B-channel (voice) link between the terminal and the LPS processor, allowing LPS voice files to be played to the trainee, and trainee voice responses to be detected at the LPS system.

When the trainee plugs out at the terminal, the training session is terminated and the terminal-to-LPS links are torn down.

1.1 Hardware Resources

An additional OSPS port is required at the ISLU for every training position.

PH3 protocol handlers are required for inter-SM packet switched calls. LPS makes use of ISDN D-channel packet switching, therefore, PH3s are needed.

Each LPS port attached to an SM uses one additional time slot when connected to a position for training.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for the LPS feature.

- The LPS training serving team is defined on the STINFO form (5402 Record).
- The operator logins used for LPS training are assigned on the OSPSOA form (5403 Record).
- The database for the training auto-login feature is defined on the OPDBPARM form (5434 Record). The TERM TYPE field should be set to "TRAINER" for the LPS feature.
- The external databases for training and the LPS serving team are defined on the OPEXTDB form (5435 Record).
- The Hundreds group for the Multi-Line Hunt Group is defined on the HGRPAS form (5115 Record).
- The Multi-Line Hunt Group for the LPS ports is defined on the MLHG form (5110 Record).
- The LPS ports are defined on RC View 21.34 (5447 Record). This record is used to collect data for OSPS external data base DSLs. The following fields were added to include the LPS port definitions for the LPS feature.
 - The LPS PORT field specifies whether this port is used by the adjunct processor of the LPS (Lesson Presentation System) feature. If so, this port cannot be used as an operator port on the switch.
 - The MLHG field specifies the D-channel packet Multi-Line Hunt Group number. This field must equal an MLHG number on the MLHG form (5110 Record). Also, this field must have a LISTED TN and HIGHEST LISTED TN entered and an MLHG feature entered which has been defined on the MLHGFD form(5604 Record) with a HUNT TYPE of "PSUCD".
 - The DPKT TERM field specifies the D-channel packet Multi-Line Hunt terminal number. This is used to uniquely identify a member in an MLHG that represents a packet end-point.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OPDBPARM	5434	3	4AI	27.30

OPDBPARM form (5435 Record) - This record defines the database and X.25 protocol parameters necessary to establish a session to an external data base operator's VDT. The parameters allow a call to be made to the database; a "virtual" event over a real "link". A TERM TYPE of "TRAINER" is required for the LPS feature.

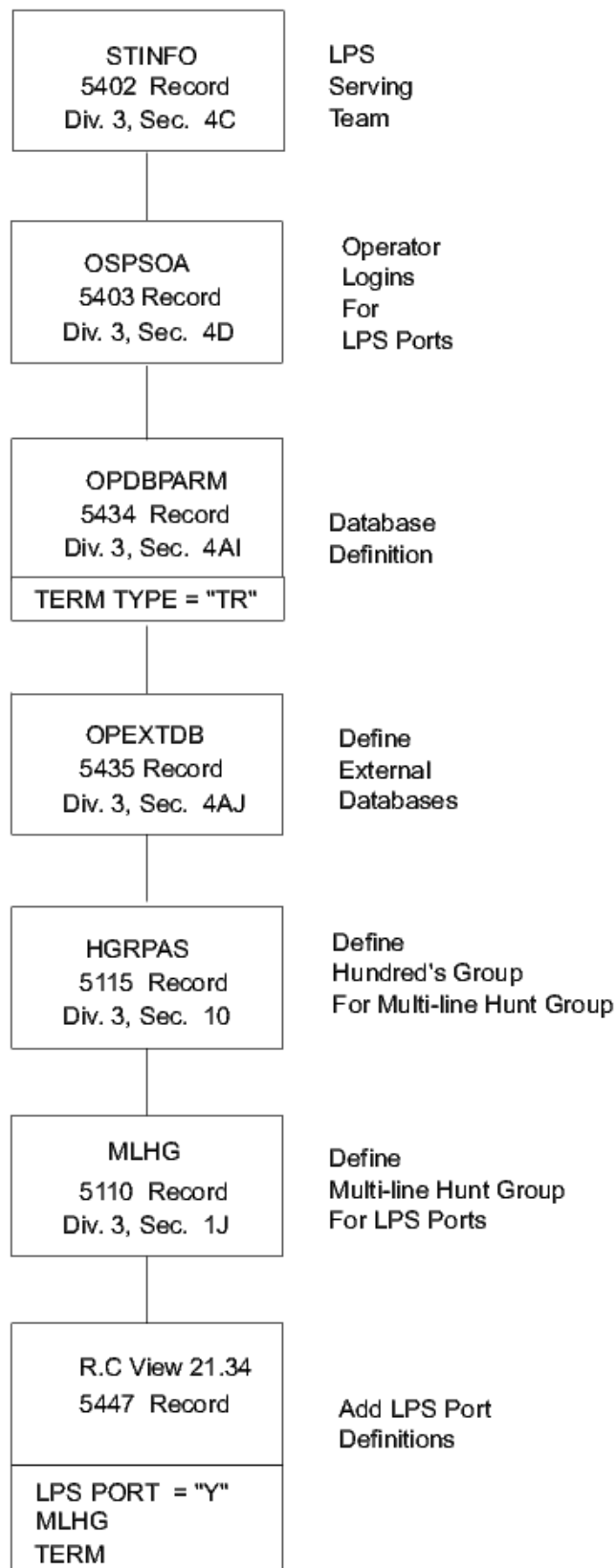


Figure 1 LPS ASSIGNMENT FORM FLOW**SEC. 4C15: AUTOMATIC TERMINAL SETUP****1. FEATURE DESCRIPTION**

The ATS (Automatic Terminal Setup) feature is available for 5E9(1) and later Software Releases. Its feature number is 99-5E-1239.

When requested by a Standard BRI (Basic Rate Interface) terminal, ATS downloads from the switch to the terminal certain parameters that are essential for terminal operation on a National ISDN (standard) BRI. A terminal can request a parameter download after initialization of layer 3, after it has been notified by the switch that a service order change has been completed, or at any other time during the life of the service when the user or repair craft deems necessary.

Parameters that are downloaded include DNs (Directory Numbers), bearer capabilities per DN, call reference busy limit per call type, DN appearance IDs, CACH EKTS (Call Appearance Call Handling Electronic Key Telephone Service) CA map per DN, intercom call appearance map per intercom group, FA/FI (Feature Activator / Feature Indicator) map, and FA/FI service descriptions.

The goal of this feature is to minimize the number of steps the user or installer must take to establish service. Downloadable and non-downloadable terminals may be mixed on an interface.

The ATS feature is available in Software Releases 5E9(1) and later in support of NI-2 (National ISDN 2) to all terminals on standard BRIs. It is not a provisionable feature, nor is it supported on the custom BRI. ATS is provided in the SM only.

2. TRANSLATION REQUIREMENTS

This feature has no data impact.

SEC. 4C16: ENHANCED INTERFACE TO MLT (MECHANIZED LOOP TESTING) FOR TESTING LINES**1. FEATURE DESCRIPTION**

The Enhanced Interface to MLT for Testing Lines is a special feature which has the AT&T feature number 99-5E-1458.

Available with 5E8 and later, this special feature provides information to the IMLT-2 (Integrated MLT-2) system regarding resource blockage failure reasons preventing the setup of a complete metallic path connection to lines terminating on the 5ESS Switch or lines served by digital loop carrier systems, i.e. SLC (Subscriber Loop Carrier) systems.

This feature also changes the actions of the switch for an Integrated SLC line when the DPT (Diode Protocol Test) set fails its testing during path setup, including the bypass pair to an RT (Remote Terminal). Information is again provided to the IMLT-2 system if the new actions verify that path setup failures are occurring because of the bypass pair or the internal switch metallic network. Such information enables the IMLT-2 system to produce additional displayed codes called VER codes to the IMLT-2 user. The additional VER codes provide more detailed information on the status of the metallic path setup than what is currently being supported.

The IMLT-2 system allows the user, such as the Automated Repair Service Bureau craft, to request the testing of a line terminating on the 5ESS Switch or served on an SLC system. The request arrives at the switch in a

message over a data link from the DCN (Data Communication Network). The 5ESS Switch attempts to set up the metallic path to the line being requested. This setup includes allocation and operation of the appropriate resources in the switch metallic network. Failures in path setup may occur because of resource contention or resources removed from service. Upon failure, the switch returns a general metallic network failure code in a response message to the IMLT-2 system. The system converts the code into a general VER code failure.

This feature returns more specific resource failure codes back to the IMLT-2 system so that the user can accurately identify the resource blockage in the network and address the problem as switch maintenance or engineering concerns. IMLT-2 system software has been modified to accept these new resource failure codes and converts them into new VER codes. The new failure codes are transparent to IMLT-2 software versions that do not support this feature or have not been modified to recognize these codes.

The failure reasons that this feature detects are as follows:

- GDXC (Gated Diode Crosspoint Compensator) unavailable which indicates that all of these hardware units are busy or out-of-service
- MA (Metallic Access) Pack unavailable which indicates that the MSU (Metallic Service Unit), non-modular or modular, switching matrix cannot interconnect the desired devices because the MA Pack is out-of-service
- MTB (Metallic Test Bus) unavailable which indicates that a specific device and the MTB serving it are busy or out-of-service
- MAB (Metallic Access Bus) Junctor unavailable which indicates that the MSU switching matrix cannot interconnect the desired devices because the MAB interconnect paths are all busy
- MTIB (Metallic Test Interconnect Bus) unavailable which indicates that the MSU switching matrices cannot interconnect the desired devices because the MTIB interconnect paths are all busy
- Protocol Circuit unavailable which indicates that the MTIB path to the Protocol Circuit is unavailable or all of the Protocol Circuit hardware units are busy or out-of-service
- DCTU (Directly Connected Test Unit) port routing failure which indicates that a DCTU port cannot be accessed, e.g. all of the PMU (Precision Measurement Units) are out-of-service
- MTB to PGTC (Pair Gain Test Controller) port unavailable which indicates that the PGTC port and the MTB serving it are busy or out-of-service
- MTB to PGTC port unequipped which indicates that there is no PGTC accessible to this DCTU
- Metallic path setup to PGTC failed for "other" reasons which indicates that the setup to a PGTC failed for reasons other than those stated in the two previous items

Path setup also involves running a set of tests, the DPT, from the MMSU (Modular Metallic Service Unit) or non-modular MSU (non-modular MSU is not supported in the 5E9(2) Software Release), to the testing equipment, DCTU, and from the MSU to the line under test to ensure the integrity of the metallic path being established; i.e., path is free of tip/ring reversals and battery/ground faults. If the requested line is served by an SLC system, a bypass pair or MTP (Metallic Test Path) is used to connect the switch to the line located at an RT. Failures, when running DPT tests toward the requested line, result in a denied request to access the metallic network and a general failure code returned in the response message sent back to IMLT-2. These actions are taken regardless whether the failure occurs externally on the MTP connection or internally within the switch metallic network.

The existing switch input message, "ALW:RTMTBOVR", overrides the failure actions for a failure on a continuity test on the connection from the MSU to the SLC line located on an RT and allows metallic path setup to continue despite possible MTP or internal switch problems.

This feature will not support the "ALW:RTMTBOVR" input message in overriding the DPT continuity test failures for IMLT-2 metallic path setups. The input message will be accepted, if the message is entered, but it will be ignored. The switch actions provided by this feature will be used instead. These switch actions are discussed in the next few paragraphs.

This feature changes the switch actions when a DPT test failure is encountered on a SLC line. Instead of denying metallic access and sending a failure in the response message, the switch saves the DPT test failure condition from the first DPT test and initiates another metallic path setup, except that this setup runs the DPT test toward the line only to the TBCU (Test Bus Control Unit) instead of to the RT. This second DPT test narrows down the location of the problem because the test is now being run internally in the switch.

If the second setup successfully completes, then the problem is external to the switch on the MTP connection. The switch allows metallic access, and the user may begin testing the requested line. The saved failure condition from the first DPT test is returned to IMLT-2 in the access response message. The IMLT-2 software has again been modified to accept these failure codes and converts them into new VER codes which indicate to the user that a faulty MTP exists. Again, these failure codes are transparent to IMLT-2 software versions that do not support this feature or have not been modified to recognize these codes. The following MTP failure conditions from the DPT tests are recognized by this feature:

- DPT to RT detected lack of continuity
- DPT to RT detected a short
- DPT to RT detected ground fault
- DPT to RT detected foreign voltage

Metallic resource allocation or operation failures on the second setup are handled similarly to resource failures on the first setup as described above. A failure during DPT tests on the second setup indicates that the initial test failed due to an internal switch problem within the metallic network. In this case, the failure is caused by an MTB; and the MA Pack, on which the MTB is located, has its internal failure count pegged. If this count exceeds a predetermined threshold, then the MA Pack is taken out of service by the switch.

The second DPT failure would cause metallic access to be denied as well, and a failure code indicating that the DPT to TBCU failed is returned in a response message to the IMLT-2 system. The system displays this condition as another new VER code.

2. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature. This special feature is not secured or optioned.

SEC. 4C17: SPECIALIZED HANDLING FOR 700 CALLS TEST CALL

1. FEATURE DESCRIPTION

Specialized Handling of 700 Calls Test Call Feature is available for 5E8 and later. This capability does not have a feature number.

This feature permits the external vendor system providing the Specialized Handling for 700 Services (also known as Easy Reach 700) to place its associated CPDL (Call Processing Data Links) in the test state (5ESS Switch port state IS TEST) remotely. The vendor also has the capability to restore the CPDLs from test to active. In the test state, live traffic is not assigned to the CPDLs. Test calls can be placed from the 5ESS Switch and is assigned to the CPDLs that are in the test state. Test calls is identified by data entered on SERVDATA form (5466 Record) in EIS APPL CODE, the application code field. Test calls are identified by adding 512 to the desired value of this field, e.g., if the application code is 17, a test call would have the application code 529.

2. FEATURE ASSIGNMENT

Data must be entered on the SERVDATA form to place test calls. Test calls may be placed in the following two ways.

1. A dedicated test trunk group can be defined, and/or
2. Dialed digits can be used to identify test calls on trunks carrying live traffic.

In either case, a new SVC ID, which is specified on the SERVDATA form, must be inserted with 512 added to the desired value for the application code field, EIS APPL CODE. Therefore, if the required application code value is 17, then 529 would be entered in the field to identify the call as a test call. The 5ESS Switch recognizes this as a test call and subtracts 512 from the application code before it forwards this information to the external vendor system. Call type determination information must be entered on ACDCTP/ACDPOL forms (5412-(A-F) Record) based on whether the dialed digits or incoming trunk group is used to identify the test calls. In either case, the assigned CALL TYPE must be specified as the SVC ID defined for test calls.

The external vendor system controls putting the CPDL into the test state, therefore, the EIS (External Information System) software must be installed before this feature can be used.

For more information on Specialized Handling for 700 Services, see Division 2, Section 4A69 and Section 4A89.

SEC. 4C18: ASP/SSP800 INTERWORKING

1. BACKGROUND

Prior to this feature, the interworking between ASP (Advanced Service Platform) and SSP800 (Service Switching Point) allowed the following transitions between triggers:

Trigger Transitioning	
From Trigger	To Trigger
SSP800	ASP
ASP	ASP

2. FEATURE DESCRIPTION

The ASP/SSP800 Interworking is a special feature having an AT&T feature number 99-5E-1150.A.

Available with 5E9(1) and later, this feature allows the following trigger transitioning:

Trigger Transitioning		
From Trigger	To Trigger	To Trigger
SSP800	ASP	
ASP	ASP	

ASP	SSP800	
*SSP800	ASP	SSP800

NOTE: *Although SSP800 to SSP800 trigger transitioning is not allowed, this special feature does allow multiple SSP800 triggers on a single call if an ASP trigger intervenes.

This feature allows the transition from ASP to SSP800 within the processing of a call. Therefore, in response to an ASP Release 0 or ASP Release 0.1 protocol query, the SCP (Service Control Point) may return a routing message specifying the use of the LEC/Pseudo Carrier and a routing number that translates to a Number Services Code (i.e., an SSP800 number). In this case, the SSP800 feature will be invoked and an SSP800 query will be sent to the appropriate SCP.

Prior to this feature, an attempt to return such a response to an ASP query would have resulted in error treatment on the call. The ability to transition from SSP800 to ASP is an existing capability.

Except for cases specifically stated below, the individual ASP and SSP800 features continue to operate independently with no impact on each other. For a detailed description of the ASP feature, see Division 2, Section 4A51 for 5E6 - 5E8 and Division 2, Section 4A126 for 5E9(1) and later and AT&T 235-190-125, *Advanced Services Platform, Release 0.1A* and AT&T 235-190-126, *Advanced Services Platform, Release 0.1B*. For a detailed description of the SSP800 feature, see Service Switching Point 800 Number Service Feature section of AT&T 234-190-120 *Common Channel Signaling Service Features*. For information on SSP800 translations, see Division 2, Section 1X.

The following service scenario describes a possible service which would require the functionality provided by this special feature. In this example, a family subscribes to an Outgoing Call Restriction feature which ensures that their teenage children are not allowed to dial 900 or 976 numbers. The family needs to call an 800 number to reach a department store's Customer Service. The OHD (Off-Hook Delay) trigger assigned to their line is encountered on any call origination and since the 800 digits are not provisioned to escape from ASP, the SCP is queried to determine if the call should be allowed. Upon determining that this 800 call may be made, the SCP instructs the switch to go ahead and route the call. Thus, the transition from ASP to SSP800 is required.

2.1 Serial Triggering

Serial triggering is an ASP term referring to the multiple ASP triggers that may be encountered in a single call resulting in multiple queries to the SCP. The first trigger may be any of the defined ASP subscribed or non-subscribed triggers and the subsequent (serial) triggers may be 3/6/10/N11 triggers or TATs (Terminating Attempt Triggers). See section 3 of AT&T 235-190-126 *Advanced Services Platform, Release 0.1B* for a detailed description of the ASP serial triggering.

With the release of this special feature, when SSP800 is detected on the digits specified in the routing response to an ASP query, the SSP800 trigger will also be considered a serial trigger. It is counted towards the ASP Serial Triggering limit. In addition, if SSP800 were the first trigger encountered on the call and a transition were made to ASP, it too would be counted towards the ASP Serial Triggering limit. Prior to the release of this special feature, this first SSP800 trigger would not have been counted.

If the SSP800 trigger causes the ASP Serial Triggering threshold to be exceeded, the call in progress will receive final treatment.

NOTE: If during serial triggering a call encounters switch based call forwarding, the serial triggering count is restarted. In addition, if the call is routed to another office the serial triggering count would be restarted. This conforms to the existing ASP serial triggering behavior.

The contents of the SSP800 Query will be impacted by the previous ASP query(s) as follows:

SSP Query Impact	
SSP800 Query	Populated From
Digits (Dialed)	Routing Number from ASP R0 response or Called Party ID from ASP R0.1 response
Digits (ANI)	Billing Number from ASP R0 response or AMA Charge Number from ASP R0.1 response or Billing Number associated with originator if not populated in any preceding ASP responses
Originating Station Type	Originating Station Type from ASP R0 response or Charge Party Station Type from ASP R0.1 response or Originating Line Information of the originating station, if not populated in any preceding ASP responses.

The contents of the ASP Query will be impacted by the previous SSP800 query as follows:

SSP Query Impact	
ASP Query	Populated From
Called Party Number - ASP R0 or Called Party ID - ASP R0.1	Routing Number from SSP800 response Digits (ANI) - ASP R0 or Charge Number - ASP R0.1
Originating Station Type - ASP R0 or Charge Party Station Type - ASP R0.1	SSP800 ANI II/OLI value 24 (translated)

The ASP feature will continue to use the SCP DAS when translating the digits returned in the ASP routing response message.

2.2 Feature Interactions

No additional feature interactions, limitations or restrictions are specified by the ability to transition from ASP to SSP800. In particular, existing pre-query feature interactions, limitations and restrictions will continue to apply for the first feature (either SSP800 or ASP) encountered on the call; and existing post-query feature interactions, limitations and restrictions will continue to apply for the last feature (either SSP800 or ASP) encountered on the call.

Prior to the release of this special feature and after its release the following transitions are not allowed:

- PFA (Private Facilities Access) to ASP
- PFA to SSP800 to ASP

3. FEATURE ASSIGNMENT

Since this special feature allows the transition from ASP to SSP800, the functionality of software update BWM94-0007 for 5E9(1), which provided unconditional escape from the ASP access codes, will no longer be necessary, and it is automatically removed with the application of this special feature for 5E9(1). Instead, the SCP must be able to appropriately handle the SSP800 digits in the ASP query; either treating them as an

error, providing a different routing DN in the routing response, or returning them as the routing DN in a routing response which specifies the PSEUDO/LEC (Local Exchange Carrier) carrier. (The latter case would have resulted in error treatment on the 5ESS Switch prior to release of this special feature.)

If the choice is to modify the SCP to return SSP800 as the routing DN, the necessary changes to the SCP to do this must be coordinated with the functionality present in all of the switches that it serves. Functionality in the various levels of software on 5ESS Switches and the impact of returning SSP800 as a routing DN follows:

5E8 5ESS Switch:

- If the digits dialed after the ASP access code, which are analyzed in the ASP dialing plan, do not specify an ASP trigger, no ASP query is launched.
- No SSP800 digits are sent in an ASP query, thus the SCP does not need to handle them.
- Modifying the SCP to return SSP800 as the routing DN will have no impact.

5E9(1) 5ESS Switch pre-BWM94-0007:

- If SSP800 is dialed after an ASP access code, the SSP800 digits are sent to the SCP in the ASP query.
- The SCP would have had to have been modified to accommodate these digits. If they were not to be treated as an error, the typical solution was to return a routing response with a trunk group parameter and the SSP800 digits, resulting in no subsequent digit translation on the 5ESS Switch and the routing of the call to another switch where the SSP800 processing occurred.
- Modifying the SCP to return SSP800 as the routing DN results in reorder to users on this level of software for calls where SSP800 is dialed after an ASP access code. Thus, the changes can not be made until all switches have installed this software update.

5E9(1) 5ESS Switch post-BWM94-0007 and prior to installation of this new special feature:

- If SSP800 is dialed after an ASP access code, no ASP query is launched.
- No SSP800 digits are sent in an ASP query, thus the SCP does not need to handle them.
- Modifying the SCP to return SSP800 as the routing DN will have no impact.

5E9(1) after this special feature is installed:

- If an SSP800 number is dialed after an ASP access code, the SSP800 digits are sent to the SCP in the ASP query.
- The SCP must be modified to handle the SSP800 digits for switches updated for BWM94-0007
- Modifying the SCP to return SSP800 as the routing DN is handled by the new functionality provided by this Special Feature.

In summary, once this special feature is installed in any *one* of the switches served by an SCP, the appropriate changes need to be made to the SCP to accommodate the SSP800 digits. In general, these changes will be one of the following, depending on the mix of software on the switches and the treatment desired:

- Modify the SCP to provide error treatment or to route the call to a different DN. These changes could be made immediately with no concern for the software level on the 5ESS Switches.
- If any one of the switches are on 5E9(1) and pre-BWM94-0007, a temporary change will be required as described in section **5E9(1) 5ESS Switch pre-BWM94-0007**, where the SSP800 call would be routed to another switch.
- If none of the switches are on 5E9(1) and pre-BWM94-0007, the permanent change may be made to return a routing response, specifying the SSP800 digits as the routing DN. This assumes that any switch retrofitting from 5E8 to 5E9(1) after this point will be at a level beyond BWM94-0007.

This special feature replaces the functionality installed with BWM94-0007 for 5E9(1) which provided an unconditional escape from ASP when an SSP800 number was detected after an ASP access code (either a CDP (Customized Dialing Plan) access code or a FCD (Feature Code Dialing) access code) specifying normal digit collection. That is, prior to this special feature, when SSP800 was detected after an FCD or CDP trigger, ASP would be ignored, and an SSP800 query would be launched. With this special feature installed, dialing the SSP800 digits after an FCD or CDP trigger results in an ASP query with the SSP800 digits as the Collected Address for Release 0.1 protocol queries or Dialed Digits for Release 0 protocol queries. The SCP must now be able to handle the SSP800 digits in the ASP query.

Escape functionality was provided in 5E9(1) for Off-Hook Delay (OHD) and Option 1 SIT (Shared Interoffice Trunk triggers and continues to operate unchanged after this Special Feature is installed.

3.1 Termination Notification

The TN for SSP800 call during serial triggering records the answer in all TNs associated with the call at the time when the answer is returned by processing an ASP STR (Send_To_Resource) request. A TN always records the first answer indication on the leg with which it is associated. Subsequent answer indications from STR processing or true call answer do not change the answer indicator or TN connect time once the initial answer has been recorded.

For calls which do not complete normally, the feature currently being invoked handles the error. No indication of the abnormal condition which ended the call is recorded in TN for previous SSP800 legs.

4. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
DSAPP	5537	3	5AK	8.17

DSAPP form (5537 Record) - This form is used to specify the Direct Signaling Application Type, Transaction Type and the Subsystem Number used by the direct signaling trunks which use CCS7 (Common Channel Signaling System 7) signaling protocols. A data rule was added for the APPLIC field.

5. GLOSSARY

ASP	Advanced Services Platform
CDP	Custom Dialing Plan
DN	Directory Number

FCD	Feature Code Dialing
LEC	Local Exchange Carrier
OHD	Off-hook Delay
PFA	Private Facilities Access
SCP	Service Control Point
SSP800	Service Switching Point
STR	Send To Resource
TAT	Terminating Attempt Trigger

SEC. 4C19: INFORMATION SERVICES GATEWAY

1. FEATURE DESCRIPTION

The ISG (Information Services Gateway) feature allows service providers to offer cellular customers access to various information services by dialing a single cellular feature code (e.g., *INFO) from a mobile phone. A voice mail storage system provides the mobile station with a voice menu from which the subscriber dials the number for the desired information (e.g., weather, sports, traffic, etc.). The feature number for this capability is 99-5E-2446. This feature is available in 5E9(2) and later.

A mobile station might gain access to weather information by entering a 1, sports information by entering a 2, and traffic information by entering a 3. The voice mail storage system translates the entered digit or digits into the 10-digit telephone number of the corresponding information service and transmits this information back to the AUTOPLEX system. The AUTOPLEX system then disconnects the mobile station from the voice mail system and establishes an outgoing call to the selected information service.

This 5ESS Switch feature provides three specific functions. First, the feature collects the dial tone multi-frequency digits from the voice mail system corresponding to the 10-digit telephone number of the information service provider. Second, this feature disconnects the channel to the voice mail system. Finally, this feature sends the collected DTMF (Dual Tone Multifrequency) digits to the Executive Call Processor/Access Manager for further analysis.

The ISG feature operates with the wireless/AUTOPLEX System 1000 application of the 5ESS Switch. Therefore, at least one of the wireless/AUTOPLEX System 1000 features (such as Frequency, Time, or Code Division Multiple access, or the Access Manager Communications Package) is needed.

This feature has no hardware requirements other than the typical trunk connection to the voice mail system, if not already present.

2. FEATURE ASSIGNMENT

To provision this feature, the trunk group must be provisioned as an Information Services Gateway trunk group.

3. TRANSLATION REQUIREMENTS

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New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. The ISG field supports the ISG feature.

SEC. 4C20: MLHG QUEUING FOR INDIVIDUAL HUNTED TN DIALED CALLS

1. FEATURE DESCRIPTION

Available with 5E5 and later, the MLHG Queuing for Individual Hunted TN Dialed Calls feature allows a MLHG with a Modular Queuing Feature to queue an incoming call to an individual hunted TN when all terminals are busy. This option is specified through the Q INDI HNT TNS field on the MLHG form (5110 Record).

In 5E6 and later, a new ICI (Incoming Call Identification) for queuing of individual hunted TN dialed calls can be assigned to an ISAT MLHG through the HUNTING ICI list on the ICIPF form (5903 Record) and to an ISAT MLHG terminal through the ICI LIST on the DSLUSR form (5908 Record).

2. BACKGROUND

A MLHG may be assigned a Modular Queuing feature through the QFEATURE field on the MLHG form. The Modular Queuing feature is defined on the QUFD form (5617-1/2 Record) and group parameters can be specified on the QUGPA form (5617-3/4 Record).

Prior to 5E5, the Modular Queuing feature was used to queue only calls to the Listed Directory Number; the first idle terminal answered the first queued call. A call to an individual hunted TN was not queued.

For an ISAT MLHG that was assigned a Modular Queuing feature, incoming calls were queued according to the ICIs (Incoming Call Identifiers) assigned to that MLHG. Before the 5E6 Software Release, only calls to the Listed Directory Number were queued; calls were answered, according to ICI priority and time in the queue, by the first idle terminal able to access that type of ICI. A call to an individual hunted TN was not queued.

3. TRANSLATION REQUIREMENTS

The following three forms are necessary for MLHG Queuing for Individual Hunted TN Dialed Calls translation requirements:

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
MLHG	5110-1/2/3	3	1J	3.5
ICIPF	5903	5	1D	3.43
DSLUSR	5908-1	5	1I	23.2

MLHG form (5110 Record) - For 5E5 and later, the Q INDI HNT TNS field indicates if queuing is allowed for calls to an individual hunted TN: a TN defined on a MLHLN form (5111 Record) with NONHUNT set to "N" or a CKT SWITCHING MLHG TN defined on a DSLUSR form (5908 Record) with CKT SWITCHING NONHUNT set to "N". If Q INDI HNT TNS is "Y", QUEUING ALLOWED must be "Y".

ICIPF form (5903 Record) - For 5E6 and later, the value "QUE" may be entered as a HUNTING ICI. This ICI is used to queue calls to individual hunted TNs. If one or more "QUE" ICIs is entered, the GRP NBR must be

defined on a MLHG form with Q INDI HNT TNS set to "Y".

DSLUSR form (5908 Record) - For 5E6 and later, the value "QUE" may be entered in the ICI list. At least one "QUE" ICI must be entered if there is an ICIPF form where the GRP TYP field is set to "HUNT", the GRP NBR field is the same value as the CKT MLHG on the DSLUSR form and at least one "QUE" has been entered in the HUNTING ICI list.

SEC. 4C21: FULLY/SEMI RESTRICTED LINES - SPEED CALL INTERACTION

1. FEATURE DESCRIPTION

Available with 5E6 and later, the Fully/Semi Restricted Lines - Speed Call Interaction Transparency Feature allows a call originated through Speed Calling from a fully-restricted or semi-restricted line and terminating outside of the terminal group to be unblocked.

2. BACKGROUND

A line or MLHG terminal assigned a TGSR (Terminal Group Station Restriction) feature is considered to be a member of the terminal group specified on the appropriate TGSRFD form (5607-1/2 Records), TGSRLPA form (5607-3 Record), TGSRLPA form (5607-4 Record) or BFG form (5625-1/7 Records). A member of a terminal group may be limited with regard to which stations it may originate or terminate a call. A TGSR feature may define a line/MLHG terminal's origination and/or terminations to be unrestricted, semi-restricted or fully-restricted.

Unrestricted lines may originate or terminate to any station.

Semi-restricted lines may originate or terminate to any station within the terminal group, including the attendant. All other calls are blocked.

Fully-restricted lines may originate or terminate to any station within the terminal group, excluding the attendant. All other calls are blocked.

Originating and terminating restrictions are independent of each other and may be different. For example, a line may be fully-restricted originating and unrestricted terminating.

Currently, a fully-restricted or semi-restricted (on originations) line originating a call through Speed Calling that terminates outside of the terminal group is blocked by the TGSR feature. The Fully-Semi Restricted Lines - Speed Call Interaction Transparency Feature will allow the customer to choose, on a Speed Call list basis, whether or not to override the TGSR limitations in this case.

3. TRANSLATION REQUIREMENTS

The SCLIST (Speed Calling List) form (5627-5 Record) is necessary for Fully/Semi Restricted Lines Speed Call Interaction translation requirements. The corresponding Recent Change view for this form is 4.2.

The TGSR OV field, on the SCLIST form indicates whether or not to override originating Terminal Group Station Restrictions when originating a call using this speed call list. If ORIGINATING RESTRICTION is "FULL" or "SEMI" on the TGSRFD form (5607-1/2 Record) and a call is originated through this speed call list the call will be handled as if ORIGINATING RESTRICTION was "NONE". Calls originating outside of this speed call list will still be subject to the specified ORIGINATING RESTRICTION.

SEC. 4C22: ENTRY OF FORWARD-TO-DN/IDP INTERACTIONS

1. FEATURE DESCRIPTION

The Entry of Forward-To-DN/IDP Interactions feature will give a 5ESS Switch the option of functioning as a 1A ESS Switch. If the option of functioning as a 1A ESS Switch is chosen, then this feature will allow the end user activating call forwarding to immediately hear dial tone after entering the "escape to POTS" access code as the first digits dialed of the Forward To-DN.

In both 5E4(2) and 5E5, the feature is chosen on a per office basis using the TFOS (Transparency Feature Optioning System). In 5E6 and later, however, this option is specified on a per IDP Group basis using the IDP group parameters.

NOTE: Lucent Technologies advises using this feature on a per office basis.

2. TRANSLATION REQUIREMENTS

The following IDPGP (Individualized Dialing Plan Group Definition) form is necessary for Entry of Forward-to-DN/IDP Interaction translations requirements. The corresponding Recent Change View for this form is 9.10.

IDPGP form (5601-4 Record) is used to define the options associated with IDPs. A new field, CF DT POTS, was added to this form which specifies whether a dial tone should be returned following entry of an "escape to POTS" dial code as part of a Call Forwarding Forward-to-DN.

SEC. 4C23: CALL FORWARDING ON DIRECT CONNECT

1. FEATURE DESCRIPTION

The Call Forwarding on Direct Lines feature enables the assignment of call forwarding to direct lines. However, it must be pointed out that those call forwarding features that require a dial code to activate the feature cannot be assigned to direct connect lines. For example, /CFV cannot be assigned to direct connect lines.

For 5E5 and earlier, the Call Forwarding Feature on Direct Connect was not allowed on the 5ESS Switch. The intent of this feature is to allow the user to assign the call forwarding feature on direct connect lines as they are assigned to other lines.

2. TRANSLATION REQUIREMENTS

The following three forms are necessary for Call Forwarding on Direct Connect translation requirements:

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
LINE	5109-1/2/3	3	1I	1.1 - 1.6
CFWFD	5614-1/2	4	15A	12.12
MLHLN	511-1/2/3	3	1K	3.2

LINE form (5109-1/2/3 Record) - Used to define the office Equipment Number and features for each telephone number in a 5ESS Switch.

CFWFD form (5614 Record) - The Call Forwarding feature allows calls completing to a customer's Directory Number to be redirected to another number. This form is used to define a number of separate, but related features, by selecting various feature options for Call Forwarding.

MLHLN form (5111-1/2/3 Record) - The MLHLN form is used to define the individual Terminal Numbers assigned to a particular Multi-Line Hunt Group. Each MLHG/Terminal Number must be assigned an equipment number and specific options and features.

SEC. 4C24: ALTERNATE MUSIC AND ANNOUNCEMENTS FOR MLHG QUEUING

1. FEATURE DESCRIPTION

Available with 5E6 and later, the Alternate Music and Announcements for Multi-Line Hunt Group Queuing feature allows music to be heard interspersed between announcements. A modular queuing feature may have the following delay tones specified:

- INTER DELAY TONES
- POST DELAY TONES

When music is specified as an INTER DELAY TONE, the caller will hear the music interspersed between the announcements. When music is specified as POST DELAY TONE, the caller will hear the music following the last announcement until the call is dequeued or abandoned.

2. TRANSLATION REQUIREMENTS

The following four forms are necessary for Alternate Music and Announcements for MLHG Queuing translation requirements:

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
QUFD	5617-1/2	4	18A	12.40
QUGPA	5617-3/4	4	18B	3.40
TRUNK	5204	3	2C	5.5
MLHG	5110-1/2	3	1J	3.5

QUFD form (5617-1/2 Record) - The QUFD form is used to define the Modular Queuing feature. Two new fields (TGN and MEMB) have been added which indicate the trunk and the member number of the trunk to be used as a music source for music delay tones.

QUGPA form (5617-3/4 Record) - The QUGPA form not only defines queuing for MLHG's Multi-Line Hunt Groups but also defines modular Queuing to provide queuing for outgoing private facilities, either a physical Trunk Group or a Simulated Facility Group. Two new fields (TGN and MEMB) have been added which indicate the trunk and member number of the trunk to be used as a music source for music delay tones.

TRUNK form (5204-1/2/3 Record) - The TRUNK form defines each member of a Trunk Group in a 5ESS office. A new field has been added MUSIC SOURCE which indicates whether or not this trunk can act as a source of music for modular queuing delay tones defined on the QUFD form (5617-1/2 Record) or QUGPA form (5617-3/4 Record).

MLHG form (5110 Record) - An MLHG may be assigned a Modular Queuing feature through the QFEATURE field on the MLHG form. The Modular Queuing feature is defined on the QUFD form (5617-1/2 Record) and group parameters can be specified on the QUGPA form (5617-3/4 Record).

SEC. 4C25: FACILITY RESTRICTION LEVEL

1. FEATURE DESCRIPTION

Available with 5E7 and later, the FRL (Facility Restriction Level) feature is used by the BRCS Automatic Route Selection feature. FRLs are used to restrict facility access by defining a "level" of Privilege necessary to obtain use of the facilities.

2. TRANSLATION REQUIREMENTS

The following eleven forms are modified for Facility Restriction Level translation requirements:

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ARSFD	5608-1A/1B	4	9A	12.11
ARSFRL	5608-7	4	9G	10.8
ARSGPA	5608-2	4, 9B	10.5	
ARSLPA	5608-3	4	9C	1.21
ARSMMPA	5608-4	4	9D	1.21
ARSTCM	5608-8	4	9H	10.9
ARSTPA	5608-5	4	9E	5.21
ATHFCOS	5619-4	4	20D	4.19
BFG	5625-1/7	4	26A	12.9
MCRTIDX	5304	3	3Q	10.24
PNDP	5608-10/11	4	9J	9.21

ARSFD form (5608-1A/1B Records) - Is used to define various combinations of options associated with Automatic Route Selection. New FRL LINE valid entries: 0 - 16.

ARSFRL form (5608-7 Record) - Is used to define the set of Alternate Facility Restriction Levels used for an Automatic Route Selection Group. New field AFLTFRL 0 was added.

ARSGPA form (5608-2 Record) - Is used to define the group level of information required for the Automatic Route Selection capability. New FRL LINE field valid entries: 0 - 16.

ARSLPA form (5608-3 Record) - Is used when assigning ARS features to non-Multi-Line Hunt lines to assign ARS feature parameter to the lines if the default parameters of the ARSFD form are inappropriate or unspecified. New FRL LINE field valid entries: 0 - 16.

ARSMMPA form (5608-4 Record) - Is used when assigning ARS features to Multi-Line Hunt line to assign ARS feature parameters to lines if the default parameters of the ARSFD (5608-1A/1B Record) are inappropriate or unspecified. New FRL LINE field valid entries: 0 - 16.

ARSTCM form (5608-8 Record) - Is used to input the FRL (Facility Restriction Levels) to be used during call processing on ARS (Automatic Route Selection) calls which originate on private trunks sending a one-digit TCM (Traveling Class Mark). New FRL LINE field valid entries: 0 - 16.

ARSTPA form (5608-5 Record) - Is used when assigning ARS features to trunks if the default parameters of the ARSFD form (5608-1A/1B) are inappropriate or unspecified. New FRL LINE field valid entries: 0 - 16. Data Rule modified.

ATHFCOS form (5619-4 Record) - Is used to define the restriction and features associated with each FCOS (main or alternate) assigned at an authorization code group. New FRL LINE field valid entries: 0 - 16.

BFG form (5625-1/7 Records) - Is used to specify and construct BFGs for use when assigning subscriber features to analog lines or ISDN terminals. New FRL LINE valid entries: 0 - 16.

MCRTIDX form (5304 Record) - Is used to determine routing for various BRCS capabilities. New FRL field valid entries: 0 - 16.

PNDP form (5608-10/11 Records) - Is used to provide private digit analysis of both public and private numbers. New FRL field valid entries: 0 - 16.

SEC. 4C26: RANDOM MAKE BUSY

1. FEATURE DESCRIPTION

Available with 5E6 and later, this feature provides the ability to apply artificial busy to any number of members of an MLHG.

There are three make busy features:

MAKE BUSY FEATURES	
Feature	Definition
RANDOM MAKE BUSY	This feature provides the ability to apply artificial busy to any number of members of a non-ISAT MLHG.
MEMBER MAKE BUSY	This feature allows from 1 to 32 terminals within a non-ISAT MLHG to be made busy at the same time.
POSITION MAKE BUSY	This feature allows a single terminal within an ISAT MLHG to be made busy.

Terminals are eligible for Position Make Busy and Member Make Busy make busy treatment by the three ways listed below:

- **MAKE BUSY KEY** - The terminal is associated with a scan point on the MLHLN form (5111-1/2/3 Record) or DSLUSR form (5908-1/2/3/4/5/6/7/8/9/10/11 Record). Turning the scan point on/off will result in turning the make busy on/off.
- **MAKE BUSY SUBGROUP** - The terminal is assigned to a Member Make Busy subgroup on a DSLUSR form or SHTN form (5902-1/2 Record). At least one member of the MMB subgroup is also assigned a button with an action of "BYMB". When the "BYMB" button is toggled for any terminal within the subgroup, then all terminals with the subgroup have the make busy turned on/off.
- **MAKE BUSY BUTTON (NON-SUBGROUP)** - The terminal does not have an MMB subgroup assigned, but one of the corresponding CFGGRP forms (5964 Record) has an action of "BYMB". Since the terminal is not part of a subgroup, toggling the feature button turns the make busy on/off for only the specific terminal. Position Make Busy buttons are also assigned in this manner, but the CFGGRP form will have an action of "BYPO". Unlike Member Make Busy and Position Make Busy, a Group Make Busy feature button always makes busy the entire group (although only terminal 1 can toggle the make busy button).

2. FEATURE ASSIGNMENT

Random Make Busy may be assigned via a scan point on the MLHLN or DSLUSR forms, via a subgroup on the DSLUSR or SHTN forms or via a feature button on the CFGGRP form with an action of "BYRB". When assigned via a scan point, all terminals within an MLHG that share that scan point will be made busy when the feature button is toggled. When assigned via a subgroup, all terminals within an MLHG that share that subgroup number will be made busy when the button is toggled. Unlike Member Make Busy subgroups, a Random Make Busy subgroup has a specific feature button owner even though other terminals may have Random Make Busy buttons. Only the owner may toggle the button. Only the owner light reflects the status of Subgroups. When assigned via a CFGGRP action of "BYRB" and not part of a subgroup, then toggling the

feature button will make busy only that terminal. The terminal automatically owns the button.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLUSR	5908-1-11	5	11	23.2
—	5840	8	42	—
SHTN	5902-1/2	5	1C	23.20
MLHLN	5111-1/2/3	3	1K	3.2
MKBCTT	5119	3	1AC	3.1
CFGGRP	5954	6	7A	12.5

DSLUSR form (5908 Record) - This form is used to assign digital lines. Two fields, RND MKB and RND SUBGP were added. The existing field MMB SUBGROUP was renamed to MMB SUBGP.

5840 Record - This office record is an output only record and is generated from a combination of many ODA input forms and defines all possible or available scan points that are defined as operational on the EQMSP (5750 Record) or EQMMSP (5750 Record) forms.

SHTN form (5902-1/2 Record) - This form is used to assign a Primary or Secondary TN or MLHG/TERM to ISDN Terminals. The field RND SUBGP was added and the existing field MMB SUBGROUP was renamed to MMB SUBGP.

MLHLN form (5111 Record) - This form is used to define the individual Terminal numbers assigned to a particular MLHG. The RND MKB field was added to specify a Random Make Busy scan point.

MKBCTT form (5119 Record) - This form is used to specify the call termination types for all make busy features: Random Make Busy, Member Make Busy, and Position Make Busy. It is also used to specify the owner for a Random Make Busy subgroup.

CFGGRP form (5964 Record) - This form is used to assign BRCS (Business and Residence Customer Service) feature actions to CPE (Customer Premises Equipment) user terminal buttons. "BYRB" was added to the ACTION field to activate Random Make Busy.

SEC. 4C27: RECENT CHANGE DELAYED MESSAGE

1. BACKGROUND

The RCDM (Recent Change Delayed Message) feature reduces the amount of coordination necessary between cable splicers and RCMAC (Recent Change Memory Administration Center) personnel during cable throws. Reduced coordination results from allowing telephone activation of RCDMs by the cable splicer when the cable splicer is ready to do the cable throw. A cable throw is the TelCo activity of repairing, replacing, or adding telephone wires between the end users and the CO (Central Office).

2. FEATURE DESCRIPTION

Already available is the ability to input into translations all line changes associated with the cable throw in advance as Recent Change Delayed Messages. These delayed messages can be input, activated, deactivated, and deleted via a terminal by personnel at the CO, RCMAC, and SCC (Switch Control Center). Personnel at the CO can also obtain status on a delayed message.

For 5E7 and later, this feature provides the capability to activate RCDMs by telephone on a line defined with a COS (Class Of Service) of "activate service order". This is done by having "RCDM" as the CLASS OF

SERVICE on an LCC form. This line could be a spare wire pair within the cable vault that is temporarily assigned this function until the cable throw is complete. Personnel at the CO can inhibit telephone activation of delayed messages. Personnel can also obtain the inhibit/allow phone activation status of RCDMs.

The line with the new COS "RCDM" will be an analog POTS line that can only originate calls (no terminations). This line will be used by the cable splicer to dial only 5-digit service order (clerk ID) numbers. Call processing will collect the 5-digit service order number (clerk ID). No digit analysis or translations are performed. Each clerk ID is associated with a specific RCDM clerk file. This file is a set of Recent Change changes to be applied and is set up the same way a Recent Change demand release file is set up (See the Recent Change Batch Manual). If no specific file of RCDMs exists for the clerk ID dialed in, a Reorder Tone is returned to the cable splicer. If telephone activation of RCDMs is not allowed or the system does not have resources to release and apply the RCDMs, a Busy Tone is returned to the cable splicer. If the request is accepted to activate the RCDMs associated with the dialed in service order, then Dial Tone is returned to the cable splicer to allow more service orders to be dialed.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
LCC	5306	3	3S	4.1
TIMING	5520	3	5T	8.5

LCC form (5306 Record) - This form is used to define each LCC (Line Class Code) in a 5ESS Switch. The CLASS OF SERVICE field is used to describe originating service and feature handling by Class of Service. The CLASS OF SERVICE enumeration "RCDM" was added. A new data rule was added to prevent many feature interactions for RCDM lines which are basic, POTS lines. A new data rule was added to insure that RCDM service class can only be assigned to analog, non-mlhg lines. A new data rule was added so that dependent DN's cannot be assigned to RCDM lines.

TIMING form (5520 Record) - This form is used to define intervals for Permanent Signal, Partial Dial, and Critical Timing in a 5ESS Switch. The SERVICE CLASS enumeration "RCDM" was added. When SERVICE CLASS is "RCDM", SIGNAL TYPE must be "DP" or "TT", START SIGNAL must be "NONE" and defaults for the other TIMING fields are given as recommended values.

SEC. 4C28: ACCOUNT CODE - TOLL DIVERSION TO AN ATTENDANT/DPAT

1. BACKGROUND

This feature adds two capabilities to the 5ESS Switch that make it compatible with two 1AESS Switch features: using an account code to override toll diversion to an attendant, and using an account code to override DPAT (Dialing Plan Access Treatment) restrictions.

1.1 Toll Diversion Override

Toll Diversion to an Attendant provides the ability to deny termination. For example, a DN (Directory Number) can be restricted from dialing any calls that begin with the 1+ prefix; when a 1+ call is dialed, it is routed to the attendant and not to the dialed DN.

On the 1A ESS Switch, when a restricted user with a toll diversion feature places a toll call using any CDAR (Customer Dialed Account Recording) access code followed by an account number, the call is allowed to continue without being diverted to an attendant. On the 5ESS Switch, when a similarly restricted user with a toll diversion feature places a toll call using any ACCT access code (the ACCT feature is equivalent to the 1A ESS Switch CDAR feature) followed by an account number, the call is diverted to an attendant. The new

transparency feature allows the 5ESS Switch operation to conform to the 1A ESS Switch; it permits a call to complete without being diverted to an attendant when an ACCT access code followed by an account number has been entered.

1.2 DPAT Override

On the 1A ESS Switch, when a user enters a CDAR access code that has an associated routing access code that is CAT (Customer Access Treatment) restricted, the CDAR access code bypasses the CAT restrictions. On the 5ESS Switch (where CAT is referred to as DPAT (Dialing Plan Access Treatment)), DPAT restrictions on the routing access code associated with the dialed ACCT access code are not bypassed. The new transparency feature allows the 5ESS Switch operation to conform to the 1A ESS Switch: DPAT restrictions for routing access codes associated with an ACCT access code can be bypassed.

2. FEATURE DESCRIPTION

For 5E9(1) and later Software Releases, the Account Code - Toll Diversion to an Attendant/DPAT feature is available as feature number 99-TP-1008.

This is a transparency feature that provides two new capabilities on the 5ESS Switch: an account code can be used 1) to override toll diversion to an attendant and 2) to bypass DPAT restrictions for the first associated code of an account use code.

3. FEATURE ASSIGNMENT

The feature is implemented on an account group basis. Two new fields on the ACCTGP form determine how each of the capabilities is to be processed by the 5ESS Switch for that account group. To allow an account code to override toll diversion to an attendant, a valid screening index must be entered on the ACCTGP form in the TOLL SI field. If TOLL SI is left blank, account codes in that account group do not override toll diversion.

Currently only an authorization code can be used to override toll diversion. To avoid affecting this operation the authorization code is checked first when both features are active. If the authorization code fails to override toll diversion, the account code is then checked.

To allow an account group to bypass DPAT restrictions for the first associated code, the field DPAT OVRD on the ACCTGP form must be set to "Y".

Only the first associated code of an account use code bypasses DPAT restrictions. More than one associated code may exist, but DPAT restrictions are checked for the subsequent associated codes.

4. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ACCTGP	5623-2	4	24B	4.21

ACCTGP form (5623-2 Record) - This form is used to define the group level information required for the Account Code capability. Two new fields were added. The TOLL SI field specifies a Toll Screening Index to override toll diversion to an attendant. The DPAT OVRD field determines if DPAT restrictions should be overridden for the group.

SEC. 4C29: ANNOUNCEMENT AS ERROR TREATMENT FOR LASS ACCESS CODES

1. BACKGROUND

Prior to this feature, if a user attempted to use a LASS (Local Area Signaling Services) feature and did not have the proper permissions to access it (e.g., the user was not paying for the LASS feature), the user would receive a reorder tone.

2. FEATURE DESCRIPTION

Available with 5E9(1) and later, this feature is a transparency feature having Lucent Technologies feature number 99-TP-1006. This feature provides the option to route a user to reorder tone or to route the user to an uninterruptible announcement when the user dials any LASS feature access code and the LASS feature is denied to the user.

- **NOTE:** Exception: The LASS user will be routed to the existing intercept treatment if the LASS feature is denied because of IDP (Individual Dialing Plans) restrictions, such as CAT (Customer Access Treatment) Code Restrictions.

A single announcement can be provided regardless of which LASS feature access code the user dialed. The announcement is provided as an option on a per switch basis.

The announcement as error treatment will be provided for the following LASS feature access codes:

- AC (Automatic Callback)
- AR (Automatic Recall)
- COT (Customer Originated Trace)
- SCF (Selective Call Forwarding)
- SCR (Selective Call Rejection)
- SDA (Selective Distinctive Alert)
- SCA (Selective Call Acceptance)
- CAR (Computer Access Restriction)

On the 5ESS Switch, access to the announcement capability is provided only to analog users. ISDN users will not be given the announcement.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LASSOP	5945	5	5F	8.21

LASSOP form (5545 Record) - This form is used to supply global office options and parameters for the LASS features. The new field ERROR TREAT RTI was added.

SEC. 5: DATA SERVICES FEATURES

SEC. 5A: PACKET MDR

1. FEATURE DESCRIPTION

The PMDR (Packet Message Detail Recording) capability is available with 5E7 and later Software Releases. The feature is also referred to as MDR to CL (Customer Location) for packet switched data calls.

The PMDR feature is based on the existing MDR feature which generates reports for voice and circuit-switched data calls. With PMDR, customers can generate reports for packet-switched data calls. Data reports are provided for each applicable DN (Directory Number). This information can be used by customers in cost analysis and private network management.

The data calls must either originate, terminate, or both on DTE using a BRI (Basic Rate Interface) or a channel of a T1 facility, XAT (X.25 Access over T1 Facilities). PMDR supplies records for packet switched data calls on both D and B channels, including XAT.

Reports are per-call Packet MDR records that are sent over dedicated D channel X.25 data links from the 5ESS Switch to an AP (Application Processor) or a similar processor at the customer's private facilities.

The AP stores and processes the MDR records. It is external to the 5ESS Switch and may reside at the customer's location. Software development for the AP is the responsibility of AT&T Network Systems.

The 5ESS Switch collects the information for the MDR record, formats the record, and sends it over the data link. MDR information is collected when a packet-switched data virtual call is terminated, a permanent virtual circuit is interrupted (billable side provisioned with packet MDR is unplugged), at midnight for a permanent virtual circuit, or when a virtual call meets long duration criteria (e.g., a call that spans two or more consecutive midnights and uses the switched virtual circuit at the 5ESS Switch in the packet switched network).

PMDR records are applicable only to ISDN lines. If one end is not ISDN capable, modem pool usage is required; an MDR record can be generated for a digital to analog call through a modem pool.

1.1 MDR Header Information

PMDR uses the same record header format as the MDR feature. The first eight bytes of every MDR contain the standard AP header (required on all information passed between the 5ESS Switch and the AP). The AP header contains the following information:

- Switch Client (previously Session Identification)
- Business Customer Identification
- Feature Identification (previously Application Identification)
- Length

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907-1/7	5	1H	23.2
DSLUSR	5908-1/11	5	1I	23.2
XAT	5909-1/2	5	1J	23.40

MDRGP	5624-2	4	25B	24.33

Packet MDR is assigned on the DSL, XAT and DSLUSR forms and defined on the MDRGP form. All PMDR Groups entered must be defined on the MDRGP form.

2.1 ISDN/Packet Switching Translations

DSL form (5907-1/7 Record) - This form is used to define the attributes of a DSL (Digital Subscriber Line; also called BRI). It also defines the attributes of the B1 or B2 channel of the DSL if either or both of those channels are dedicated Permanent Packet (i.e., X.25) Switching. DSL is available with 5E5 and later Software Releases.

The PMDR fields added for this feature appear on the 5907-4 and 5907-7 Records for entries associated with PPB1 (Permanent Packet B1) and PPB2 channels.

The PMDR GRP field contains the Packet MDR Group name associated with a PPB1 or PPB2 TN. The entry can contain up to eight characters. The field is not required and does not have a default value. A PMDR GRP must be defined on the MDRGP form as MDR GROUP NAME with the PACKET MDR field entered as "Y".

Also added is PMDR ACT. An entry of "Y" or "N" determines if the Packet MDR Group is activated. This is not a required field.

The following restrictions apply: PMDR ACT must be entered if PMDR GRP is entered; PMDR ACT must not be entered if PMDR GRP is not entered; if the B1 SERV or B2 SERV field is not entered or is not "X25", PMDR GRP and PMDR ACT must not be entered.

DSLUSR form (5908-1/11 Record) - This form is used to define the associated TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases.

The PMDR fields added in 5E7 are the same as those on the DSL form, but can be used here to define PMDR information for a DSL TN associated with DPKT or ODB packet switching.

The PMDR GRP field indicates the Packet MDR group associated with the TN. An entry can be up to eight characters. This is not a required field. PMDR GRP must be defined on the MDRGP form. Note that when PMDR GRP is entered, the corresponding DSL form must not have the D SERV field set to "XMP".

PMDR ACT indicates the active status of the PMDR GRP. The restrictions associated with this field include the following: PMDR ACT must be entered if PMDR GRP is entered; PMDR ACT must not be entered if PMDR GRP is not entered; if the fields DPKTTN, DPKTMLHG, DPKTTERM or ODBTN are not entered, PMDR GRP and PMDR ACT must not be entered.

XAT form (5909-1/2 Record) - XAT refers to X.25 access to T1 facility DSO channels. This form is used to define ports for each channel of a T1 facility on a subscription basis using X.25 protocol. The unsubscribed channels can be used as trunk members of PRI trunk groups with the D-channel supporting Q.931 signaling and the B-channel(s) supporting CSV and CSD. T1 facility channels can be provisioned and supported like DSL Permanent Packet B-channels, which includes membership in MLHGs. XAT was added with the 5E6 Software Release.

The PMDR GRP and PMDR ACT fields were added to this form with the same restrictions between the fields as in DSL and DSLUSR; however, the following restriction applies specifically to the XAT form: if the DEN field is not entered, PMDR GRP/PMDR ACT must not be entered.

MDRGP form (5624-2 Record) - This form was added with 5E3 Software Release to define group information for the MDR feature. Group information includes MDR record types allowed and the AP to which the group is assigned. Each terminal (line or trunk) that uses MDR is assigned MDR feature identification (defined on the MDRFD form) on a LINEFA, MLHLNFA, TKGRPFA, BFG or TRUNKFA form.

For PMDR, unlike circuit MDR, the MDR feature is not used and is not assigned to the packet service wishing to use PMDR. An ISDN user who has circuit and packet service on a BRI, and desires circuit and packet MDR functionality, needs an MDR feature and group assigned to circuit service as well as an MDR group assigned to packet service. The MDR group can have circuit and packet options active, in which case the same group can be used.

Added to MDRGP in 5E7 are three required fields: PACKET MDR, MODEM POOL, and INTRA PB GRP fields.

An entry of "Y" or "N" in the PACKET MDR field indicates if packet users assigned to an MDR group can generate PMDR records. This field has a default value of "N". If PACKET MDR is "N", the fields MODEM POOL and INTRA PB GRP must be "N".

A "Y" or "N" in the MODEM POOL field indicates if PMDR records containing information on Modem Pool usage can be generated for packet lines in an MDR group making a call to an analog user through a modem pool. This field has a default value of "N".

INTRA PB GRP is the Intra Packet Business Group Usage Indicator. This field determines if PMDR records for intra packet business group calls can be generated. Valid entries are "Y" or "N". The default for this field is "N".

When PMDR is assigned on this form, either the PACKET MDR, ORIG PRIV, INC PRIV, or PUBLIC field must be "Y". Note that when PACKET MDR is "Y", ORIG PRIV is "N", IN PRIV is "N", and PUBLIC "N", the MDR GROUP NAME field must not be entered as MDR GROUP NAME on either the MDRFD, MDRMPA, MDRTPA, or MDRLPA form.

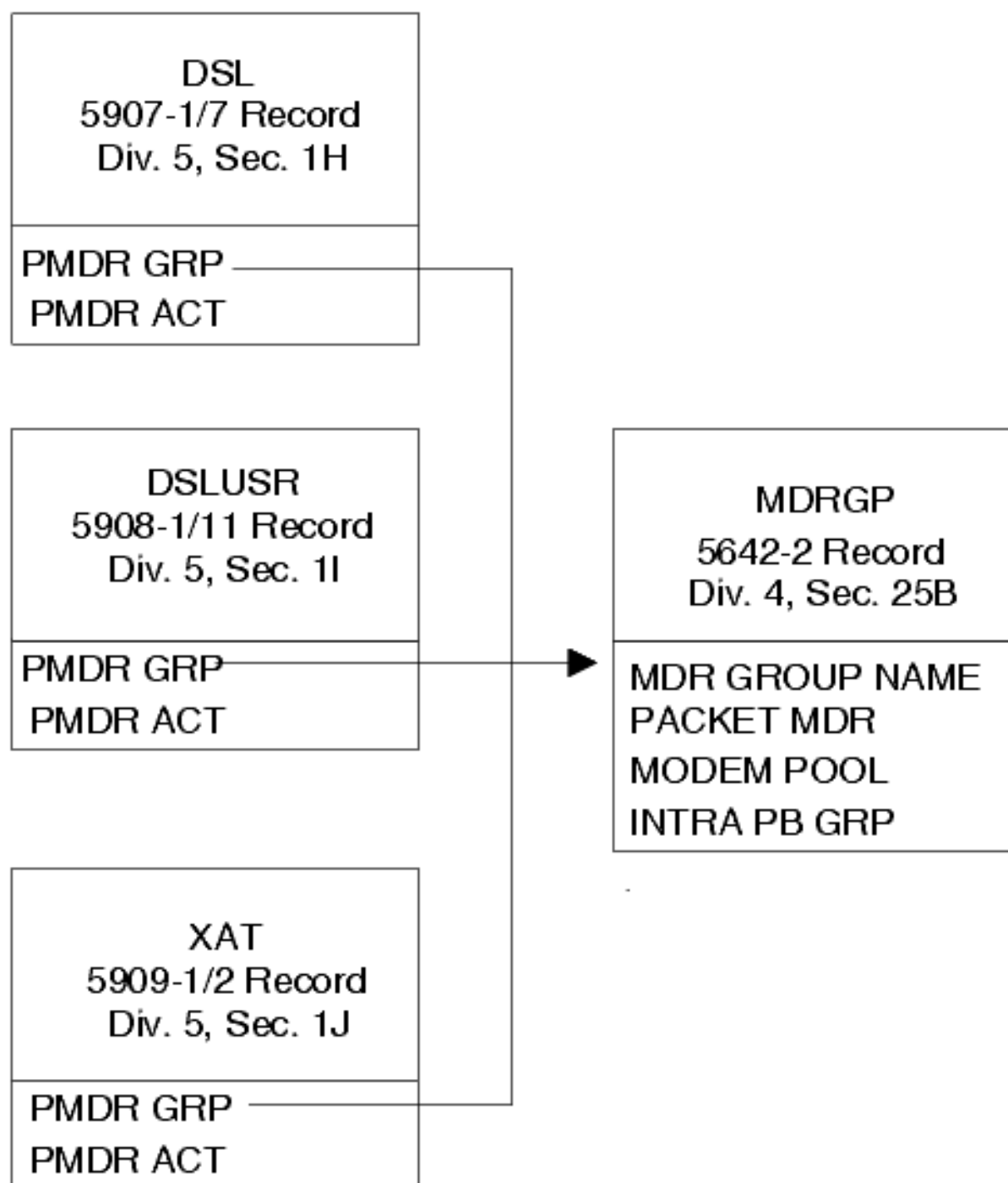


Figure 1 PACKET MDR FORM DEPENDENCIES

SEC. 5B: ENHANCEMENTS TO X.25 PACKET SWITCHING FOR TRUSTED DTE

1. FEATURE DESCRIPTION

Enhancements to X.25 Packet Switching for Trusted DTE (Data Terminal Equipment) is available with 5E7 and later Software Releases. This feature enhances X.25 packet switching services already offered for BRI (Basic Rate Interface). It is designed to increase the efficiency of the the X.25 interface used as a Datakit-to-5ESS Switch connection.

Note that the DTE accessing the switch must be a part of the network and not CPE (Customer Premises Equipment); this type of DTE is considered "trusted." Information passed over the Datakit/5ESS Switch interface is under the control of the service provider and, therefore, considered to be accurate and reliable.

Three specific service enhancements have been added with this feature. They are:

- The calling DN is used in the AMA record rather than a provisioned number. The DTE receives the calling DN in the X.25 Call Request packet.
- A DTE generated call identifier is used for all Datakit to 5ESS Switch packet originating calls. Previously, the 5ESS Switch generated the identifier. For packet call identification and billing, the identifier is passed from the DTE to the 5ESS Switch in an X.25 Call Request packet as an ADFM (AT&T Defined Facility Marker).
- The DN Screening Indicator can be disabled. This ability was added since it is assumed that the calling DTE has already screened the Calling TN as required by standards.

Although this feature is principally used as the interface between the 5ESS and Datakit Virtual Circuit Switch located in the CO (Central Office), it works with any CO-based application that is part of the network and is under the control of the service provider. Individual subfeatures may also be of value to the service provider; for example, the use of the calling DN for billing purposes can provide additional flexibility in PBX billing.

Because of memory constraints in PH2s, this feature is only available in PH3s.

2. TRANSLATION REQUIREMENTS

Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907-1/2/3/4/5	5	1H	23.2

2.1 DSL Translations

DSL form (5907-1/2/3/4/5 Record) - This form is used to define DSL attributes and the attributes of the B1 or B2 channel used by the DSL. With 5E7 and later, three new fields have been added for the Enhancements to X.25 Packet Switching for Trusted DTE.

These fields are:

CALL TN
CALL I
DIS SCR

These fields appear on the 5907-4 and the 5907-7 for Permanent Packet B1 and B2 Channel assignments.

The CALL TN field determines if the Calling TN is to be used as the Billing TN in the AMA record. This is a required field with valid entries of "Y" (Yes) or "N" (No). The default value for CALL TN is "N".

An entry of "Y" in the CALL ID field determines if the Calling ID (a DTE generated Call Identifier Indicator) is used in the AMA record. If "Y", the CALL ID is provided as an ADFM (AT&T Defined Facility Marker). This is also a required field. The default value is "N".

With the Trusted DTE feature enabled, it is assumed that the calling DTE has already screened the Calling TN. Therefore, the DIS SCR field allows a user to disable the Directory Number Screening Indicator. The DN Screening Indicator checks the Calling TN received in the Call Request Packet for the correct 11-digit format. This is a required field. Valid entries are "Y" or "N".

An entry of "Y" in any one of these fields requires an entry in the B1 SERV or B2 SERV field (on the DSL form) of "X25".

SEC. 5C: PACKET TRUNK INTERFACE STANDARDIZATION

1. FEATURE DESCRIPTION

PTIS (Packet Trunk Interface Standardization) is available with 5E8 and later Software Releases. The PTIS feature standardizes the 5ESS Switch interfaces with X.75' and X.75 packet trunk interfaces. This enhances the interface between the 5ESS subnetwork and other vendors' subnetworks, in a multivendor ISDN/PPSN (Public Packet Switched Network) environment. The capabilities that comprise the PTIS feature are described next.

1.1 Alternate Routing Capability

Through this capability, primary and alternate route choices can be specified for destinations requiring X.75' or X.75 connections. One alternate route choice is supported through PR (Packet Routing). This alternate route index is specified the same as a primary route index would be specified, e.g, the trunk group must be an X.75, X.75' or IP trunk group. If the primary route is not available, then the alternate route will be used. The PR (Packet Routing) does not allow "chaining" of more than two routes to alternate routes per each X.75 or X.75' connection. Routes can be from X.75 or X.75' to X.75, X.75', or IP.

1.2 Call ID Utility

When receiving an X.75/X.75' CRP (Call Request Packet) over an X.75/X.75' packet trunk which does not contain the Call Identifier utility or does contain the Call Identifier utility with a Call Identifier field that is coded with all zeros, a Call Identifier will be inserted into the ACI (AT&T defined Call Identifier) facility of the CRP transmitted via the IP (Internal Protocol). The Call Identifier parameters that are inserted by the 5ESS Switch X.75/X.75' STE (Signaling Terminal) will be distinguishable over an extended period of time, e.g. 24 hours.

When receiving an IP CRP that contains an ACI facility with a Call Identifier coded in all zeros, a Call Identifier with a parameter field not coded all zeros will be inserted into the Call Identifier utility of the X.75/X.75' CRP transmitted over an X.75/X.75' packet trunk. The Call Identifier parameters that are inserted by the 5ESS Switch X.75/X.75' STE (Signaling Terminal) will be distinguishable over an extended period of time, e.g. 24 hours.

1.3 Clearing Subnetwork Identification

The CNIC (Clearing Network Identification Code) utility (implemented in 5E6) makes it possible to uniquely identify the network that initiated call clearing. In order to facilitate maintenance actions and problem localization within the network, the CSI (Clearing Subnetwork Identification) utility has been introduced to isolate the source of the premature call clearing at a subnetwork level. The CSI utility makes it possible for a network element or subnetwork initiating a clear request to be uniquely identified within the LEC network and for this identification to be passed along the subnetworks involved in the call. The CSI utility provides a capability within the LEC network analogous to that provided by the CNIC utility among networks.

1.4 Closed User Group Screening On X.75 Interfaces

This capability controls traffic (incoming and outgoing) via CUG screening on an X.75 trunk group that connects the 5ESS Switch ISDN subnetwork to another network. It is possible to configure an X.75 trunk group with up to 100 CUG IICs (International Interlock Codes). An IIC consists of a DNIC + a 16-bit interlock code. A CUG is indicated in an X.75 CRP (Call Request Packet) as an IIC.

When an X.75 trunk group is configured with CUG IICs, the 5ESS Switch X.75 STE (Signal Terminal) verifies that a CRP indicates one of the configured IICs before transmitting the X.75 CRP across the X.75 trunk

group. If no IIC is present (i.e., no CUG is requested for the virtual call) or an IIC is present in the CRP but is not one of the configured IICs, the 5ESS Switch X.75 STE clears the virtual call. The 5ESS Switch X.75 STE also verifies that an X.75 CRP received from a remote X.75 STE contains one of the configured IICs. If no IIC is present in the received X.75 CRP or an IIC is present in the received X.75 CRP but is not one of the configured IICs, the 5ESS Switch X.75 STE clears the virtual call.

1.5 Inter-exchange Carrier Preselection Indication

IC (Inter-exchange Carrier) Preselection Indication is a service that a LEC can offer to a directly connected PSPDN (Packet Switched Public Data Network). This service enables a network, directly connected to the 5ESS Switch ISDN subnetwork via X.75, to support IC preselection for its users, even though it may not have the routing logic necessary to determine if an IC is required to complete the call. The directly connected network can pass the end user's IC preselection value in the IC Preselection Indication utility over the X.75 trunk group to the 5ESS Switch ISDN subnetwork. The 5ESS Switch subnetwork makes the determination whether an IC is needed to complete the call. If an IC is needed, the IC identified in the IC Preselection Indication utility is converted to an RPOA utility, which is then used to complete the call.

1.6 Logical Channel Numbers On X.75'

This capability assigns Logical Channel Numbers on X.75' trunk groups. This allows X.75' Logical Channel assignments to coincide with Logical Channel assignments for X.75, i.e., the provisioning of 1-way incoming / outgoing LCNs (Logical Channel Numbers) for the high range and the low range.

The PHF (Packet Handling Function), as a configuration option, selects logical channel numbers for virtual calls according to how LCN HIGH TO LOW, LOW LCN INCOMING/OUTGOING, HIGH LCN INCOMING/OUTGOING are assigned on the TRUNK form (5204-4 Record), independent of the Link Layer address A and B. The 5ESS Switch X.75' STE (Signaling Terminal) selects a logical channel number for an X.75' virtual call request transmitted over an X.75' packet trunk to the remote X.75' STE that is set on the HIGH TO LOW field on the TRUNK form.

If this capability is implemented, the logical channel assignment is the same on X.75 packet trunks and X.75' packet trunks.

1.7 Multiple X.75' Interfaces

The Multiple X.75' Interfaces capability builds on the Single X.75' Interface to a PPSN feature, and provides an enhanced inter-subnetwork interface capability. This feature includes direct X.75' connection to another ISDN switch. The other ISDN switch can either be a 5ESS Switch or another vendor's ISDN switch. A 5ESS switch must be on the 5E8 or later Software Releases, since pre-5E8 5ESS Switches do not support ISDN-to-ISDN X.75' connection. If the other switch is another vendor's ISDN switch, it must be compliant with Bellcore TR-301, Issue 2.

Before the 5E8 Software Release, only one X.75' trunk group with 24 members was allowed. With 5E8 and later, up to 255 X.75' trunk groups (with 24 trunk members each) are allowed. The service provider can now offer PVCs (Permanent Virtual Circuits) which involve X.75' to X.75' connections.

1.8 Network User Identification

This feature specifies the requirements to handle the X.75/X.75' NUI (Network User Identification) utility and X.25 NUI Selection facility on the 5ESS Switch ISDN, i.e., pass, clear, or delete the NUI utility from the call set-up packet. The NUI utility is an optional network utility used to provide supplementary network user identification for charging virtual call usage. The 5ESS Switch is able to handle the NUI utility/facility for

internetworking purposes.

The 5ESS Switch supports passing of the NUI utility on X.75 and X.75' trunk groups, but it does not support the NUI facility on access (BRI X.25) interfaces.

This capability specifies the decisions to be made and actions to be taken by the 5ESS Switch with respect to NUI values received from end users and other networks at the following interfaces:

- X.25 receiving direction trunk groups;
- X.75' receiving direction trunk groups;
- X.75 receiving direction trunk groups;
- X.25 sending direction trunk groups;
- X.75 sending direction trunk groups.
- X.75' sending direction trunk groups;

The "receiving direction" indicates that the 5ESS Switch receives the call set-up packets from a DTE or an STE. The "sending direction" indicates that the 5ESS Switch receives the call set-up packets from IP and sends them to a DTE or an STE. When the 5ESS Switch receives the call set-up packets from IP on X.75/X.75' trunk groups, the 5ESS Switch converts an IP facility to the X.75/X.75' utility.

1.9 Network Utility Default Values

This capability provides the ability to change the default value for the support of each Network Utility on an X.75' Packet Trunk from "None" to "On". In 5E7 the default for placing the NUI value was after the Utility marker. For 5E8 and later, the internal default for supporting NUI before the Utility Marker was implemented.

1.10 Recognized Private Operating Agency Selection Utility on X.75

This capability provides the support of the RPOA (Recognized Private Operating Agency) Selection Utility on an X.75 trunk group. Normally, an X.75 STE deletes the (next) RPOA Selection utility from a call set-up packet before transmitting an X.75 CRP over an X.75 trunk group to another network that is identified by that RPOA. Each X.75 trunk group can be configured with two configuration option variables.

1. The first option variable specifies whether or not the RPOA Selection utility is to be deleted before transmitting an X.75 CRP over an X.75 trunk group to another network that is identified by that RPOA. The support of this configuration option allows the 5ESS ISDN subnetwork to interconnect via an X.75 trunk group with a network which requires that the RPOA Selection Utility be retained on the X.75 trunk group. It also allows the 5ESS Switch ISDN subnetwork to interconnect via an X.75 trunk group with a network that is not capable of deleting the RPOA Selection utility before transmitting an X.75 CRP over an X.75 trunk group.
2. The second option variable specifies whether or not the network is to accept an X.75 CRP from an X.75 trunk group that includes the RPOA Selection utility identifying the network receiving the X.75 CRP. This configuration option allows the 5ESS Switch ISDN subnetwork to interconnect via an X.75 trunk group with a network that is not capable of deleting the RPOA Selection utility before transmitting an X.75 CRP over an X.75 trunk group.

1.11 Transit Network Identification Unique or Shared on X.75

This capability supports a Configuration Option Parameter on an X.75 Packet Trunk that designates if the TNI (Transit Network Identification) Service Provisioned Parameter is either "Unique" or "Shared".

In most cases, a 5ESS Switch ISDN subnetwork is either an originating network or a terminating network, rather than a transit network. When the 5ESS Switch ISDN subnetwork serves as a transit network, the DNIC (Data Network Identification Code), or the INIC (ISDN Network Identification Code) must be inserted into the TNIC (Transit Network Identification Code) utility parameter field of an X.75 packet transmitted over an X.75 trunk group. For example, a 5ESS Switch ISDN subnetwork might act as a transit network if it served as an intermediate carrier for a call received over an X.75 trunk group from an IPSN (Independent Packet Switched Network) in the LATA and transmitted over an X.75 trunk group to an IEC (Inter-exchange Carrier) or a directly connected network (e.g. Value-Added Network) outside the LATA. (The 5ESS Switch ISDN subnetwork can also act as a transit network if it served as an intermediate carrier for a call received over an X.75 trunk group from an IEC or a directly connected network outside the LATA and transmitted over an X.75 trunk group to an IPSN in the LATA.)

Since more than one network may share the same DNIC or INIC, it is necessary to accommodate situations in which two or more networks having the same DNIC (or INIC) act as transit networks for a given virtual call.

Some implementations use the presence of duplicate TNIC utilities in an X.75 packet (i.e., presence of more than one TNIC utility in the X.75 packet with the same parameter field value) to indicate the presence of a routing problem. According to CCITT Recommendation for the X.75, an X.75 packet may contain more than one TNIC utility provided that the parameter field values in these utilities are not the same. The presence of duplicate X.75 TNIC utilities in an X.75 CRP (Call Request Packet), an X.75 CCP (Call Connected Packet) or an X.75 CLRP (Clear Request Packet) is considered an error condition. Therefore, each PHF (Packet Handling Function) must be capable of being configured as part of a network identified by a DNIC/INIC that either is shared or unique. Then, it is possible to support, by service provisioning, a configuration option parameter (on an X.75 packet trunk) that designates if the TNI service provisioned parameter (TNIC field on the ISDN OPT form) is "unique" or "shared". It is also possible, by service provisioning, to maintain a list of shared DNICs/INICs.

Whether or not the TNI parameter is "shared" or "unique", if a received X.75 CRP, X.75 CCP, or X.75 CLRP contains more than one TNIC utility (or AT&T TNIC) where the value in the parameter field does not match an entry in the list of shared DNICs/INICs, the 5ESS Switch X.75 STE should clear a virtual call request because looping may occur. The virtual call request should not be cleared if the value in the parameter field value matches an entry in the list of shared DNICs/INICs.

If the 5ESS Switch X.75 STE determines that the network is a transit network, then the STE checks for a TNIC utility with a parameter field value that matches the TNIC field on the ISDN OPT form (5941 Record) before transmitting an X.75 CRP to the remote X.75 STE over an X.75 packet trunk.

- If "SHARED" is entered in the TNI parameter (TNIC CONFIG field on the TRUNK form) then the following occurs:
 - if the X.75 CRP to be transmitted contains at least one instance of a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE does not insert its TNIC value into the X.75 CRP to be transmitted.
 - if the X.75 CRP to be transmitted does *NOT* contain a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE inserts the TNIC utility into the X.75 CRP.

- If "UNIQUE" is entered in the TNI parameter (TNIC CONFIG field on the TRUNK form) then the following occurs:
 - if the X.75 CRP to be transmitted contains at least one instance of a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE clears the virtual call request because looping may occur.
 - if the X.75 CRP to be transmitted does *NOT* contain a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE inserts the TNIC utility into the X.75 CRP. Switch

1.12 X.75 Enhancements

This capability supports multiple X.75 trunk groups to a single IEC/VAN (Inter-exchange Carrier/ Value Added Network) on the same 5ESS Switch. The 5E6 Multiple X.75 Gateways feature allows the 5ESS Switch to support a single X.75 trunk group to an IEC/VAN on a 5ESS Switch. This capability does not require data support.

1.13 X.75 Trunk Group Identification

Whenever a call originating in, terminating on, or transiting through the network traverses an X.75 trunk group, the X.75 trunk group Identifier utility passes across any intervening X.75' trunk groups the identification number of the X.75 trunk over which a call enters/exits the network. This capability implements the X.75 trunk group Identifier utility, so that this information is available to another subnetwork which generates the AMA (Automatic Message Accounting) record.

1.14 Protocol Conversion Permissions

The PCP (Protocol Conversion Permissions) utility enables the 5ESS Switch ISDN subnetwork to transparently pass explicit protocol conversion permission values for an X.75'-to-X.75' transit subnetwork switching (i.e., calls that enter and exit the subnetwork on X.75' trunk groups), when real-time protocol screening is to be performed by the LEC network. The ISDN switch is not required to generate the PCP utility, nor is it required to perform real-time protocol screening.

1.15 X.75'-to-X.75' Transit Subnetwork Switching

This capability allows the 5ESS Switch ISDN subnetwork to serve as a transit (or tandem) subnetwork in the path of a packet call. This provides greater flexibility in network configuration and routing.

Call looping among the sub-networks in a LEC LATA may arise due to a combination of alternate routing and transit switching. The TSC (Transit Subnetwork Count) utility is used to detect invalid looping conditions during transit switching applications. (See the paragraphs on the ISDNOPT form for global parameters for Transit Subnetwork Switching, and the TRUNK form for CLEAR SUB NET ID.)

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ISDNOPT	5941	5	5B	8.1
RTIDX	5304	3	3Q	10.2
TKGRP	5202	3	2A	5.1

TNICLIST	5928	5	3I	5.15
TRUNK	5204	3	2C	5.5
X75CUG	5930	5	3K	5.14
X75PVC	5926	5	3G	5.13

2.1 Translations

The forms listed below give the new or changed translation information for the PTIS feature. See Figure 1 for the form flow for PTIS.

ISDNOPT (5941 Record) - This form is used to define the office parameters for and ISDN switch. Only one instance of this form can exist in an office.

- SEGMENT SIZE

For 5E8 and later, BILLING SEGMENT SIZE was renamed to SEGMENT SIZE. The meaning of the field also changed slightly. This field specifies the office packet segment size for *Intranetwork* ISDN Packet Switching.

The new SEGMENT SIZE field on the TKGRP form, which is applicable for X.75 trunk groups only, is used for *Intenetwork* ISDN Packet Switching.)

- SUBNET ID

This field is the Clearing Subnetwork Identifier. When a subnetwork clears a virtual call that is active or in progress, the clearing subnetwork inserts this value in the Clearing Subnetwork Identification Utility to identify itself. This helps in problem localization and detection at a subnetwork level. This is a required field, therefore, the service provider needs to provide a value for this field by the time of retrofit.

- SUBNET CNT

This field is the Transit Subnetwork Count. This is a threshold value that is used to detect invalid looping among the subnetwork within the LATA. It is the service provider's responsibility to ensure that the same value is provisioned for this parameter across the subnetwork. This is a required field, therefore, the service provider needs to provide a value for this field by the time of retrofit.

RTIDX (5304 Record) - If a ROUTE INDEX defined on a RTIDX form has a trunk group number defined on the TKGRP form with a TRKCLS of "X75" or "X75P" and a NEXT ROUTE entered, then the NEXT ROUTE on that RTIDX form must be defined as a ROUTE INDEX on another RTIDX form, where the trunk group number is defined on a TKGRP form with a TRKCLS set to "X75", "X75P", or "PACKET".

TKGRP (5202 Record) - The TKGRP form defines each Trunk Group in a 5ESS Switch. The trunk information that is entered on this form is information that is common to the entire group. The following fields were added for the PTIS feature.

- CUG LIST ID

This field is used to assign a Closed User Group List to this X.75 trunk group. This field can only be entered for X.75 trunk groups. If this field is entered, the entry must be defined as a key value on the X75CUG form.

- CUG SCRIN

This field indicates if the Closed User Group Screening is enabled. This field can only be "Y" for X.75

trunk groups that are assigned a CUG LIST ID.

- ILC SCRIN

If this field is set to "ON" and the RPOA utility on this X.75 trunk is provisioned, then the packet trunk call arriving at the X.75 trunk group may be screened (depending on how the ILC field on the ISDNOPT form is entered) as an X.25 trunk group. If this field is set to "OFFTR" and the RPOA utility on this X.75 trunk is provisioned, then the switch honors the RPOA that is in the CRP regardless of the ILC field entry on the ISDNOPT form. If this field is set to "OFFDN" and both the RPOA utility and the IECP utility are not present in the CRP, then the call is routed based on the directory number in the CRP. This field is only applicable for X.75 trunk groups and must be entered for X.75 trunk groups.

- NBRPLAN

This field identifies the X.75 or X75' native numbering plan. In 5E8, the only valid mode of interworking between numbering plans is Escape Code. The pseudo DNIC mode of interworking is no longer supported. If any office is using pseudo DNIC ("X121PD" or "E164PD"), during the retrofit to 5E8 the NBRPLAN will be set to blank. This field must be "NONE" for non-X75/X75' trunk groups.

- NUI IN VFY

This field assigns the NUI (Network User ID) treatment for Incoming Verified Calls on X.75 trunk group. NUI provides supplementary network user identification for charging the virtual call usage. When this field is set to "PASS", the switch transmits the CRP (Call Request Packet) as it is. When this field is set to "CLEAR", the switch clears the CRP containing the NUI utility. When this field is set to "DELETE", the switch removes the NUI utility from the CRP before delivering the call set-up packet. This field can only be entered for X.75 trunk groups. If this field is not entered for X.75 trunk groups, an internal default of "PASS" is automatically assigned.

- NUI IN UNVfy

This field assigns the Network User ID treatment for Incoming Unverified Calls on X.75 trunk group. NUI provides supplementary network user identification for charging the virtual call usage. When this field is set to "PASS", the switch transmits the CRP (Call Request Packet) as it is. When this field is set to "CLEAR", the switch clears the CRP containing the NUI utility. This field can only be entered for X.75 trunk groups. If this field is not entered for X.75 trunk groups, an internal default of "CLEAR" is automatically assigned.

- NUI OUT VFY

This field assigns the Network User ID treatment for Outgoing Verified Calls on an X.75 trunk group. NUI provides supplementary network user identification for charging the virtual call usage. When this field is set to "PASS", the switch transmits the CRP (Call Request Packet) as it is. When this field is set to "CLEAR", the switch clears the CRP containing the NUI utility. When this field is set to "DELETE", the switch removes the NUI utility from the CRP before delivering the call set-up packet. This field can only be entered for X.75 trunk groups. If this field is not entered for X.75 trunk groups, an internal default of "PASS" is automatically assigned.

- NUI OUT UNVfy

This field assigns the Network User ID treatment for Outgoing Unverified Calls on X.75 trunk group. NUI provides supplementary network user identification for charging the virtual call usage. When this field is set to "PASS", the switch transmits the CRP (Call Request Packet) as it is. When this field is set to "CLEAR", the switch clears the CRP containing the NUI utility. This field is only applicable for X.75 trunk

groups. If this field is not entered for X.75 trunk groups, then an internal default of "CLEAR" is automatically assigned.

- **SEGMENT SIZE**

This field defines the X.75 Internetwork AMA Segment Size. This field is used to determine the segment size for this X.75 trunk group internetwork virtual circuit. This value is used to determine the number of segments in AMA billing records. This field can only be entered for X.75 trunk groups. If this field is not entered for X.75 trunk groups, an internal default of 64 is automatically assigned for this trunk group.

The following checks are enforced on the TKGRP form:

- **TRKCLS must be "X75"**
 - if NUI IN VFY, NUI IN UNVFY, NUI OUT VFY, or NUI OUT UNVFY are entered;
 - when CUG SCRN is "Y";
 - when CUG LIST ID is entered;
 - when ILC SCRN is entered;
 - when SEGMENT SIZE is entered.
- If TRKCLS is "X75" and CUG SCRN is "Y", then CUG or CUG OUTGOING must be "Y" or blank on each corresponding TRUNK form of that trunk group.
- X75 trunks must have IC PRESELECT entered on the TRUNK form.
- X75 Trunks must have UTILITY MARKER on the TRUNK form set to "Y" if any of the following fields are "Y":
 - TDI AFTER,
 - TDS AFTER,
 - TARIFF AFTER,
 - IN RPOA AFTER,
 - NUI AFTER,
 - OUT RPOA AFTER.
- If TRKCLS is "X75P" then:
 - trunks must have ACCESS CHAR entered on the TRUNK form.

- if the ACCESS CHAR field on the TRUNK form is set to "N", then NUI BEFORE must be set to "N" and NUI AFTER must be set to "N" or blank on the trunk form.
- the X.75' trunks on the TRUNK form must have UTILITY MARKER set to "Y" if any of the following fields are "Y" or blank:

ACCESS CHAR,

CLEAR SUB NET ID,

NUI AFTER,

PROTOCOL CONV,

TRANS SUB NET CNT,

X75 ID UTILITY.

- If TKCLS is "X75" or "X75P" then

- the trunk members on the corresponding TRUNK form must have the TNIC INDICATOR entered.
- if the LCN information fields are left blank on the TRUNK form at least one of the following fields must be entered on the TRUNK form:

HIGH PVC LCN,

LOW INCOMING LCN,

LOW 2 WAY LCN,

LOW OUTGOING LCN.

- if a ROUTE INDEX(s) defined on a RTIDX form, has a TRUNK GROUP NUMBER and NEXT ROUTE entered, then the NEXT ROUTE on this RTIDX form must be defined as ROUTE INDEX on another RTIDX form where TRUNK GROUP NUMBER is defined on a TKGRP form with TRKCLS set to "X75", "X75P", or "PACKET".
- PACKET SWITCHING and X.75/X.75 TRUNK ONLY on the corresponding TRUNK forms must be entered.

TNICLIST (5928 Record) - This record is available for 5E8 and later. It is used to provision a list of up to 20 shared INICs/DNICs which are referenced as TNIs (Transit Network Identities) for the entire switch. The

entries in this list must be unique. Only one instance of this form can exist in an office.

TNCLIST form can only be entered for offices that contain ISDN SMs, therefore at least one SM on the EQIM form (5700 Record) must have a CONFIGURATION of "LOADED".

- KEY

This field is the designated key to the form. It must always be 0.

- INIC/DNIC

Enter the INIC (ISDN Network Identification Code) / DNIC (Data Network Identification Code). Duplicate INIC/DNIC entries cannot be made.

TRUNK (5204 Record) - The TRUNK form is used to define each member of a Trunk Group in a 5ESS Switch Office. The information entered on this form is unique to the individual member of a trunk group. For 5E8 and later, the following fields were added for PTIS:

- CLEAR SUB NET ID

Is the Clearing Subnetwork ID Utility supported for this X.75' trunk? This utility is used to identify the subnetwork that was responsible for clearing a virtual call due to network action. This field is only applicable for X.75' trunks and cannot be set to "Y" if UTILITY MARKER is set to "N". If this field is left blank for an X.75' trunk and the UTILITY MARKER is "Y", then an internal default of "Y" is assigned. (See also the ISDNOPT form for SUBNET ID and SUBNET CNT global parameters.)

- IC PRESELECT

Is the IC (Inter-exchange Carrier) Pre-Select Utility Indicator enabled? If this field is "Y", then this utility, which carries an indication of a preselected IC in call requests traversing an X.75 trunk, is enabled. This field is only applicable for X.75 trunks and cannot be "Y" if UTILITY MARKER is "N". This field must be entered for X.75 trunks.

- NUI BEFORE

Should the NUI (Network User ID) exist before Utility Marker? This field can only be entered for X.75 or X.75' trunk group members. If this field is "Y", then NUI AFTER cannot be "Y". If this field is left blank and NUI AFTER is "N" or left blank for X.75 or X.75' trunks, then an internal default of "Y" supporting the NUI before the Utility Marker is automatically assigned. If NUI is not to be supported at all for this X.75 or X.75' trunk, then both the NUI BEFORE and NUI AFTER fields must be "N". If the trunk is an X75' trunk and the TNIC INDICATOR is "N", then NUI BEFORE and NUI AFTER must be "N". In addition, if the trunk is an X75' trunk and ACCESS CHAR is "N", then NUI BEFORE and NUI AFTER must be "N".

- NUI AFTER

Should the NUI (Network User ID) be supported after Utility Marker? This field can only be entered for X.75 or X.75' trunk group members which have the UTILITY MARKER set to "Y". If this field is "Y", then NUI BEFORE cannot be "Y". If this field is left blank and NUI BEFORE is left blank for X.75 or X.75' trunks, then an internal default for supporting NUI before the Utility Marker will be implemented. If NUI is not to be supported at all for this X.75 or X.75' trunk, then both the NUI BEFORE and NUI AFTER fields must be "N". If the trunk is an X75' trunk and the TNIC INDICATOR is "N", then NUI BEFORE and NUI AFTER must be "N". In addition, if the trunk is an X75' trunk and ACCESS CHAR is "N", then NUI BEFORE and NUI AFTER must be "N".

- **PROTOCOL CONV**

Is Protocol Conversion Permission Utility allowed on this X.75' trunk group? The purpose of this utility is to supplement the protocol information passed in the Access Characteristic utility with additional information to allow protocol screening to be performed. This utility is applicable only on X.75' trunks and cannot be set to "Y" if the UTILITY MARKER is set to "N". If this field is not entered for an X.75' trunk member and the UTILITY MARKER is not "N", then an internal default of "Y" is assigned.

- **RPOA DEL SEND**

Should the RPOA be deleted by this X.75 trunk group before being sent to a remote STE? When this field is set to "N", the 5ESS Switch X.75 STE passes the RPOA Selection utility or the sequence of RPOA Selection utilities (without deletion) in the transmitted X.75 CRP. This field is only applicable for X.75 trunks. If this field is not entered for an X.75 trunk member, then an internal default of "Y" is assigned. When RPOA DEL SEND is "Y" or blank, OUT RPOA BEFORE or OUT RPOA AFTER must be "Y" or blank.

- **RPOA DEL RCV**

Should the RPOA be deleted when received by this X.75 trunk group from a remote STE? When this field is set to "Y", the 5ESS Switch X.75 STE discards the RPOA Selection utility or the first RPOA Selection utility in case of a sequence of RPOA Selection utilities when it is received in an X.75 CRP, providing the contents of the RPOA parameter field identifies the network of the 5ESS Switch ISDN subnetwork. This field is only applicable for X.75 trunks. If this field is not entered for an X.75 trunk member, then an internal default of "Y" is assigned. When RPOA DEL RCV is "Y" or blank, IN RPOA BEFORE or IN RPOA AFTER must be "Y" or blank.

- **TNIC CONFIG**

This field designates if the TNIC (Transit Network Identification Code) is either "UNIQUE" or "SHARED" for Transit Networks on X75 trunks. These TNIC CONFIG values are used to detect looping within the network. This field is only applicable for X.75 trunk members. The form TNICLIST contains a list of shared TNICs that are valid for this switch.

Each X.75 trunk member may have a TNI mode of "UNIQUE" or "SHARED" or no TNI mode (blank). The TNI mode is used when the switch receives an IP Call Request Packet that contains a TNIC or ATNIC facility or a sequence of TNIC or ATNIC facilities.

The enumerations designating if the TNI is to be used in either a "unique" mode or in a "shared" mode are described as follows:

If the 5ESS Switch X.75 STE determines that the network is a transit network, then the STE checks for a TNIC utility with a parameter field value that matches the TNIC field on the ISDNOPT form (5941 Record) before transmitting an X.75 CRP to the remote X.75 STE over an X.75 packet trunk.

— If "SHARED" is entered in the TNI parameter (TNIC CONFIG field on the TRUNK form) then the following occurs:

— if the X.75 CRP to be transmitted contains at least one instance of a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE does not insert its TNIC value into the X.75 CRP to be transmitted.

- if the X.75 CRP to be transmitted does *NOT* contain a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE inserts the TNIC utility into the X.75 CRP.
- If "UNIQUE" is entered in the TNI parameter (TNIC CONFIG field on the TRUNK form) then the following occurs:
 - if the X.75 CRP to be transmitted contains at least one instance of a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE clears the virtual call request because looping may occur.
 - if the X.75 CRP to be transmitted does *NOT* contain a TNIC utility with the parameter field value matching the TNIC of the transit network 5ESS Switch, then the transit network 5ESS Switch X.75 STE inserts the TNIC utility into the X.75 CRP.
- If "NONE" is entered in the TNI parameter (TNIC CONFIG field on the TRUNK form) then the following occurs:
 - if the X.75 trunk member has no TNI and there are duplicate TNIs in the Call Request Packet (CRP), then the call is cleared. Up to seven unique TNIs may be present in the CRP. This is the mode of operation prior to 5E8.

The form TNICLIST contains a list of 0 to 20 shared TNIs that are valid for this switch. This list is not coupled with the provisioning of this attribute, however it is used when processing an incoming IP CRP as mentioned above.

- TRANS SUB NET CNT

Should the Transit Subnetwork Count Utility be supported for X.75'? In 5E8, X.75'-to-X.75' transit subnetwork switching is supported. Call looping among subnetworks in a LEC LATA could arise due to this X.75'-to-X.75' support. The Transit Subnetwork Count utility can be used to detect invalid looping conditions during transit switching situations within the LEC network. This field is only applicable for X.75' trunks and cannot be set to "Y" if UTILITY MARKER is set to "N". If this field is left blank for an X.75' trunk and the UTILITY MARKER is "Y", then an internal default of "Y" is assigned. (See the ISDNOPT form (5941 Record) for more information on SUB NET CNT.)

- UTILITY FLD SIZE

Enter the X.75/X.75' Trunk Utility Facility Field Length type. The BASIC-Utility Field Size cannot exceed 63 octets and the BASIC-Facility Field cannot exceed 109 octets. The EXTENDED-Utility Field Size could exceed 63 octets and/or the EXTENDED-Facility Field could exceed 109 octets provided that the length of the combined facility and utility fields does not exceed 172 octets. If the length exceeds 172 octets, the call will be cleared.

- X75 ID

Enter the X.75 trunk group Identification Number to uniquely identify the X.75 trunk member used in a call. The identifying number is used by the RAO (Revenue Accounting Office) to determine appropriate billing for packet calls in network configurations where the called address is not sufficient to indicate if the

Inter-exchange Carrier or another X.75 connected entity is to be billed for the call. This field is only applicable for X.75 trunks. If this field is not entered for an X.75 trunk member, then an internal default of 0 is assigned.

- X75 ID UTILITY

Is the X.75 Identification Utility supported for this X.75' trunk? This utility is used to carry the identification of X.75 trunk groups through X.75' trunks. This field is only applicable for X.75' trunks and cannot be set to "Y" if UTILITY MARKER is set to "N". If this field is not entered for an X.75' trunk member and UTILITY MARKER is "Y", then an internal default of "Y" is assigned.

X75CUG (5930 Record) - The X.75 Closed User Group Form assigns a Closed User Group International Interlock code to an X.75 trunk group. This record is available for 5E8 and later Software Releases. No more than 1600 DNIC/ICN combinations can be entered on all of the X75CUG forms in an office. If CUG LIST ID(s) has been entered on the X75CUG form, at least one SM must be defined on the EQIM form where CONFIGURATION equals "LOADED". X75CUG forms can only be entered for offices that contain ISDN SMs.

- CUG LIST ID

This is the list ID for a list of up to 100 Closed User Group (CUG) International Interlock Codes (IICs).

- CUG LIST

This is the list of up to 100 CUGs for this CUG LIST ID. The list consists of the DNIC (Data Network Identification Code) and ICN (International Closed User Group Number) pairs used in the establishment of a virtual call by CPE (Customer Premises Equipment) that are members of a CUG. At least one DNIC/ICN combination must be entered on this form.

— DNIC

Enter the Data Network Identification Code. If this field is entered, a corresponding ICN list element must be entered. Each combination of DNIC and ICN must be unique in the CUG LIST.

— ICN

Enter the International CUG (Closed User Group) number. If this field is entered, then the corresponding DNIC list element must be entered. Each combination of DNIC and ICN must be unique in the CUG LIST.

X75PVC (5926 Record) - For 5E8 and later, PVCs are supported between X.75' to X.75' trunk groups. The X75PVC form is used to assign PVC (Permanent Virtual Circuit) Logical Channel Numbers to X.75 and X.75' packet switching trunks.

- FCL TYPE

Enter the X.75' Tandem Trunk Remote Facility Type. If this field is "X75P", then the key to this form (TGN) must match a trunk group with a trunk class of "X75P". Also, LINK ID and PSN must be known when this field is "X75P". If this field is "X25", then the key to this form (TGN) must match to a trunk group with a trunk class of either "X75P" or "X75". When FCL TYPE is "X25", REMOTE TN must be entered. This field is required.

- LINK ID

Enter the X.75' Tandem Trunk Remote Gateway Link ID. This field is used to designate the destination (remote) gateway link ID of a tandem X.75' to an X.75' trunk group PVC. This field must be known if FCL TYPE is "X75P"; otherwise, it must be blank.

- PSN

Enter the X.75' Tandem Trunk PVC Destination Packet Switched Number. This field identifies the destination packet switch that provides an IP trunk group with another packet switching network. The destination packet switch is a switch that resides in the same an IP subnetwork as this switch. This field must be known if FCL TYPE is "X75P"; otherwise it must be blank. PSN(s) assigned on the X75PVC input form must be defined on a RTIDX form.

- REMOTE LCN

For 5E8 and later, ACCESS LCN has been renamed REMOTE LCN.

- REMOTE TN

For 5E8 and later, ACCESS TN has been renamed REMOTE TN. When REMOTE TN is entered, FCL TYPE must be "X25".

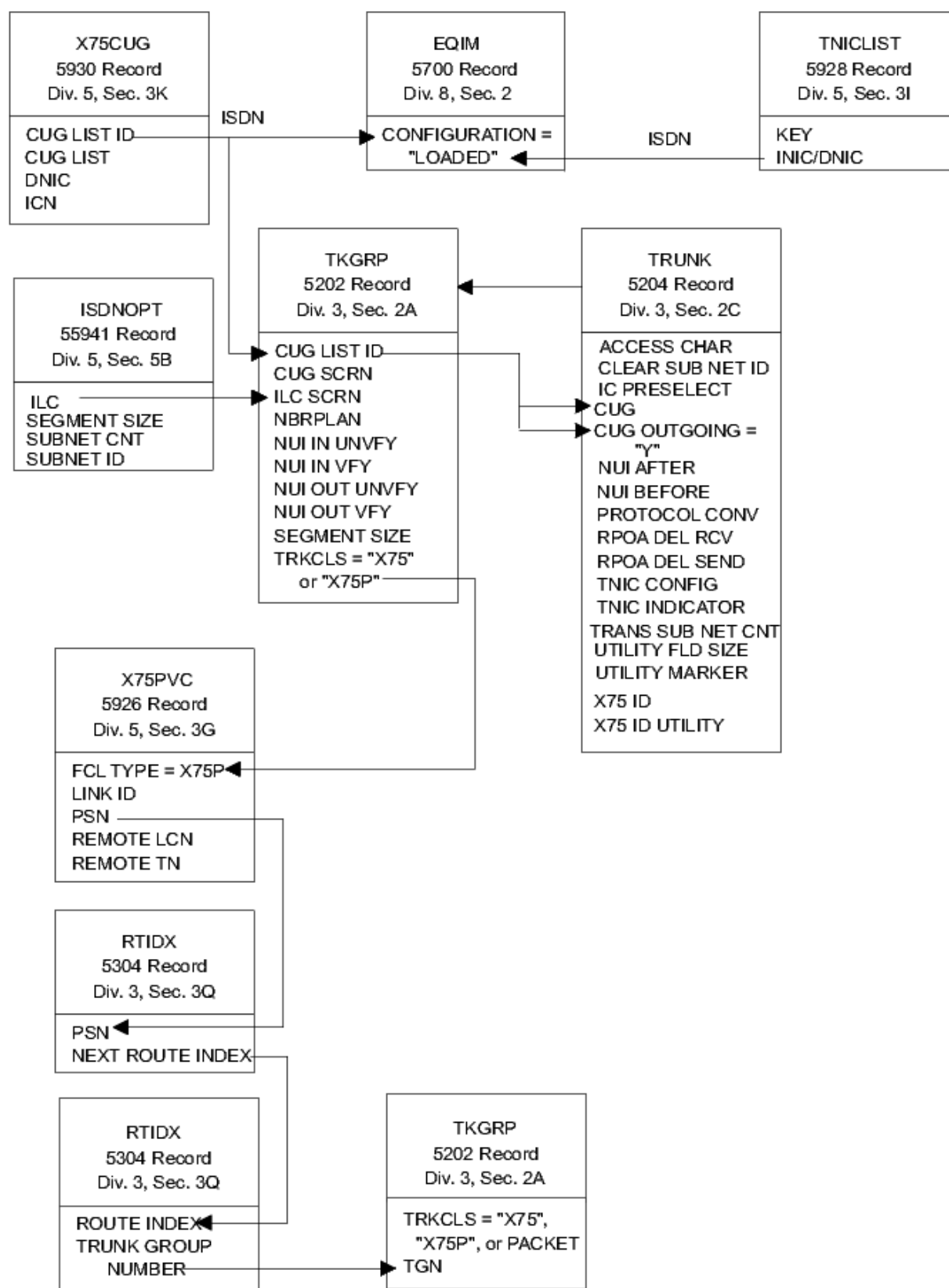


Figure 1 FORM FLOW FOR PACKET TRUNK INTERFACE STANDARDIZATION

SEC. 5D: HIGHER INTERSWITCH DATA THROUGHPUT

1. FEATURE DESCRIPTION

For 5E9(1) and later, this feature enhances the network utility which carries Throughput Class information for both directions of transmission. It provides enhancements to the following capabilities.

1.1 Throughput Class of 19.2 kb/s on 5ESS Switch x.75/X.75' packet trunks.

Throughput class indication is a network utility that is assigned on a per X.75/X.75' trunk member basis and is used to signal Throughput Class information for packet-mode calls across X.75 and X.75' interfaces. The utility carries throughput class information for both directions of transmission.

Prior to 5E9(1), the 5ESS Switch on X.75/X.75' interfaces supported the throughput classes from 75 to 9600 b/s. This feature provides the capability to support the throughput class value of 19.2 kb/s on 5ESS X.75/X.75' packet trunks. It is supported on both PH2 and PH3 Packet Handlers.

1.2 Nonstandard Default Packet Layer Window Size values of 1 and 4 - 7 on X.25 B-channel and X.25 D-channel.

This feature extends the current range of packet layer window size values supported on X.25 B-channel and X.25 D-channel for virtual circuits (virtual calls and PVCs (Permanent Virtual Circuits)) from 2 - 3 to 1 - 7.

The packet layer window size of 2 is the CCITT standard default value. A packet layer window size value of 3 is the non-standard default value.

For 5E9(1) and later, in addition to the non-standard default window size value of 3 currently being supported, the 5ESS Switch supports non-standard default packet layer window size values of 1 and 4 - 7.

This feature requires subscription on packet service and supports this capability on PH3 Packet Handlers on both BRI and XAT (X.25 Packet Switching Channel Assignment).

1.3 Non-standard Default Packet Layer Window Size values of 1 and 4 - 7 on X.75/X.75' interfaces.

This feature extends the range of packet layer window size values supported on 5ESS Switch X.75/X.75' interfaces for virtual circuits (virtual calls and PVCs) from 2 - 3 to 1 - 7.

In addition to the non-standard default window size value of 3 currently being supported, the 5ESS Switch supports the non-standard default packet layer window size values of 1 and 4 - 7.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AMLBDSL	5447	3	4AV	21.34
DSL	5907	5	1H	23.2
DSLUSR	5908	5	5I	23.2
PSPVC	5923	5	3D	23.11
TRUNK	5204	3	2C	5.5
XAT	5909	5	1J	23.40
X75PVC	5926	5	3G	5.13

The following table indicates the forms and fields where the packet layer window size was increased from 2 -

3 to 1-7:

Form Name	Field Name
AMLBDL, TRUNK, PSPVC, XAT and X75PVC	SEND PKTWD, RCV PKTWD
DSL	PPB1 SEND PKTWD, PPB1 RCV PKTWD PPB2 SEND PKTWD, PPB2 RCV PKTWD
DSLUSR	DPKT SEND PKTWD, DPKT RCV PKTWD, ODB RCV PKTWD

The following table indicates the forms and fields where the throughput class default value was changed to 9600:

Form Name	Field Name
AMLBDL and XAT	SEND TPC RCV TPC
DSL	PPB1 SEBD TOC, PPB1 RCV TPC, PPB2 SEND TPC, PPB2 RCV TPC
DSLUSR	DPKT SEND TPC, DPKT RCV TPC, ODB SEND TPC, ODB RCV TPC

The following table indicates the forms and fields where the throughput class value of 19200 was added as a valid entry:

Form Name	Field Name
SEND TPC, RCV TPC.	SEND TPC, RCV TPC

SEC. 5E: MULTIPLE ISDN TRUNKS ON A PH3

1. FEATURE DESCRIPTION

The MITOP (Multiple ISDN Trunks on a PH3) capability enhances the PH3 (Protocol Handler 3) to support multiple ISDN packet trunk members (IP, X.75, X.75') of the same level 2 trunk class. The upper limit of trunk members supported by the PH3 for MITOP is six; however, the recommended maximum is either four X.75', four X.75, or six IP trunk members per PH3 (based on a capacity of 256 logical channels and 128 physical channels).

All ISDN trunk members on a single PH3 must have the same level 2 profile. The only ISDN trunk enumerations supported by this feature are IP, X.75 and X.75'. The trunk members can be members of different trunk groups with the same level 2 profile on the SM.

Each packet trunk member must have four contiguous timeslots assigned. This assignment should not be restricted within the range of physical time slots from 0 to 20, except that the ranges must start on the boundaries evenly divisible by four (000, 004, 008, 012, 016, and 020 are valid). A PH3 still only supports a maximum of 256 logical channels spread among the configured trunk members. If the craft configures more than four X.75, four X.75', or six IP packet trunk members on a PH3, a lack of logical channels may cause packet call blockage during heavy trunk utilization.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TRUNK	5204	3	2C	5.5

2.1 Trunk Translations

TRUNK form (5204-1/2 Record) - The Trunk form is used to define each member of a Trunk Group in a 5ESS Switch Office. The trunk information that is entered on this record is unique to the individual member of a Trunk Group. Trunk information that is common to the entire Trunk Group is entered on the TKGRP form (5202 Record).

For the MITOP feature, the already existing ISCN field contains added information for PH3s. The ISCN field is the Integrated Services Channel Number of a trunk.

The ISCN is a six-digit number consisting of:

INTEGRATED SERVICES CHANNEL NUMBER (ISCN)		
Equipment	Format	Valid Entries
SHELF	X	0-4
CHL GRP	XX	00-15
CHL	XXX	000-127

For Packet Switched trunks (TRKCLS is "PACKET", "X75P" or "X75" on the TKGRP form), the SM entered in this field must be defined on the EQPSU form. Also, for packet switched trunks, a DEN must be entered for this TGN.

For 5E6 and earlier, the last three digits of ISCN must be 000 for trunk members with a trunk class of "PACKET", "X75P", and "X75".

For 5e7 and later, a value of 000 for the last three digits of ISCN is only required for "PACKET", "X75", and "X75P" trunks on a PH2.

For 5e7 and later, "PACKET", "X75", and "X75P" trunks on a PH3 must have the last three digits of the ISCN in the range of 000 to 020 in multiples of 4 (000,004,008,012,016,020 are valid). This allows a maximum of 6 trunk members per PH3. It is recommended to have a maximum of 4 trunk members per PH3 for X75 and X75P trunks. The trunk class must be the same for trunk members on a PH3.

SEC. 5F: REMOTE PROTOCOL ACCESS

1. FEATURE DESCRIPTION

RPA (Remote Protocol Access) provides the ability to set up RDTA (Remote Digital Test Access) connections and troubleshoot customer problems on ISDN BRI (Basic Rate Interface) lines or PRI (Primary Rate Interface) packet trunks. Note that in this feature description RPA and RDTA may be used interchangeably.

RPA testing is normally done by a craft at a CSC (Customer Service Center). The CSC is a work center where protocol analysis is done. It can be located remotely from the switch and is normally configured so that it can access and be accessed by several switches. The CSC should have an OS maintenance channel to each switch and have a set of output facilities connected between a single Access Switch and CSC's protocol maintenance system.

An Access Switch is defined as a switch that is maintained by a CSC. For any switch maintained by a CSC that is not an Access Switch, communication between CSC protocol analyzers and the output facilities of the Access Switch is done usually through a circuit-switched data path through the CCS7 ISUP network; however, User-Side PRI facilities may also be used.

Several RDTA connections can be set up on a single ISDN interface (one per channel) simultaneously, if appropriate resources (both switch-based and external) are available.

1.1 ISDN PRI/ISDN Pseudo BRI Output Facilities

The service provider can provision either ISDN PRI or ISDN Pseudo BRI output facilities to connect the Access Switch with the CSC protocol analyzers. An ISDN PRI output facility will be a PODS (i.e., no BRCS features assigned and no billing capabilities) EDSL PRI facility (outgoing or two-way) with up to 23 B-channels and a D-channel that handles Q.931 signaling. An ISDN Pseudo BRI will essentially be made up of one D-channel and two B-channels. The D-channel of a Pseudo BRI will look like a B-channel (although the standard D-channel 16Kb data rate is used) since it is not connected to a PH and will not exchange any Q.931 messages between the Access Switch and the CSC.

1.2 Required Input/Output Messages

The craft at the CSC requests an RDTA connection by sending the TTY input message EXC:RDTA to the office over an OS maintenance channel. This message contains the identity of the PUT (Port Under Test), the DN (Directory Numbers) associated with channels of the PRI or Pseudo BRI output facility, and the RDTA connection mode. If the RDTA connection is successful, the craft receives a TTY output message of EXC:RDTA. An active RDTA connection is terminated when the craft sends the TTY input message STP:RDTA to the office where the RDTA connection was set up. A standard 24-hour timer may also terminate calls.

A DN on the input message represents a specific channel on an output facility between the Access Switch and the CSC. The D-channel and each B-channel of an ISDN Pseudo BRI output facility can be routed to based on a specific DN for that channel. Likewise, each B-channel of an ISDN PRI output facility can be routed to based on a specific DN for that channel. The craft can choose either type of output facility to transmit the test data to the CSC. The port type of the output facility is independent from the port type of the PUT as long as the output data rate is greater than or equal to the PUT data rate; that is, when an ISDN BRI channel is being tested, the test data can be transmitted to the CSC over an ISDN PRI output facility.

1.3 Valid Port Types

The type of ports that can be tested via an RDTA connection include:

- Circuit-switched ISDN BRI and PRI B-channels. The BRI channels may be terminated at either a U- or T-interface
- ISDN BRI On-demand B-channel that is packet-switched
- ISDN PRI D-channel carrying Q.931 messages
- ISDN BRI D-channel carrying Q.931 messages and X.25 packets
- Packet switched trunks including IP, X.75, and X.75'
- XAT packet-switched lines on a T1 carrier.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
RDTAPORT	5911-A/B	5	1L	22.7
RDTATN	5910-A/B	5	1M	22.18
OFCOPT	5509	5	5B	8.1
EQPSUPH	5742	8	23	22.2/22.3
TKGRP	5202	3	2A	5.1

2.1 ISDN/Packet Switching Translations

RDTAPORT form (5911-A/B Record) - The RDTA Port/TN Assignment form is added with the 5E7 Software Release for the RPA feature. This form sets up the data for RPA at the Access Switch. When an RDTAPORT form is defined for an office, the fields RDTA DAS and RDTA SCRIN IDX must be assigned on the OFCOPT form (5509 Record).

The RDTA OE field is the Pseudo BRI port or the PRI B-Channel port used for the RPA feature. It is a required field.

An RDTA OE TYPE of "I" followed by entries representing the SM, ISLU, LGC and LC defines a Pseudo BRI OE. This field entry must be unique and must not appear on another RDTAPORT, DSL (5907 Record), OSPDSL (5411 Record) or DSLAP form (5962 Record).

The Pseudo BRI OE must be defined on an ISLULC form (5942 Record) with an "O" in the EQST field and a TYPE of "TLC", "ULC", "PULC" or "AULC". If RDTA OE TYPE is "I" then D CHAN TN, B1 CHAN TN and B2 CHAN TN must all be entered. PRI TN must be blank

An RDTA OE TYPE of "D" defines an EDSL PRI B-Channel consisting of an SM, DLTU, DFI, and DCHAN. The PRI OE number must be defined on a TRUNK form (5204 Record) with field BRCS set to "N". The corresponding TKGRP form (5202 Record) must have the field RDTA GRP set to "Y".

The 5911A Record is sorted by RDTA OE field. The 5910B Record contains the same information but is sorted by the CSC ID field.

The CSC ID field determines the Customer Service Center ID where RPA test equipment is located. It is a required field with a valid entry of up to 8 characters.

The PAIR field is the optional paired number for an RPA facility. There may be from 1 to 24 pairs defined. PAIR should be blank if the craft wishes not to assign a particular output facility a paired number. Pairing

allows the craft to add separate pair numbers to sets of BRI or PRI pairs to allow for ease of identification when office records are printed.

The D CHAN TN field is the 7-digit TN associated with the D channel of the Pseudo BRI port. The TN must be unique within the 5ESS Switch. The first three digits of the D CHAN TN must be defined in the OFFICE CODE field on a NOC form (5501 Record).

The B1 CHAN TN field contains the 7-digit TN associated with the B1 channel of the Pseudo BRI port. The TN must be unique within the 5ESS Switch. The first three digits of the B1 CHAN TN must be defined in the OFFICE CODE field on a NOC form.

The B2 CHAN TN field contains the 7-digit TN associated with the B2 channel of the Pseudo BRI port. The TN must be unique within the 5ESS Switch. The first three digits of the B2 CHAN TN must be defined in the OFFICE CODE field on a NOC form.

The PRI TN field contains the 7-digit TN associated with the Primary Rate Interface B channel port. The TN must be unique within the 5ESS Switch. The first three digits of the PRI TN must be defined in the OFFICE CODE field on a NOC form.

RDTATN form (5910-A/B Record) - This form is also available with the 5E7 Software Release. RDTATN is used by the operating company at the Remote Switch to document the TN of a Protocol Analyzer at the Access Switch. The 5910A Record consists of the TN, the CSC ID, the CHANNEL, and PAIR. The 5910A Record is sorted by TN. The 5910B Record contains the same information but is sorted by the CSC ID field.

The TN field associates a 7-, 10-, or 15-digit TN with a particular Pseudo BRI or PRI B-channel port that has been defined for the RDTA capability.

The CSC ID field is a required entry that determines the CSC ID where protocol analysis is done.

The CHANNEL field contains the channel that the TN is associated with. If the TN is associated with a Pseudo BRI D channel, the value must be 0. For a TN associated with a Pseudo BRI B1 channel the value entered should be 1; for a B2 channel, the value should be 2. If the TN is associated with a PRI B channel, the value should be 1 to 23 depending on the PRI B channel. This is a required field.

PAIR is an optional field containing a paired number for a RPA output facility. Pairing allows distinct pair numbers for sets of Pseudo BRI or PRI pairs and easier identification on printed office records. Valid values are 1 to 24.

2.2 Engineering Assignments Translations

EQPSUPH form (5742 Record) - This form, the Packet Switching Unit Protocol Handler Pack Equipage Record, is used to define the Packet Switching Unit Protocol Handlers equipped in a 5ESS Switch.

The BRI RDTA PIDB TS field, added with the 5E7 Software Release, represents the number of PIDB timeslots reserved for the BRI RDTA feature on the PSU Shelf. Valid entries are 2, 4, or 6.

2.3 Miscellaneous Forms Translations

OFCOPT form (5509 Record) - This form determines miscellaneous office options and parameters. It is required at the time of initial translations for all offices.

Two fields added to this form for the RPA feature are used during digit analysis. The third field determines the maximum number of RPA sessions on a switch.

The RDTA SCRIN IDX field is the Screening Index used by RDTA to translate a TN for a 56Kbps or 64Kbps data call. The valid entries are 1 to 4095. RDTA SCRIN IDX must be entered if an RDTAPORT (5909 Record) or RDTATN (5910 Record) is entered for this office.

The RDTA DAS field contains the Digit Analysis Selector which translates a DN from an input TTY message for RDTA. Valid entries are 1 to 99.

RDTA DAS must be entered if an RDTAPORT form (5909 Record) or RDTATN form (5910 Record) is entered for this office. This field must be defined on a DAS form (5300 Record) with the LINE DAS information entered.

BRI MAX SESSION is the maximum number of simultaneous RPA BRI sessions allowed for any SM in this office. Valid entries are 1 to 15. If BRI MAX SESSION is entered, RDTA SCRIN IDX and RDTA DAS must be entered.

2.4 Trunk Forms Translations

TKGRP form (5202 Records) - This form defines information common to a trunk group in a 5ESS Switch.

For the RPA feature, the new field RDTA GRP asks if the trunk group can be used for Remote Digital Test Access. This is a required field. Valid entries are "Y" (Yes) or "N" (No).

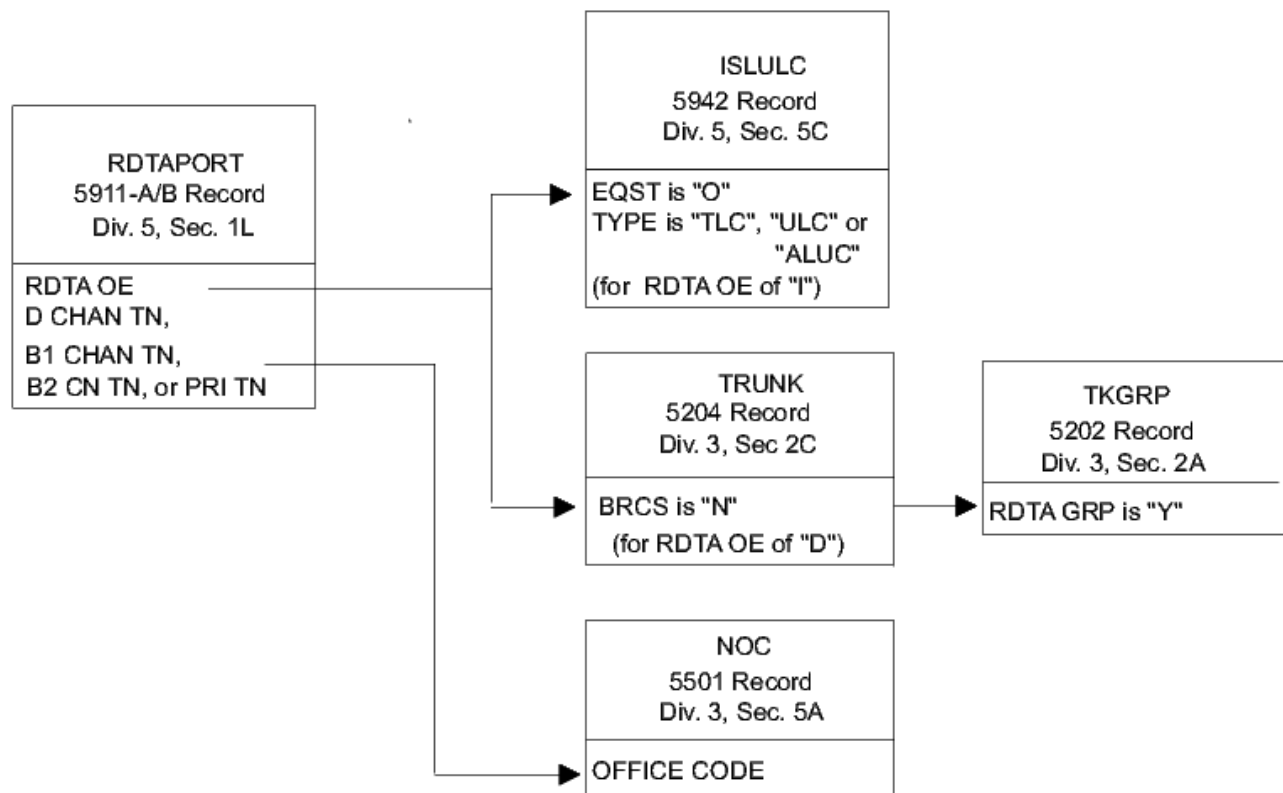


Figure 1 RPA FORM DEPENDENCIES

SEC. 5G: REDEFINE PH2 ACCESS IMAGE

1. FEATURE DESCRIPTION

The PH2 Access Image Redefinition feature applies to 5E9(1) and later Software Releases. It redefines the PH2 (Protocol Handler 2) Access Image so that PH2s no longer support X.25 features. For 5E9(1) and later, the PH2 supports only ISDN Voice and Circuit Switched Data features. X.25 features require a PH3.

An Application Processor link is allowed to be on either a PH2 or PH3.

1.1 Expanded Definition

Prior to 5E9(1), a PH2 could be pumped with one of two images, the Access Image or the Gateway Image. The Access Image supported ISDN Voice, Circuit Switched Data and ISDN Access Packet (i.e., X.25, ISM (Inter-SM Nailup), Modem Pool, and XAT (X.25 Access on a T1 Carrier)). The Gateway Image supported X.75, X.75', ISM, IP (Internal Protocol), and IT (Inter-Switch Transport) functionalities.

For 5E9(1), this feature redefines the PH2A memory contents by removing all ISDN X.25 packet functionality from the Access Image for the PH2. The packet services no longer supported by the PH2 Access Image include: ISM, LAPB, X.25, Modem Pooling, and XAT. The ISM functionality now resides only within the PH2 Gateway Image and is limited to only four channels (0, 4, 8, 12); the remaining functions are supported only on PH3s.

For the limitations due to the above feature, refer to AT&T 235-190-105, Custom ISDN Features, and AT&T 235-190-110, National ISDN Feature Descriptions.

1.2 Data Implications

No new fields were added for this feature; however, data rules were modified to restrict the assignment of services on PH2s. These rules are specified in the TRANSLATION REQUIREMENTS section below.

1.3 Retrofit Considerations

Prior to an ODA retrofit to the 5E9(1) Software Release, the switch owner must identify all ISDN X.25 packet lines equipped on PH2s and move them to PH3s. This must be done prior to the final database dump. If these changes are not completed, ODA will flag unchanged lines as errors, and the retrofit will fail.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
AMLBDL	5447	3	4AV	21.34
DSL	5107	5	1H	23.2
DSLUSR	5108	5	1I	23.2
ODBRES	5906	5	1G	23.14
XAT	5109	5	1J	23.40

AMLBDL form (5447 Record) - This Automated Multi-Leaf Bulletin DSL form defines the DSL characteristics necessary for an OSPS VDT (Video Display Terminal) to make a packet-switched call to an external database.

For 5E9(1) and later, the SM, PSU SHELF and GRP must be defined on a PSUGP form (5949 Record) where PH TYPE is "PH3". The SM is specified in the first three digits of the LCEN on the AMLBDL form. If an

ISCN is defined on the AMLBDSL form, the SHELF and CHL GRP are the first three digits of that ISCN; otherwise, they are the first three digits of the ISCN on the corresponding OSPSDSL form (5411 Record), where the LCEN matches the LCEN of the AMLBDSL form.

DSL form (5107 Record) - The DSL form is used to define the attributes of a DSL (Digital Subscriber Line, also called a BRI). It also defines the attributes of the B1 and B2 channels of the DSL when these channels are dedicated to Permanent Packet (X.25) Switching. DSL is available with 5E5 and later Software Releases.

For 5E9(1) and later when an ISCN is entered on the DSL form, the SM, PSU SHELF and GRP must be defined on a PSUGP form where PH TYPE is set to "PH3". On the DSL form the SM is specified in the first three digits of the OE. For D-channel packet service (DPKT TN or DPKT MLHG and TERM entered on a corresponding DSLUSR form), the SHELF and CHL GRP are specified in the first three digits of the D ISCN. For Permanent Packet B1 and B2 service, the SHELF and CHL GRP are represented by the first three digits of the PPB1 ISCN and PPB2 ISCN fields.

DSLUSR form (5108 Record) - The DSLUSR form is used to define the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, D-channel packet attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases.

For 5E9(1) and later when ODB ISCN1 is entered, the SM, PSU SHELF and GRP must be defined on a PSUGP form where PH TYPE is "PH3". On the DSLUSR form the SM is the first three digits of the OE; the SHELF and CHL GRP are the first three digits of ODB ISCN1.

ODBRES form (5906 Record) - The ODBRES form is used to reserve ISCNs (Integrated Services Channel Numbers) for DSL users of the ODB (On Demand B-channel) packet switching feature. A DSL user is assigned the ODB feature when an ODB TN is entered on a DSLUSR form where an ISCN is initially allocated to the user. The ISCNs reserved by this form become part of an ISCN "pool" to be accessed later for ODB assignment by Recent Change on RC view 23.2 and through the ACSR (Automatic Customer Station Rearrangement) feature.

For 5E9(1) and later, the SM, PSU SHELF and GRP must be defined on a PSUGP form where PH TYPE is "PH3". On the ODBRES form these are the SM, SHELF, and CHL GRP fields.

XAT form (5109 Record) - XAT refers to X.25 access to T1 facility DS0 channels. The XAT form is used to define ports for each channel of a T1 facility on a subscription basis using X.25 protocol. The unsubscribed channels can be used as trunk members of PRI trunk groups with the D-channel supporting Q.931 signaling and the B-channel(s) supporting CSV (Circuit Switched Voice) and CSD (Circuit Switched Data). T1 facility channels can be provisioned and supported like DSL Permanent Packet B-channels, which includes membership in MLHGs. XAT is available with 5E6 and later Software Releases.

For 5E9(1) and later when ISCN is entered, the SM, PSU SHELF and GRP must be defined on a PSUGP form where PH TYPE is "PH3". On the XAT form the SM is the first three digits of the DEN; the SHELF and CHL GRP are the first three digits of the ISCN.

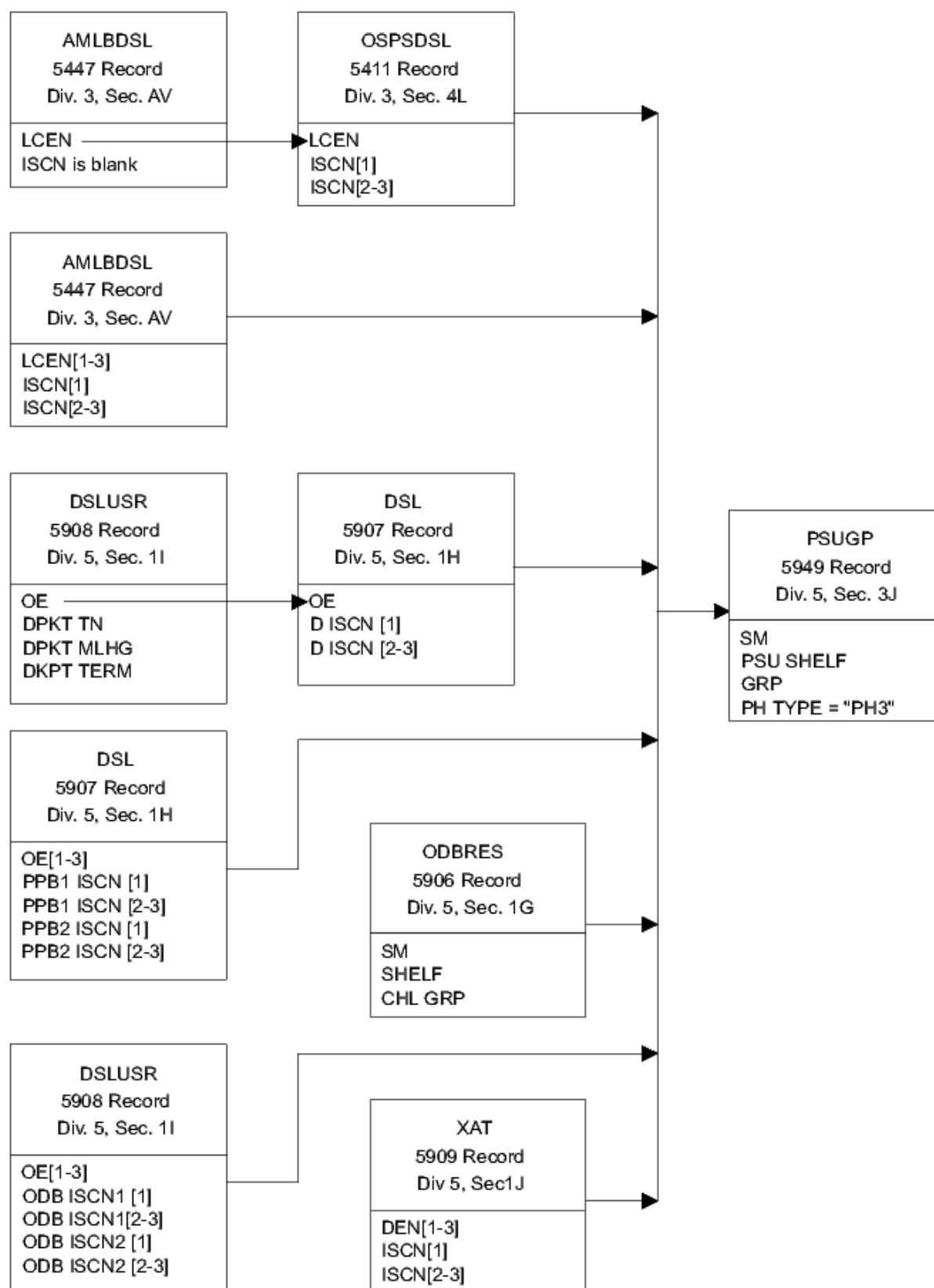


Figure 1 PH3 FORM FLOW

SEC. 5H: LOCAL CHARGE PREVENTION

1. FEATURE DESCRIPTION

1.1 Introduction

The LCP (Local Charge Prevention) capability is available with 5E7 and later Software Releases. LCP enables subscribers to prevent their X.25 Data Terminating Equipment from being charged for virtual calls, whether outgoing or incoming. This feature helps users manage and control the cost of their X.25 packet service on the ISDN interface.

This feature applies only to virtual calls, and not to Permanent Virtual Calls.

The LCP feature is assigned on a per-user/packet-service-type basis.

1.2 Packet Mode Call Charging

A packet mode call is normally charged to the originating DN, unless the call is reverse-charged.

If the call is reverse-charged, then the network determines whether the terminating DN is subscribed to Reverse Charge Acceptance.

If the terminating DN does not subscribe to Reverse Charge Acceptance, the call is cleared and an AMA (Automatic Message Accounting) record is generated for the call at the originating interface.

If the terminating DN subscribes to Reverse Charge Acceptance, then the network offers the call to the terminating DN.

If the terminating end accepts the reverse-charged call, the call is completed and charged to the terminating DN.

If the terminating end does not accept the reverse-charged call, the call is cleared, and again an AMA record generated for the call at the originating interface.

1.3 Call Origination

This capability inserts the Reverse Charge facility into the X.25 Call Request if the user omits it. In this case, the facility field length is checked to ensure sufficient room to accommodate the Reverse Charge facility (i.e., without exceeding the 109 octet limit for the facility length). In cases where the insertion of the Reverse Charge facility field causes the facility field to exceed the 109 octet limit, the call is cleared.

In cases where the X.25 Call Request packet contains the Fast Select facility and no Reverse Charge facility is present, the inserting of Reverse Charge facility (i.e., setting of Reverse Charge bit), does not require checking of the 109 octet limit.

1.4 Call Termination

For subscribers of the LCP feature, any X.25 Incoming Calls that contain the Reverse Charge facility are cleared.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
DSL	5907	5	1H	23.2
DSLUSR	5908	5	1I	23.2
XAT	5909-1/2	5	1J	23.40

2.1 ISDN/Packet Switching Translations

DSL form (5907-1/2/3/4/5/6/7 Record) - This form is used to define the attributes of a DSL (Digital Subscriber Line; also called BRI). It also defines the attributes of the B1 or B2 channel of the DSL if either or both of those channels are dedicated Permanent Packet (i.e., X.25) Switching. DSL is available with 5E5 and later Software Releases.

PPB1 LCP and PPB2 LCP were added for the LCP feature. An entry of "Y" indicates LCP is subscribed to. LCP is not allowed with Reverse Charge. If LCP is "Y", then REV CHARGE must be "N".

DSLUSR form (5908-1/2/3/4/5/6/7/8/9/10/11 Record) - This form is used to define the TN and status information of a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form will always have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases.

DPKT LCP and ODB LCP were added for the LCP feature. An entry of "Y" indicates LCP is subscribed to. LCP is not allowed with Reverse Charge. If LCP is "Y", then REV CHARGE must be "N".

D SERV on the corresponding DSL form must not equal "XMP" when LCP is "Y".

XAT form (5909-1/2 Record) - XAT refers to X.25 access to T1 facility DS0 channels. This form is used to define ports for each channel of a T1 facility (digital lines and trunks) on a subscription basis using Q.931 signaling. T1 facility channels can be provisioned and supported like DSL Permanent Packet B-channels, which includes membership in MLHGs. XAT was added with the 5E6 Software Release.

LCP was added for the LCP feature. An entry of "Y" indicates LCP is subscribed to. LCP must be "N" when DEN is blank. LCP is not allowed with Reverse Charge. If LCP is "Y", then REVCHARGE must be "N".

SEC. 5I: CONDITIONAL NOTIFICATION AND CHANNEL SELECTION

1. FEATURE DESCRIPTION

The Conditional Notification and Channel Selection feature is available with 5E8 and later Software Releases. It more closely aligns ISDN packet switching services with the Bellcore Translations Requirement TR-TSY-000268.

The feature requires a PH3 (Protocol Handler 3) to provide the following services:

- Channel Selection;
- Conditional Notification;
- Subscription to up to two On Demand B-channels per BRI (Basic Rate Interface);
- Maximum Combined Throughput parameters.

Each of these will be defined separately.

1.1 Background

Packet mode service is defined as packet data over a specific channel, e.g., packet data on the D-channel represents a packet mode service, as does packet data on an On Demand B-channel or packet data on a Permanent B1 or Permanent B2 channel. The CNCS features described in this section build on existing packet switching features. See Division 2, Section 1AB, "Enhanced B-Channel Packet Switching".

1.2 Channel Selection

The Channel Selection feature allows a packet mode user to access multiple channels on the BRI for calls to the same DN (Directory Number). This feature is also referred to as Common DN.

A user with the Channel Selection feature subscribes to packet on more than one channel (e.g., D- and B-channels, ODB and PPB channels, or two PPB channels). The CHL SEL fields for the packet services with the common DN must be set to "Y", and the corresponding TN fields for those services must contain the same directory number. Additionally, when the D-channel is accessed via a Common DN, the TCID field on the DSLUSR form determines which calls will be offered on the D-channel.

When an incoming call arrives for a common DN, the switch uses a selection algorithm to select the channel over which the X.25 call will be offered. If the D-channel is accessed via the common DN, the throughput value contained in the incoming call packet is compared to the TCID (Throughput Class Indication of D-Channel) parameter on the DSLUSR form. This parameter indicates the highest Call Packet throughput value the user is willing to accept over the D-channel. If TCID is greater than or equal to the throughput value indicated in the incoming call packet, the switch selects the D-channel.

When a user subscribes to channel selection, many facilities subscribed on a channel basis must be identical for channels assigned the common DN. For a complete list of attributes that must be common, see the CHL SEL fields in the TG-5 sections for the DSL and DSLUSR forms.

A unique DN is required for the PVC (Permanent Virtual Circuit) service. A user cannot subscribe to PVC with a common DN.

1.3 Conditional Notification

The Conditional Notification feature assigns a "Conditional Notification" class of service at a BRI for an X.25 packet call. If the switch determines that an incoming X.25 virtual call should be terminated on an inactive B-channel or over a D-channel that has no active packet logical link associated with that user, the switch will be able to establish a B-channel or logical link on the D-channel using Q.931 procedures on the D-channel.

For example, if the switch selects an idle On Demand B-channel, i.e., a B-channel that is not in use for circuit switched services and is available for packet, the switch notifies the called user via Q.931 signaling procedures over the D-channel. If the user accepts the call, the switch connects the B-channel and delivers the call to the user.

The user subscribes to the Conditional Notification class of service through DPKT NOTIF and/or ODB NOTIF fields set to "COND" on the DSLUSR form.

When the user subscribes to Conditional Notification on an On Demand B-channel, the T320 field on the ISDNOPT form is used to ensure that the B-channel does not stay connected and idle for a long period of time. For Conditional Notification users, T320 replaces the T3XX timer; T3XX is still available for users who do not subscribe to Conditional Notification.

If the user subscribes to "No Notification" (NOTIF set to "NO"), an X.25 call will be delivered only if the user already has an active ODB channel or D-channel packet connection; otherwise the call will be rejected.

1.4 Subscription to Two ODBs

This feature allows a user to subscribe to two On Demand B-channels and use them simultaneously for packet. Prior to 5E8, a user could subscribe to only one ODB channel.

For this feature, the ISCN field on the DSLUSR form has been renamed ISCN1, and the ISCN2 field has been added. Also, the ODB field is introduced to specify the number of On Demand B-channels to which the user subscribes.

A user who subscribes to two ODB channels must subscribe to Channel Selection for those channels.

1.5 Maximum Combined Throughput

The Maximum Combined Throughput feature allows the user to specify a maximum allowable throughput for sending and receiving. When the sum of throughputs for virtual calls exceeds either value, the channel is considered busy.

The user may specify two MCT values per DN/channel (e.g. D-channel, ODB, PPB1, PPB2, and XAT), one MCT value for the incoming direction (RCV MCT) and one value for the outgoing direction (SEND MCT). If no value has been specified by the user, the switch will not use the parameter to check for a channel-busy condition.

The switch checks for the channel-busy condition before offering an incoming call to the user or accepting a call request from the user. The switch uses the Maximum Combined Throughput parameter to check for the busy condition and to negotiate the throughput class if needed. The channel is considered busy if either direction of transmission becomes busy.

2. TRANSLATION REQUIREMENTS

Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
DSL	5907	5	1H	23.2
DSLUSR	5908	5	1I	23.2
ISDNOPT	5941	5	5B	8.1
XAT	5909	5	1J	23.40

DSL form (5907 Records) - This form is used to define the attributes of a DSL (Digital Subscriber Line; also called a BRI, Basic Rate Interface). It also defines the attributes of the B1 and B2 channels of the DSL when they are dedicated to Permanent Packet (X.25) switching. DSL is available with 5E5 and later Software Releases.

The following fields were added for the CNCS feature.

- **CHL SEL (PPB1 and PPB2):** The channel selection field determines whether or not a Common DN will be shared by this and at least one other channel on the DSL. Valid entries are "Y" and "N".

When a call terminates to a Common DN, an active channel selection algorithm is performed to determine the channel on which the call will be offered.

Either no channels or at least two channels (PPB1 CHL SEL, PPB2 CHL SEL, ODB CHL SEL, or DPKT CHL SEL) of the DSL for a user must have Channel Selection set to "Y".

When channels share a Common DN for Channel Selection, the DN and other identical parameter values must be provisioned as described under the CHL SEL fields in the TG-5 sections for DSL and DSLUSR forms.

- **SEND MCT (PPB1 and PPB2):** This field specifies the maximum combined throughput in kilobits per second for the sending direction. When the sum of the sending throughput of virtual calls exceeds the SEND MCT (Maximum Combined Throughput), the user is considered busy. Valid entries: 64 - 128 kbps in increments of 8 kbps.
- **RCV MCT (PPB1 and PPB2):** This field specifies the maximum combined throughput in kilobits per second for the receiving direction. When the sum of the receiving throughput of virtual calls exceeds the RCV MCT (Maximum Combined Throughput), the user is considered busy. Valid entries: 64 - 128 kbps in increments of 8 kbps.

DSLUSR form (5908 Records) - This form is used to define the TN and other information for a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form must have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases.

The following fields were added for the CNCS feature.

- **CHL SEL (DPKT and ODB):** The channel selection field determines whether or not a Common DN will be shared by this and at least one other channel on the DSL. Valid entries are "Y" and "N".

When a call terminates to a Common DN, an active channel selection algorithm is performed to determine the channel on which the call will be offered.

Either no channels or at least two channels (PPB1 CHL SEL, PPB2 CHL SEL, ODB CHL SEL, or DPKT CHL SEL) of the DSL for a user must have Channel Selection set to "Y".

When channels share a Common DN for Channel Selection, the DN and other identical parameter values

must be provisioned as described under the CHL SEL fields in the TG-5 sections for DSL and DSLUSR forms.

Channel Selection may not be assigned to PVC (Permanent Virtual Circuit) service or to members of a Modem Pool Multi-Line Hunt Group.

- **SEND MCT (DPKT and ODB):** This field specifies the maximum combined throughput in kilobits per second for the sending direction. When the sum of the sending throughput of virtual calls exceeds the SEND MCT (Maximum Combined Throughput), the user is considered busy. Valid entries for DPKT: 16 - 32 kbps in increments of 2 kbps; for ODB: 64 - 128 kbps in increments of 8 kbps.
- **RCV MCT (DPKT and ODB):** This field specifies the maximum combined throughput in kilobits per second for the receiving direction. When the sum of the receiving throughput of virtual calls exceeds the RCV MCT (Maximum Combined Throughput), the user is considered busy. Valid entries for DPKT: 16 - 32 kbps in increments of 2 kbps; for ODB: 64 - 128 kbps in increments of 8 kbps.
- **NOTIF (DPKT and ODB):** This field determines the Notification Class for D-channel and On Demand B-channel packet calls.

If a call is routed to a channel with Conditional Notification when Layer 1 is up on the channel, but Layer 2 is down for the channel, the channel will be notified of the incoming call. The channel is notified by sending a Q.931 message on the D-channel. If the user accepts the call by responding to the Q.931 message, the switch will initiate Layer 2 setup procedures on the channel and offer the call.

Valid entries are "COND" (Conditional Notification) and "NO" (No Notification).

For restrictions on these and related fields, see the NOTIF field descriptions on the DSLUSR form, Division 5, Section 11.

- **TCID (DPKT):** This field determines the Throughput Class Indicator for the D-channel when a Common DN accesses the D-channel. Incoming calls to the Common DN with a throughput class less than the TCID are routed to the D-channel. Valid entries are 0, 75, 150, 300, 600, 1200, 2400, 4800, or 9600 kbps.

If 0 is entered, the TCID is not subscribed. If DPKT CHL SEL is "Y" and TCID is left blank, a value of 9600 kbps is automatically assigned by software.

- **ISCN1 (ODB):** For this feature the ISCN field has been renamed ISCN1. It defines the number of the first B-channel ISCN (Integrated Services Channel Number) on the PSU joined to the DSL. The DSL is connected, via a PIDB (Peripheral Interface Data Bus), to the PSU (Packet Switching Unit).
- **ISCN2 (ODB):** This field defines the number of the second On Demand B-channel ISCN (Integrated Services Channel Number) on the PSU joined to the DSL. The DSL is connected, via a PIDB (Peripheral Interface Data Bus), to the PSU (Packet Switching Unit).

If ODB ISCN2 is entered, ODB must be 2. If both ODB ISCN1 and ODB ISCN2 are entered, they must reside on the same SM, PH shelf, and channel group and be unique within the SM.

- **ODB (ODB):** This field specifies the number of On Demand B-channels to which the user subscribes. Valid entries: 1 and 2.

If ODB is not entered, no ODB channels are subscribed, and neither ODB ISCN1 nor ODB ISCN2 may be entered.

If ODB is 1, one ODB channel is subscribed, and the following must be true: ODB TN or ODB MLHG and TERM must be entered; ODB ISCN1 must be entered, and ODB ISCN2 must not be entered; D SERV on the corresponding DSL form must be "SX"; and B1 SERV or B2 SERV must be "DMD".

If ODB is 2, two ODB channels are subscribed, and the following must be true: ODB TN or ODB MLHG and TERM must be entered; ODB ISCN1 and ODB ISCN2 must be entered; PPB1 USR and PPB2 USR must be "N" or not entered; ODB CHL SEL must be "Y"; D SERV, on the corresponding DSL form, must be "SX", and B1 SERV and B2 SERV must be "DMD".

ODB must be less than or equal to MAXB CHL.

ISDNOPT form (5941 Record) - This form is used to define a set of office parameters for an ISDN office.

The T320 timer has been added for packet switching On Demand B-channels with Conditional Notification.

T320 is an office timer, i.e. specified on an office (not user) basis, defined by Bellcore TR 268. It is used for B-channel access to the PH. It is started when the switch sends or receives a CONNect message or after the clearing of the last virtual circuit on the B-channel. It is canceled when a new virtual call is established or when the user initiates B-channel disconnection procedures for the B-channel. The T320 timer is applicable only when the user has subscribed to Conditional Notification. Valid entries: 20 - 60 seconds in increments of 5 seconds.

Timer T320 is not applicable when the user has subscribed to the No Notification (NOTIF set to "NO") class of service. Timer T3XX should be used when the user has subscribed to the No Notification class of service. T3XX ensures that an On Demand B-channel does not stay idle for a long period of time.

XAT form (5909 Records) - XAT refers to X.25 access to T1 facility DS0 channels. The XAT form is used to define ports for each channel of a T1 facility on a subscription basis using X.25 protocol. The unsubscribed channels can be used as trunk members of PRI trunk groups with the D-channel supporting Q.931 signaling and the B-channel(s) supporting CSV (Circuit Switched Voice) and CSD (Circuit Switched Data). T1 facility channels can be provisioned and supported like DSL Permanent Packet B-channels, which includes membership in MLHGs. XAT is available with 5E6 and later Software Releases.

Two fields were added for the CNCS feature.

- **SEND MCT:** This field specifies the maximum combined throughput in kilobits per second for the sending direction. When the sum of the sending throughput of virtual calls exceeds the SEND MCT (Maximum Combined Throughput), the user is considered busy. Valid entries: 64 - 128 kbps in increments of 8 kbps.
- **RCV MCT:** This field specifies the maximum combined throughput in kilobits per second for the receiving direction. When the sum of the receiving throughput of virtual calls exceeds the RCV MCT (Maximum Combined Throughput), the user is considered busy. Valid entries: 64 - 128 kbps in increments of 8 kbps.

3. REFERENCES

Document 235-190-110. *5ESS Switch National ISDN Description*.

ISDNOPT 5941 Record Div. 5, Sec. 5B
T320

DSL 5907 Record Div. 5, Sec. 1H
PPB1: CHL SEL SEND MCT RCV MCT PPB2: CHL SEL SEND MCT RCV MCT

DSLUSR 5908 Record Div. 5, Sec. 1I
DPKT: CHL SEL SEND MCT RCV MCT NOTIF TCID ODB: CHL SEL SEND MCT RCV MCT NOTIF ISCN1 ISCN2 ODB

XAT 5909 Record Div. 5, Sec. 1J
SEND MCT RCV MCT

Figure 1 CNCS FORMS

SEC. 5J: ISDN PACKET MULTI-LINE HUNT GROUP STANDARDIZATION

1. FEATURE DESCRIPTION

The Packet Multi-Line Hunt Group Standardization feature is available with 5E8 and later Software Releases. This feature more closely aligns ISDN packet MLHGs with the Bellcore Translations Requirement TR-TSY-859.

For 5E8 a packet MLHG may contain a mixture of B-channel and D-channel members. Additionally, features that require modified translations include:

- Linear hunting;
- Deactivation of packet MLHG members for hunting;
- Busy Limit;
- Hunt Notification for CLAMN (Called Line Address Modified Notification);
- Availability of On Demand B-channels in a hunt group.

Each of these will be defined separately.

1.1 Linear Hunting

The Linear Hunting feature allows a packet Multi-Line Hunt Group to have TNs (Telephone Numbers) that serve as Linear Hunt entry points. When a Linear Hunt TN is called to access the hunt group, hunting begins at the member associated with the called TN and continues sequentially through the hunt group members until either it reaches a non-busy member, or it reaches the last member of the hunt group and all members were hunt-busy. An MLHG with this feature must have a linear hunt TN assigned to the first member of the group and may optionally have linear hunt TNs assigned to other members.

All packet hunt groups will be assigned an MLHG feature defined on an MLHGFD form with a HUNT TYPE of "PSUCD". The called number determines how the hunt will proceed.

With the Uniform Call Distribution algorithm, when the first incoming packet call is placed to the MLHG, the hunting begins with the first terminal in the group and searches sequentially through the group until either a non-busy terminal is identified, or a pass through all terminals back to the starting hunt terminal has been made and all eligible terminals were hunt-busy. Each time a hunt is completed, the next non-busy terminal is marked as the beginning hunt terminal for a subsequent call.

Note that each MLHG member is assigned a member number between 1 and 2015. These member numbers constitute the order of hunting.

1.2 Deactivation of Packet MLHG Members

Hunt terminal deactivation is a condition provided through the DEACTIVATE parameter where the terminal is temporarily removed from the hunt group without affecting other hunt terminals in the group. Deactivation affects only the hunting operation, and does not affect the ability of the terminal to originate packet calls or to terminate packet calls directed to it through a direct call. Activation restores the ability of the hunt terminal to terminate hunted calls.

This feature does not apply to modem pool members.

1.3 Busy Limit Parameter

The Busy Limit parameter represents the maximum number of concurrent incoming virtual calls a packet MLHG member may receive before the member is marked busy for hunting purposes. When the number of calls equals or exceeds the busy limit, the member is no longer available for hunted calls.

Only incoming X.25 virtual calls are counted against the busy limit. Calls to non-hunt DNs are included in the call count but are not restricted by the limit.

1.4 CLAMN Procedures

When a call is offered to a packet MLHG terminal as part of hunting, CLAMN signaling is returned to the calling party to indicate that a hunt was performed. The CCITT X.25 CLAMN (Called Line Address Modified Notification) is sent from the called packet interface to the calling interface after successful completion or rejection of the call.

The CLAMN feature allows the terminating CPE or switch to return the CLAMN facility, along with a modified Called Address field that contains the non-hunt DN for the MLHG member, to the calling party.

The Hunting Notification procedure for processing the CLAMN facility and modified address is specified in the HUNT NOTIF field for the MLHG member. For an explanation of the CLAMN hunt notification options, see the HUNT NOTIF field descriptions below.

1.5 ODB in a Packet MLHG

With this feature On Demand B-channels may be assigned to a packet MLHG.

1.6 Hunt Terminals and Channel Selection

With the packet MLHG Standardization feature, an MLHG terminal may consist of multiple packet services or a single packet service.

The Channel Selection (Common DN) feature allows multiple channels on a BRI to be treated as a single packet hunt group member. The member is assigned a feasible set of channels (PPB1, PPB2, DPKT, and/or ODB) that are marked with CHL SEL fields set to "Y" and are assigned a common non-hunt DN. (For information about Channel Selection, see Division 2, Section 5I.)

A packet MLHG terminal without Channel Selection consists of a single packet service, one of the following:

- DPKT (D-Channel)
- PPB1, PPB2 (Permanent Packet on the B-Channel)
- ODB (On Demand B-channel)
- XAT (X.25 Access on a T1 Carrier)

1.7 Hunt Terminals and Conditional Notification

A packet MLHG member cannot subscribe to the "Conditional Notification" class of service. It must subscribe to the "No Notification" class of service (DPKT NOTIF and ODB NOTIF set to "NO" on the DSLUSR form).

2. TRANSLATION REQUIREMENTS

Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907	5	1H	23.2
DSLUSR	5908	5	1I	23.2
XAT	5909	5	1J	23.40

DSL form (5907 Records) - This form is used to define the attributes of a DSL (Digital Subscriber Line; also called a BRI, Basic Rate Interface). It also defines the attributes of the B1 and B2 channels of the DSL when they are dedicated to Permanent Packet (X.25) switching. DSL is available with 5E5 and later Software Releases.

Four fields are added for each of the Permanent Packet B-channels.

- **LNR HNT TN (PPB1/PPB2):** The Linear Hunt TN of a Multi-Line Hunt Group member serves as a linear entry point to the MLHG. Hunting begins at the member associated with the called TN and continues sequentially through the members of the hunt group until either it reaches a non-busy member, or it reaches the last member and all hunted members were hunt-busy.

The LNR HNT TN can be entered for an MLHG member only if a LNR HNT TN is assigned to member 1 of the hunt group. The TN must be unique within the 5ESS Switch except if the MLHG member is a multiple packet service, the TN must match the linear hunt TN of the other channels in the service, e.g. PPB1 LNR HNT TN or PPB2 LNR HNT TN on the DSL form or DPKT LNR HNT TN or ODB LNR HNT TN on the DSLUSR form.

- **HUNT DEACT (PPB1/PPB2):** This field determines if the MLHG member should be deactivated (marked busy) for hunted calls. A value of "Y" makes the terminal unavailable for hunted calls, while "N" indicates the Multi-Line Hunt Group member is active (available) for hunting. The deactive/active status has no effect on non-hunted calls made to the MLHG member using its individual TN.
- **BUSY LIMIT (PPB1/PPB2):** This field determines the busy limit for an MLHG terminal. The busy limit represents the maximum number of concurrent incoming virtual calls an MLHG member may receive before the member is marked busy for hunting purposes. Calls to non-hunt DNs are included in the incoming call count but are not restricted by the busy limit. If CHL SEL is "Y", valid entries are 1 - 269; if CHL SEL is "N", valid entries are 1 - 127.

If BUSY LIMIT is not entered for a packet MLHG terminal, the appropriate maximum value will be assigned as follows. If the DSL is on a PH2, BUSY LIMIT will equal the sum of IN LCNs plus 2W LCNs. If the DSL is on a PH3 and CHL SEL is "N", BUSY LIMIT will equal the sum of IN LCNs plus 2W LCNs. If CHL SEL is "Y", BUSY LIMIT will equal the sum of IN LCNs and 2W LCNs of all associated packet services (PPB1, PPB2, DPKT, and ODB) with CHL SEL set to "Y" for this user. When two ODB channels are provisioned, the ODB LCNs are counted twice.

- **HUNT NOTIF (PPB1/PPB2):** This field specifies the Hunting Notification procedure for a Multi-Line Hunt Group terminal. The HUNT NOTIF field indicates which X.25 CLAMN (Called Line Address Modified Notification) procedure is used. The X.25 CLAMN feature allows the terminating CPE or switch to return the X.25 CLAMN facility, along with a modified Called Address field containing the non-hunt DN for the end-point, to the calling party. When a call is offered to a packet terminal as part of hunting, CLAMN signaling is returned to the calling party to indicate that a hunt was performed. Valid entries are "YES", "NO", and "OLD".

If HUNT NOTIF is "YES", The switch initiates CLAMN procedures when the terminating DTE does not. If

neither the CLAMN nor the modified address is present, the switch will insert the CLAMN and non-hunt telephone number into the X.25 call request packet and allow the X.25 call to proceed. When the terminating DTE uses CLAMN procedures, the switch screens the CLAMN usage according to BELLCORE defined rules.

If HUNT NOTIF is "NO", The switch does not initiate CLAMN procedures. If neither the CLAMN facility nor the modified address is present, or if both are present, the X.25 call will proceed. When the terminating DTE uses CLAMN procedures, the switch screens the CLAMN usage according to BELLCORE defined rules.

When HUNT NOTIF is "OLD", The X.25 CLAMN procedure that existed prior to the 5E8 Software Release is used.

HUNT NOTIF must be entered for each MLHG member. If packet service is on a PH2, HUNT NOTIF must be "OLD". If HUNT NOTIF is "YES", the non-hunt DN must be entered in the TN field.

DSLUSR form (5908 Records) - This form is used to define the TN and other information for a DSL user. This includes circuit switching (voice and data) attributes, DPKT (D-channel packet) attributes, and ODB (On Demand B-channel) attributes. This form must have a corresponding DSL form. DSLUSR is available with 5E5 and later Software Releases.

The following fields were added for the Packet MLHG feature.

- **ODB MLHG and ODB TERM:** These fields define the Multi-Line Hunt Group and terminal number for an On Demand B-channel MLHG member. Valid entries are 1 - 2000 for ODB MLHG and 1 - 2015 for ODB TERM.

If these fields are entered, the following fields under the ODB (ON DEMAND B-CHANNEL) header, must be entered: ISCN1, ODB, LCC, RAX, RATE, N2, T1, T3, WNDZ, and BAND.

If the LOCAL SM field on the defining MLHG form is entered, the SM portion (first three digits) of the OE on this form must equal the value in the LOCAL SM field.

- **ODB MLHG TN:** This field specifies the non-hunt DN for an On Demand B-channel Multi-Line Hunt Group member. It must be entered for an ODB MLHG terminal when ODB CHL SEL equals "Y" or ODB HUNT NOTIF is "YES".

When ODB CHL SEL is "N", this TN must be unique within the 5ESS Switch with the exception that it can equal the CKT TN or MLHG TN (under the CKT SWITCHING header) on the same instance of the DSLUSR form.

When ODB CHL SEL is "Y", this TN must be unique within the 5ESS Switch with the following exceptions. It can equal the CKT TN or MLHG TN (under the CKT SWITCHING header) on the same instance of the DSLUSR form. Also, if the MLHG member is a multiple packet service, the MLHG TN must match the non-hunt TNs on the other channels in the service, e.g. DPKT MLHG TN on the same instance of the DSLUSR form, or PPB1/PPB2 TNs on the DSL form.

- **LNR HNT TN (DPKT and ODB):** The Linear Hunt TN of a Multi-Line Hunt Group member serves as a linear entry point to the MLHG. Hunting begins at the member associated with the called TN and continues sequentially through the members of the hunt group until either it reaches a non-busy member, or it reaches the last member and all hunted members were hunt-busy.

The LNR HNT TN can be entered for an MLHG member only if a LNR HNT TN is assigned to member 1

of the hunt group. The TN must be unique within the 5ESS Switch except if the MLHG member is a multiple packet service, the TN must match the linear hunt TN of the other channels in the service, e.g. PPB1 LNR HNT TN or PPB2 LNR HNT TN on the DSL form or DPKT LNR HNT TN or ODB LNR HNT TN on the same instance of the DSLUSR form.

- HUNT DEACT (DPKT and ODB): This field determines if the MLHG member should be deactivated (marked busy) for hunted calls. A value of "Y" makes the terminal unavailable for hunted calls, while "N" indicates the Multi-Line Hunt Group member is active (available) for hunting. The deactive/active status has no effect on non-hunted calls made to the MLHG member using its individual TN.

DPKT HUNT DEACT must be "N" for Modem Pool members.

- BUSY LIMIT (DPKT and ODB): This field determines the busy limit for an MLHG terminal. The busy limit represents the maximum number of concurrent incoming virtual calls an MLHG member may receive before the member is marked busy for hunting purposes. Calls to non-hunt DNs are included in the incoming call count but are not restricted by the busy limit. If CHL SEL is "Y", valid entries are 1 - 269; if CHL SEL is "N", valid entries are 1 - 15 for DPKT BUSY LIMIT and 1 - 127 for ODB BUSY LIMIT.

If BUSY LIMIT is not entered for a packet MLHG terminal, the appropriate maximum value will be assigned as follows. If the DSL is on a PH2, BUSY LIMIT will equal the sum of IN LCNs plus 2W LCNs. If the DSL is on a PH3 and CHL SEL is "N", BUSY LIMIT will equal the sum of IN LCNs plus 2W LCNs. If CHL SEL is "Y", BUSY LIMIT will equal the sum of IN LCNs and 2W LCNs of all associated packet services (PPB1, PPB2, DPKT, and ODB) with CHL SEL set to "Y" for this user. When two ODB channels are provisioned, the ODB LCNs are counted twice.

- HUNT NOTIF (DPKT and ODB): This field specifies the Hunting Notification procedure for a Multi-Line Hunt Group terminal. The HUNT NOTIF field indicates which X.25 CLAMN (Called Line Address Modified Notification) procedure is used. The X.25 CLAMN feature allows the terminating CPE or switch to return the X.25 CLAMN facility, along with a modified Called Address field containing the non-hunt DN for the end-point, to the calling party. When a call is offered to a packet terminal as part of hunting, CLAMN signaling is returned to the calling party to indicate that a hunt was performed. Valid entries are "YES", "NO", and "OLD".

If HUNT NOTIF is "YES", The switch initiates CLAMN procedures when the terminating DTE does not. If neither the CLAMN nor the modified address is present, the switch will insert the CLAMN and non-hunt telephone number into the X.25 call request packet and allow the X.25 call to proceed. When the terminating DTE uses CLAMN procedures, the switch screens the CLAMN usage according to BELLCORE defined rules.

If HUNT NOTIF is "NO", The switch does not initiate CLAMN procedures. If neither the CLAMN facility nor the modified address is present, or if both are present, the X.25 call will proceed. When the terminating DTE uses CLAMN procedures, the switch screens the CLAMN usage according to BELLCORE defined rules.

When HUNT NOTIF is "OLD", The X.25 CLAMN procedure that existed prior to the 5E8 Software Release is used.

HUNT NOTIF must be entered for each MLHG member. If packet service is on a PH2, HUNT NOTIF must be "OLD". If HUNT NOTIF is "YES", the non-hunt DN must be entered in the MLHG TN field.

XAT form (5909 Records) - XAT refers to X.25 access to T1 facility DS0 channels. The XAT form is used to define ports for each channel of a T1 facility on a subscription basis using X.25 protocol. The unsubscribed

channels can be used as trunk members of PRI trunk groups with the D-channel supporting Q.931 signaling and the B-channel(s) supporting CSV (Circuit Switched Voice) and CSD (Circuit Switched Data). T1 facility channels can be provisioned and supported like DSL Permanent Packet B-channels, which includes membership in MLHG's. XAT is available with 5E6 and later Software Releases.

- **LNR HNT TN:** The Linear Hunt TN of a Multi-Line Hunt Group member serves as a linear entry point to the MLHG. Hunting begins at the member associated with the called TN and continues sequentially through the members of the hunt group until either it reaches a non-busy member, or it reaches the last member and all hunted members were hunt-busy.

The LNR HNT TN can be entered for an MLHG member only if a LNR HNT TN is assigned to member 1 of the hunt group. The TN must be unique within the 5ESS Switch.

- **HUNT DEACT:** This field determines if the MLHG member should be deactivated (marked busy) for hunted calls. A value of "Y" makes the terminal unavailable for hunted calls, while "N" indicates the Multi-Line Hunt Group member is active (available) for hunting. The deactive/active status has no effect on non-hunted calls made to the MLHG member using its individual TN.
- **BUSY LIMIT:** This field determines the busy limit for an MLHG terminal. The busy limit represents the maximum number of concurrent incoming virtual calls an MLHG member may receive before the member is marked busy for hunting purposes. Calls to non-hunt DN's are included in the incoming call count but are not restricted by the busy limit. Valid entries are 1 - 127.

If BUSY LIMIT is not entered for a packet MLHG terminal, the maximum value will be assigned; BUSY LIMIT will equal the sum of IN LCN's plus 2W LCN's.

- **HUNT NOTIF:** This field specifies the Hunting Notification procedure for a Multi-Line Hunt Group terminal. The HUNT NOTIF field indicates which X.25 CLAMN (Called Line Address Modified Notification) procedure is used. The X.25 CLAMN feature allows the terminating CPE or switch to return the X.25 CLAMN facility, along with a modified Called Address field containing the non-hunt DN for the end-point, to the calling party. When a call is offered to a packet terminal as part of hunting, CLAMN signaling is returned to the calling party to indicate that a hunt was performed. Valid entries are "YES", "NO", and "OLD".

If HUNT NOTIF is "YES", The switch initiates CLAMN procedures when the terminating DTE does not. If neither the CLAMN nor the modified address is present, the switch will insert the CLAMN and non-hunt telephone number into the X.25 call request packet and allow the X.25 call to proceed. When the terminating DTE uses CLAMN procedures, the switch screens the CLAMN usage according to BELLCORE defined rules.

If HUNT NOTIF is "NO", The switch does not initiate CLAMN procedures. If neither the CLAMN facility nor the modified address is present, or if both are present, the X.25 call will proceed. When the terminating DTE uses CLAMN procedures, the switch screens the CLAMN usage according to BELLCORE defined rules.

When HUNT NOTIF is "OLD", The X.25 CLAMN procedure that existed prior to the 5E8 Software Release is used.

HUNT NOTIF must be entered for each MLHG member. If packet service is on a PH2, HUNT NOTIF must be "OLD". If HUNT NOTIF is "YES", the non-hunt DN must be entered in the TN field.

3. GLOSSARY

Hunt-Busy — a condition where the switch will not offer a call to a particular hunt terminal because the terminal is busy, a switch-maintained limit on that terminal's capacity for handling calls would be exceeded, or the terminal is deemed unavailable for hunting even though the ISDN interface serving the hunt terminal may not be busy.

Non-Hunt DN — a telephone number for a specific terminal within the hunt group. If a user calls the non-hunt DN, hunting is bypassed, and the call is offered only to the called terminal.

4. REFERENCES

Document 235-190-110. *5ESS Switch National ISDN Description*.

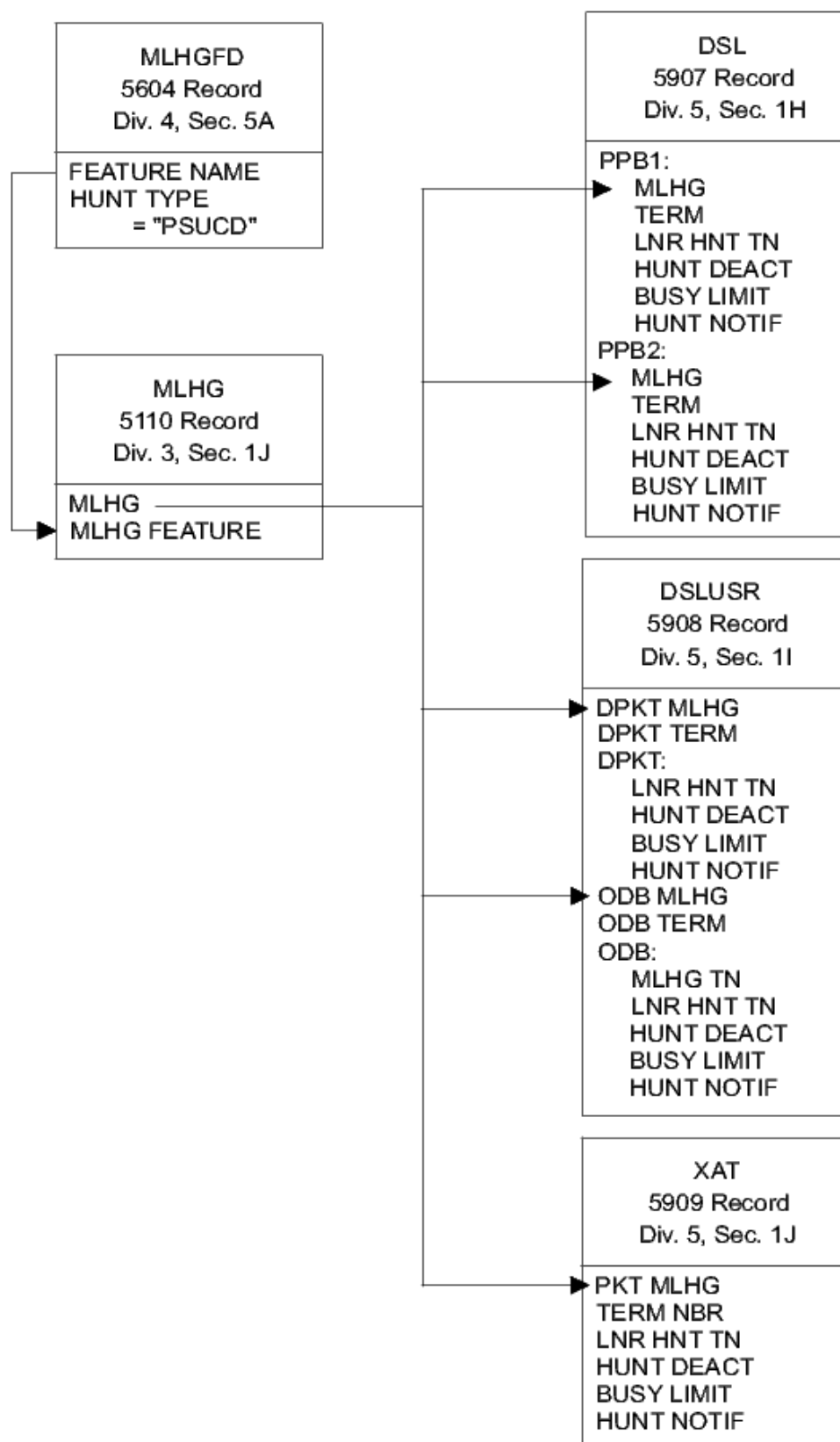


Figure 1 MLHG STANDARDIZATION FORM DEPENDENCIES

SEC. 5K: ISDN PACKET SWITCHED DATA BUSINESS GROUP

1. FEATURE DESCRIPTION

The ISDN PBG (Packet Business Group) feature has been enhanced with 5E8 and later Software Releases. This feature enables a service provider to construct and administer up to 100 intra-switch PBGs whose members are ISDN Packet Switched subscribers. A group identifier is assigned to each member of the group.

Each group may be defined with the following characteristics.

- The service provider can control a PBG's usage of switch resources through two limiting subscription parameters: Aggregate Number of Logical Channels and Aggregate Throughput Class. When the parameter values are equaled or exceeded, a call will be blocked or charged a premium fee if specified for the PBG.
- A billing telephone number can be used to identify the PBG in Automatic Message Accounting records.
- An intra-PBG AMA flag controls the generation of AMA records for intra-PBG packet mode calls.
- Subscription to Abbreviated Dialing is available.
- Subscription to Abbreviated Number Delivery is available.

This enhanced PBG feature makes the 5ESS Switch Packet Switched Data Business Group service compliant with the packet switching requirements provided in Bellcore TR-849, "ISDN Basic Business Group Structure."

2. FEATURE ASSIGNMENT

A user's packet service becomes a PBG member when a value is entered in the PPB1 PB GRP or PPB2 PB GRP field on a DSL form (5907 Record), the DPKT PB GRP or ODB PB GRP field on a DSLUSR form (5908 Record), the PB GRP field on an XAT form (5909 Record), or the PB GRP field on an MLHG form (5110 Record).

If a PBG assigned on a DSL, DSLUSR, or XAT form is defined on a PBGRP form with a value entered in ABBR DIAL LENGTH, LCN AGGREGATE, or TPC AGGREGATE, or with OVERFLOW TREAT set to "BLOCK" or "PREMIUM", then the service must be assigned to a PH3 protocol handler; the first three digits of the equipment number, the first digit of the ISCN, and the second two digits of the ISCN must match the SM, PSU SHELF, and GRP, respectively, on a PSUGP form (5949 Record) where PH TYPE is "PH3".

If a PBG is assigned on an MLHG form and is defined on a PBGRP form with a value entered in LCN AGGREGATE or TPC AGGREGATE, or with OVERFLOW TREAT other than "NONE", then all the MLHG members that are assigned packet service must be assigned to a PH3 on the PSUGP form.

Office parameters and PBG parameters are defined in the ISDNOPT and PBGRP forms as specified below.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ISDNOPT	5941	5	5B	8.1

PBGRP	5931	5	3L	23.16

ISDNOPT form (5941 Record) - This form is used to define a set of office parameters that must be entered when the office is an ISDN switch.

The PBG AMA MODULE field was added for the Packet Business Group feature. This field determines if the PBG and Billing TN specified on the PBGRP form should be included in the Packet Business Group AMA records. When this field is "Y", a BILL TN must be entered on every PBGRP form.

The PBG AMA field was deleted from this form and moved to the PBGRP form.

PBGRP form (5931 Record) - This form is new and is used to define a Packet Business Group. It includes the following fields.

- **PB GRP:** The PB GRP number (1 - 100) identifies the Packet Business Group. It is assigned to packet services (DPKT, ODB, PPB, and XAT) and to Multi-Line Hunt Groups to indicate membership in the PBG.

When an X.25 termination is assigned to a PB GRP on a DSL, DSLUSR, XAT, or MLHG form, the group must be defined on the PBGRP form.

- **ABBR DIAL LENGTH:** This field determines the number (quantity) of digits to be used for Abbreviated Dialing within the PBG. This feature allows members of the group to originate calls to other members of the group by using the last n digits of the called DN; n is specified in ABBR DIAL LENGTH and can be 1 - 6.

When a call is originated using an abbreviated code, the switch expands the code to a full packet DN by prefixing the abbreviated digits with the corresponding prefix digits of the calling user's address. All members of the PB GRP must have the same initial digits.

If the ABBR DIAL LENGTH is blank, abbreviated dialing cannot be used by members of the PB GRP.

If a value is entered in ABBR DIAL LENGTH, all members of the PBG must be assigned to PH3s on the PSUGP form.

- **ABBR NBR DELIVERY:** This field determines if an abbreviated calling number should be delivered to the called party when one group member calls another. If Abbreviated Number Delivery is provisioned, and both the calling and called DNs have the same leading digits, then only the trailing digits of the originator's DN are placed in the Calling Address field of the Incoming Call Packet. The number of trailing digits is determined by the ABBR DIAL LENGTH field; therefore, a PB GRP that subscribes to Abbreviated Number Delivery must also subscribe to Abbreviated Dialing.
- **PBG AMA:** This field determines if AMA records should be generated for intra-PBG calls.
- **BILL TN:** This 7 - 10 digit DN is appended to the AMA records of calls for the PB GRP if PBG AMA MODULE is "Y" on the ISDNOPT form. A TN must be entered in this field when PBG AMA MODULE is "Y".
- **LCN AGGREGATE:** The Aggregate Logical Channel Number specifies the number (limit) of LCNs that can be simultaneously utilized by members of the PB GRP. Valid entries are 1 - 65536. When this field is entered, all members of the PBG must be assigned to PH3s on the PSUGP form.
- **TPC AGGREGATE:** The Aggregate Throughput Class specifies the limit in kilobits that can be simultaneously utilized by members of the PB GRP. Valid entries are 1 - 524288. When this field is

entered, all members of the PBG must be assigned to PH3s on the PSUGP form.

- **OVERFLOW TREAT:** This field specifies the treatment that will apply to calls originated or terminated by the PB GRP when one or both of the above aggregate limits is exceeded. Valid entries are "BLOCK" (the call will be denied), "NONE" (the aggregates are not monitored, so no special call treatment is required), and "PREMIUM" (if the billable party is a member of the PBG, the AMA record will indicate a premium charge; otherwise, the call will be denied).

If this entry is other than "NONE", all members of the PBG must be assigned to PH3s on the PSUGP form.

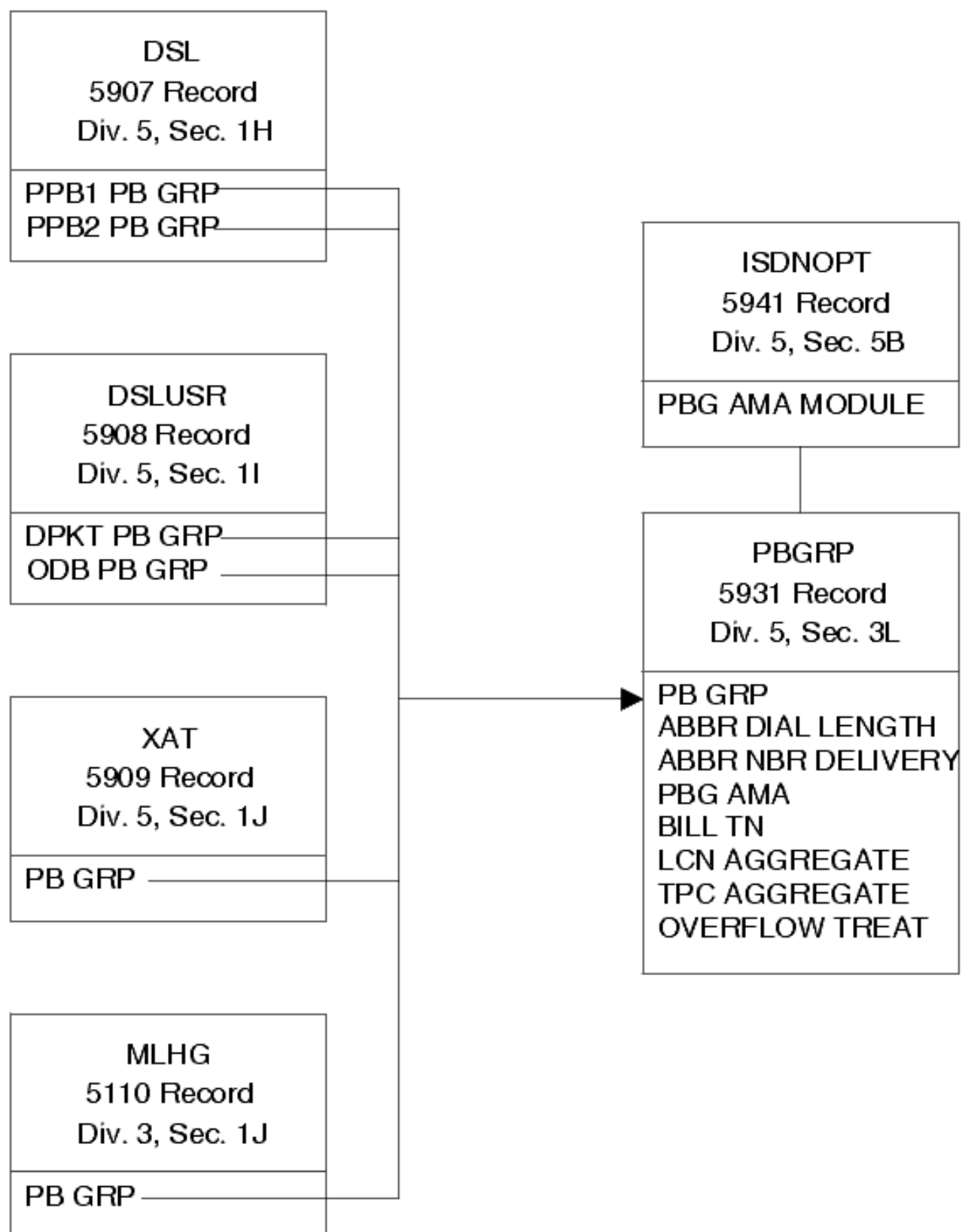


Figure 1 PACKET SWITCHED DATA BUSINESS GROUP FORM FLOW

SEC. 5L: PROTOCOL HANDLER 22 BASE SYSTEM

1. FEATURE DESCRIPTION

The PH22 (Protocol Handler 22) Base System feature is available with Software Release 5E14 and has feature number 97-5E-4286.

This feature provides PH22 software for initializations, removes, restores, switches and diagnostics using the CCS (Common Channel Signaling) application image (PH22 SCCS Software Image Support feature 99-5E-4302) to set up a PH22 base for other features.

2. FEATURE ASSIGNMENT

For feature provisioning, see Figure 1

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
CCLNK	6004-1/2	9	10D	16.6
EQPSU	5741-1/2	8	22	22.2
EQPSUPH	5742	8	23	22.3
PSUGP	5949	5	3J	22.16

CCLNK form (6004-1/2 Record) - the external link set member form, is used to define the CCS7 (Common Channel Signaling System No. 7) link sets and members. A data rule was modified for the GSM field.

EQPSU form (5741-1/2 Record) - The EQPSU form is used to define the PSUs equipped in a 5ESS Switch. Data rules were modified for the PSU TYPE field.

EQPSUPH form (5742 Record) - The EQPSUPH form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. The PH22 MIN SPARE field, a new PH CLI value, and new data rule were added.

PSUGP form (5949 Record) - The PSUGP form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. The AVAILABLE PH22 field and new PH TYPE valid entries were added.

1. Insert a new physical PH22 and update EQSTAT to "O".

EQPSUPH
5742 Record
Div. 8, Sec. 22

SM=2
PSU=0
PSUSHELF=3
POSITION=5
EQSTAT= "G"
CLI=2800

2. Assign a logical channel group 0 to be a PH22 Channel Group. The GRP TYPE field is NULL because no applications exist for this channel.

PSUGP
5949 Record
Div. 5, Sec. 3J

SM=2
PSU=0
PSU SHELF=3
AVAILABLE PH2=0
AVAILABLE PH3=0
AVAILABLE PH22=1
PH TYPE = "PH22"
GRP TYPE=NULL

3. Create a PH22 application
Using existing PH3/PH6/QPH application steps . Provisioning of signaling and QPH are Unchanged, but now can use PH22.

Figure 1 FORM FLOW FOR PH22 PROTOCOL HANDLER TRUNK MEMBER

SEC. 5M: PHA2/PHE2 ON PH30

1. FEATURE DESCRIPTION

The PHA2/PHE2 (Protocol Handler A2/E2 (ATM (Asynchronous Transfer Mode)/Ethernet - version 2)) on PH30 feature is available with the 5E16 FR1 (Feature Release 1) Software Release and is associated with feature number 97-5E-7948.

The feature reuses the general purpose PH30 (TN13) family hardware platform and introduces the new PHA2 and PHE2 hardware types.

The PHA2 is a PH30 with a paddleboard attached that a future PHA2 application feature could use that would be terminating to an OC-3 (Optical Carrier - Level 3) ATM.

The PHE2 is a PH30 with a paddleboard attached that a future PHE2 application feature could use that would be terminating to an ethernet.

The PH30 is based on the dual-processor architecture that has been traditionally used in the general purpose PH family (PH3, PH6, PH22). The AP (Application) side of the PH30 is powered by the Motorola PowerPC 755 core processor and contains the various peripherals required to interact with the PSU (Packet Switching Unit) packet bus and the I/O (Input/Output) side of the PH. The I/O side uses a NP (Network Processor) implemented with FPGA (Field Programmable Gate Array) technology and is responsible for the Layer 2 protocol processing. This includes the ATM Adaptation Layer (AAL0/AAL1/AAL2/AAL5) and the Ethernet MAC Layer, for the PHA2 and PHE2 respectively. This design document does not cover the software components of the NP, as that is covered in the related HSI (Hardware/Software Interface) document.

2. FEATURE ASSIGNMENT

The provisioning for this feature is as follows:

Insert a new PHA2 and update the EQSTAT to "O" on the EQPSUPH form (5744 Record), (RCV (Recent Change View 22.4)).

Assign a logical channel group 0. The GRP TYPE field is NULL because no application exists for this channel group.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
PSUGP	5949	5	3J	22.16

PSUGP form (5949 Record) - The PSUGP form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Added the AVAILABLE PHA2 and AVAILABLE PHE2 fields. Also added two new enumerations (PHA2 and PHE2) to the PH TYPE field.

SEC. 50: 3G 1X PD SERVICES WITH MUX PDU AND 3G 1X PD SERVICES WITH 307 2 KPBS

1. FEATURE DESCRIPTION

This document contains information about two separate features that have similar functionalities which is why they are being documented together:

3G 1X PD Services with MUX (Multiplexer) PDU (Packet Data Unit) (99-5E-8004)

3G 1X PD Services with 307Kpbs (99-5E-8222)

Both these features are made available with the 5E17(1) FR 1 (Feature Release 1) and later Software Releases.

The MUX5 feature (99-5E-8004), by itself provides increase throughputs of about 10-15 percent above any of the previously supported rates - 2x, 4x, 8x, and 16x, while when used in conjunction with the 307Kpbs feature (99-5E-8222), provides increased throughputs of up to 307Kpbs in the forward direction, (i.e., 32x).

MUX5, formally referred to as RLP3E, refers to using MUXPDU formats of type 5. This MUXPDU type is used to achieve peak data throughputs of 307Kpbs, whereas MUXPDU formats of type 3(MUX3) are used to achieve peak data throughputs of 153Kpbs. MUX3 was used in the previous release of HSPD (High Speed Packet Data). Both MUX types are standardized in CDMA (Code Division Multiple Access) 2000 standards - IS2000.3.

The 307Kpbs capability, depends on MUX5 to achieve peak user data rates, OTA (Over-the-Air) of 305Kpbs, and peak data throughputs (with header overhead) of 307Kpbs. However, the converse is not true - MUX5 does not depend on 307Kpbs.

3G-1X packet data now refers to the utilization of a Third Generation CDMA 2000 air interface using a 1.25 MHz carrier to transmit peak data throughputs of up to 307Kpbs in the forward direction, and up to 153Kpbs in the reverse direction, without packet header or payload compression. This service allows users to access IP (Internet Protocol)-based networks for a wide array of packet data applications, ranging from traditional ones - such as web browsing, e-mail, file transfer, and messaging - to applications designed for wireless - like micro-browsing, on-line trading, banking, ticketing, and other services.

Most components of these features are supported only on a PHV5/PH22 (Protocol Handler for Voice 5/Protocol Handler 22) which also supports MUX3. However, the dynamic memory allocation and de-allocation, developed by these features, is also supported on a PHV4.

These features are built on the PHV5 platform, which currently supports up to 64 calls 3G data calls, and up to 64 bursts at 16X.

The 307Kpbs rate is supported in the forward direction only. MUX5 is supported in both the forward and reverse directions for turbo and convolutional encoding.

2. FEATURE ASSIGNMENT

There is no ODA impact for either of these features.

SEC. 5P: 3G-1X HSPD WITH SIMULTANEOUS TRANSMISSION ON FCH AND SCH

1. FEATURE DESCRIPTION

The 3G-1X HSPD with Simultaneous Transmission on F-FCH (Forward Fundamental Channel) and F-SCH (Forward Supplemental Channel) feature (99-5E-8397) is made available with the 5E17(1) FR 2 and later Software Releases.

This feature provides overall data throughput improvements against the current implementation by utilizing the F-FCH during F-SCH operations. The improved throughput is achieved through the combined F-FCH and F-SCH usages. As an example, a maximum F-SCH rate of 153.6 Kbps is improved to 163.2 Kbps with the additional 9.6Kbps on the F-FCH.

This feature is supported on both the PHV4 (Protocol Handler for Voice 4) and PHV5 platforms.

SEC. 5Q: SECURING VOICE AND DATA CHANNEL COUNTS

1. FEATURE DESCRIPTION

The Securing Voice and Data Channel Counts feature (99-5E-8534) is made available with the 5E18(1) and later Software Releases. This feature works independently of the Voice and Data Channel Counts base feature (99-5E-8312). For information on the base feature, see Division 2, Section 4A635.

The purpose of implementing Securing Voice and Data Channel Counts is to ensure the collection of software Right To Use (RTU) fees associated with voice and data services on the PHV (Protocol Handler over Voice). This feature creates a simple means to track what the customer has provisioned against what has been purchased. This feature is secured by the use of a data encrypted password. None of the counters will require use of ODBE (Office Data Base Editor).

Some of the capabilities of this feature is as follows:

- This feature will have the ability to block provisioning of any additional capacity exceeding total purchased.

- The process to update the switch will need a quick update capability for implementing additional licenses to an office, which needs to provision additional vocoders or other capacity limiters.

- No SFIDs (Secured Feature IDs) are being provided for this feature. Capacity level is encrypted in the 29 character FEATURE PASSWORD for a given FEATURE NAME (e.g. PHVVOICE, PHVDATA).

- Service providers will not have to log on to the switch.

2. FEATURE ASSIGNMENTS

In order to provision this feature, set the various fields as follows:

- To review total provisioned and total licensed channels in the office:

 - Bring up RC/V 22.16 using any SM, PSU, and PSU SHELF equipped in the office.

- To insert maximum licensed PHVVOICE/PHVDATA channels for the office:

 - Use the FETVL tool to generate a 29-character encrypted password code for

 - PHVVOICE/PHVDATA with the unique base and control of the office ODD (Office Dependent Data) and the allowed maximum.

 - Bring up 8.22 RC/V in the insert mode, and enter PHVVOICE/PHVDATA as FEATURE NAME (key) and the corresponding 29 character password as the FEATURE PASSWD code.

- To update maximum licensed PHVVOICE/PHVDATA channels for the office:

 - Use the FETVL tool to generate a new 29-character encrypted password code for PHVVOICE/PHVDATA with the unique base and control of the office ODD and the allowed maximum.

 - Bring up RC/V 8.22 in update mode, and enter PHVVOICE/PHVDATA as FEATURE NAME (key) and the new 29 character password as the FEATURE PASSWD code from above.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
VDCHN	5918	5	3W	22.32

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Added the VOICE PROVISIONED, VOICE TOTAL LICENSED, DATA PROVISIONED, and DATA TOTAL LICENSED fields (all display only).

SFSYS form (5713-1 Record) - This form is used to enable/disable secured features. Added the FEATURE NAME, FEATURE PASSWD, NUM PURCHASED, and NUM PROVISIONED fields.

VDCHN form (5918 Record) - This form provides records of the RC (Recent Change) 22.32 transactions and it supports the Voice and Data Channel Counts feature. Removed this form for the 5E18.1 and later Software Releases.

SEC. 6: ISDN PRI (PRIMARY RATE INTERFACE) FEATURES

SEC. 6A: PRI CALL-BY-CALL SERVICE SELECTION FOR FX FACILITY AND TIE TRUNKS

1. FEATURE DESCRIPTION

Available with 5E9(1) and later, this feature provides Call-by-Call access to non-ISDN FX (Foreign Exchange) and non-ISDN Tie trunk facilities for calls originating from or terminating to CPE (Customer Premise Equipment) connected to the 5ESS Switch by Bellcore National ISDN PRI (Primary Rate Interface) trunks on a per-call basis.

FX trunks are non-ISDN private facilities used to connect one central office (normal service area) with another central office (the foreign exchange). Tie trunks are non-ISDN private facilities used to connect a central office (normal service area) with a distant PBX. This feature allows the customer to dial a number which causes the call to be cut through the normal central office to a foreign exchange office or distant PBX, or vice versa.

Call-by-Call Service Selection allows a single PRI to provide different services with the type of service being selected on a per-call basis. Dedicated PRIs are limited to providing only one type of service. Thus, by allowing FX/Tie access through Call-by-Call services, the PRI usage is more efficient (as compared to dedicated usage).

The number of simultaneous FX or Tie facility calls over a group of PRI B-channels is controlled by assigning an SFG (Simulated Facilities Group) to the PRI trunk group. A different SFG is required for each type of service and "direction" of the SFG. For FX/Tie services, an SFG's "direction" can be incoming, outgoing, or 2-way. When the SFG is "full" (the number of calls going through an SFG equals the SFG's size), the SFG is busy and no additional calls will be allowed to route through it unless overflow SFG is specified. This SFG is used to guarantee that only a limited number of groups of PRI B-channels will be used for a specific service at one time.

2. FEATURE ASSIGNMENT

2.1 PRI origination to FX/Tie

Figure 1 represents a scenario of a call originating at a DPBX (Digital Private Branch Exchange) which is connected over a PRI to a 5ESS Switch. The 5ESS Switch routes the call to a Tie trunk or an FX facility.

- PRI CBC (Call-by-Call) origination detected from "EDSL" on TKGRP form (5202 Record).
- Access data from TKEDSLD form (5209 Record) using TGN from "EDSL"/"EDSLHM" on TKGRP form, NFSTYPE and FACILITY NBR from SETUP message.
- Use MC RTI from the TKEDSLD form to access MCRTIDX form (5304 Record).
- Use SFG NBR from the MCRTIDX form to access PFASFG form (5609-3 Record) - check the SFG TYPE ("OUTFX", "OUTTIE", "2WFX", "2WTIE") and get idle SFG.
- If SFG is not idle, use NEXT MC ROUTE INDEX from the MCRTIDX form to find overflow SFG. If no SFG available, call is terminated.
- Use RTI from PFASFG form to access FX/TIE trunk group.

2.2 FX/Tie origination to PRI

Figure 2 represents a scenario of a call originated by a calling party dialing digits local to the central office switch. The central office routes to the Tie trunk (or FX facility) to the 5ESS Switch. The 5ESS Switch sends a SETUP message to the DPBX over the PRI to terminate the call.

- FX/Tie origination detected on "FX"/"TIE" on TKGRP form.
- Access data from TKEDSLD using TGN from "PF"/"PFLASH" on TKGRP form, FACILITY TYPE and FACILITY NBR from SETUP message.
- Do digit analysis on DIR CON DN.
- Use route index found in digit analysis to access PRI CBC trunk group.
- Determine NSFTYPE ("FX"/"TIE") from FACILITY TYPE on TKGRP form.
- Use PRI TGN from the PRI TKGRP form, NFSTYPE ("TERMFx" /"TERMTIE" from the FX/TIE TKGRP form, and FACILITY NBR from TKGRP form to access TKEDSLD.
- Use MC RTI from the TKEDSLD form to access MCRTIDX.
- Use SFG NBR from MCRTIDX form to access PFASFG - check the SFG TYPE ("INFX", "INTIE", "2WFX", "2WTIE") and get idle SFG.
- If SFG not idle, use NEXT MC ROUTE INDEX to get overflow SFG. If no SFG available, call is terminated.
- Route call over PRI to DPBX.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PFASFG	5609	4	10C	7.3
TKEDSLD	5209	3	2K	5.34
TKGRP	5202	3	2A	5.1

PFASFG form (5609 Record) - This form is used to define SFG (Simulated Facility Groups) which allow controlling access to physical groups, such as lines, trunks and special circuits. For the SFG TYPE field, the following SFG types were added:

- INFX - Incoming EDSL (Extended Digital Subscriber Line) SFG from an FX trunk
- INTIE - Incoming EDSL SFG from a Tie trunk
- OUTFX - Outgoing EDSL SFG to an FX trunk
- OUTTIE - Outgoing EDSL SFG to a Tie trunk
- 2WFX - 2-way EDSL SFG to/from an FX trunk
- 2WTIE - 2-way EDSL SFG to/from a Tie trunk

The new field RTI was added. RTI specifies the route index used to route to an FX or Tie trunk from a PRI for Call-by-Call service.

TKEDSLD form (5209 Record) - This form is used to define EDSL (Extended Digital Subscriber Line) Call-by-Call features assigned to a B-channel trunk group. The following four types were added to the NET SPEC FAC TYPE field which describes the type of EDSL Call-by-Call service to be provided:

- ORIGFX - Originating from a PRI to an FX trunk
- ORGTIE - Originating from a PRI to a Tie trunk
- TERMFx - Terminating from an FX trunk to a PRI
- TERMTIE - Terminating from a Tie trunk to a PRI

The field FACILITY NBR was added which indicates the facility number of the originating from / terminating to FX or Tie trunk group.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The field FACILITY TYPE was added which indicates whether a non-ISDN trunk group is FX or Tie. While this value is needed only by terminating and 2-way FX/Tie trunk groups, it may be inserted for all FX/Tie trunk groups for ease of data administration.

The field FACILITY NBR was added which identifies a single FX or Tie trunk group. For calls arriving over an FX/Tie trunk group and terminating to a PRI, this FACILITY NBR will be assigned on one or more TKEDSLD forms.

When FACILITY NBR is entered, FACILITY TYPE and DIR CON DN must also be entered. The DN that is entered in the DIR CON DN field is used in digit analysis to determine the outgoing PRI trunk group.

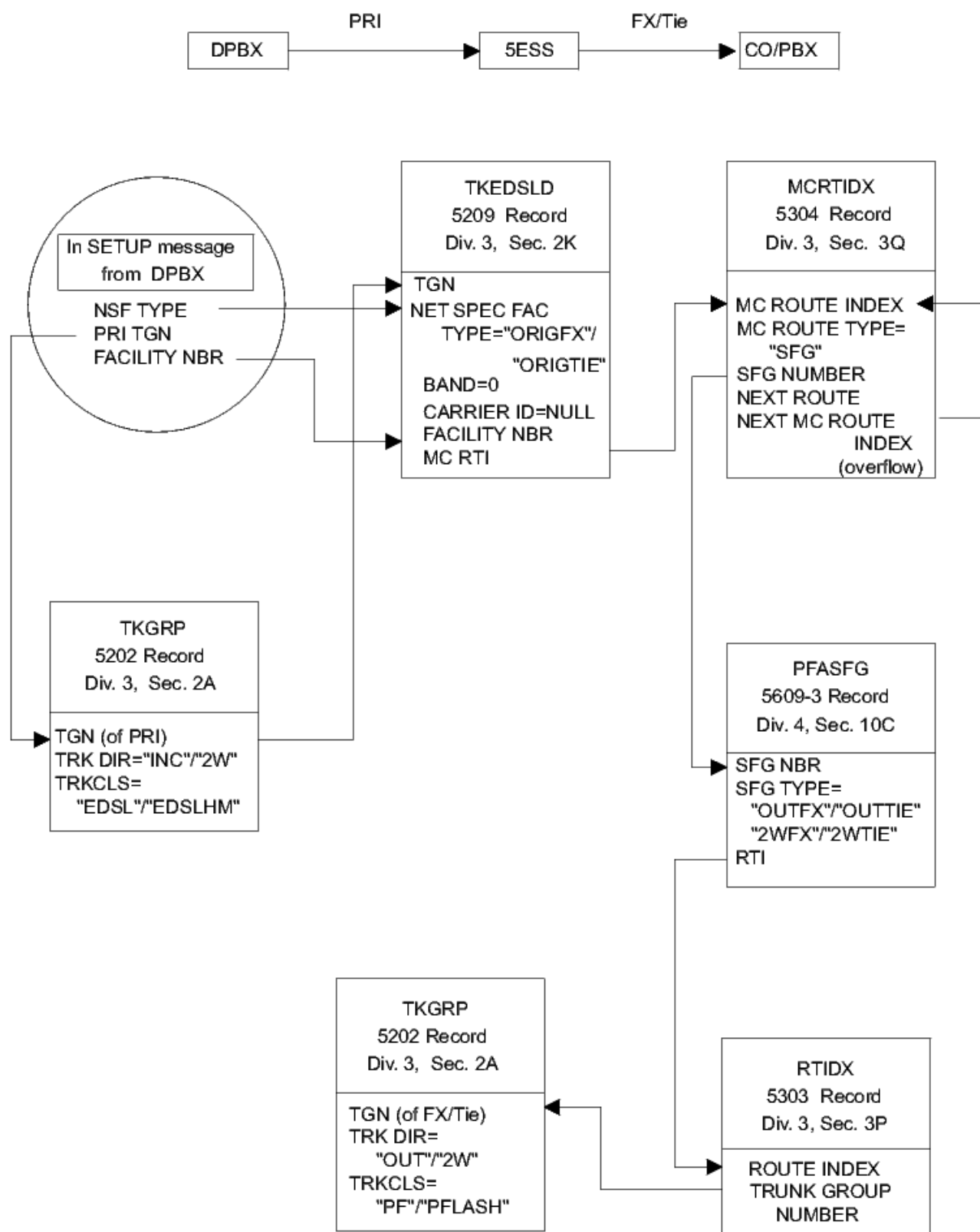


Figure 1 CALL PROCESSING PRI ORIGINATION TO FX/TIE SCENARIO

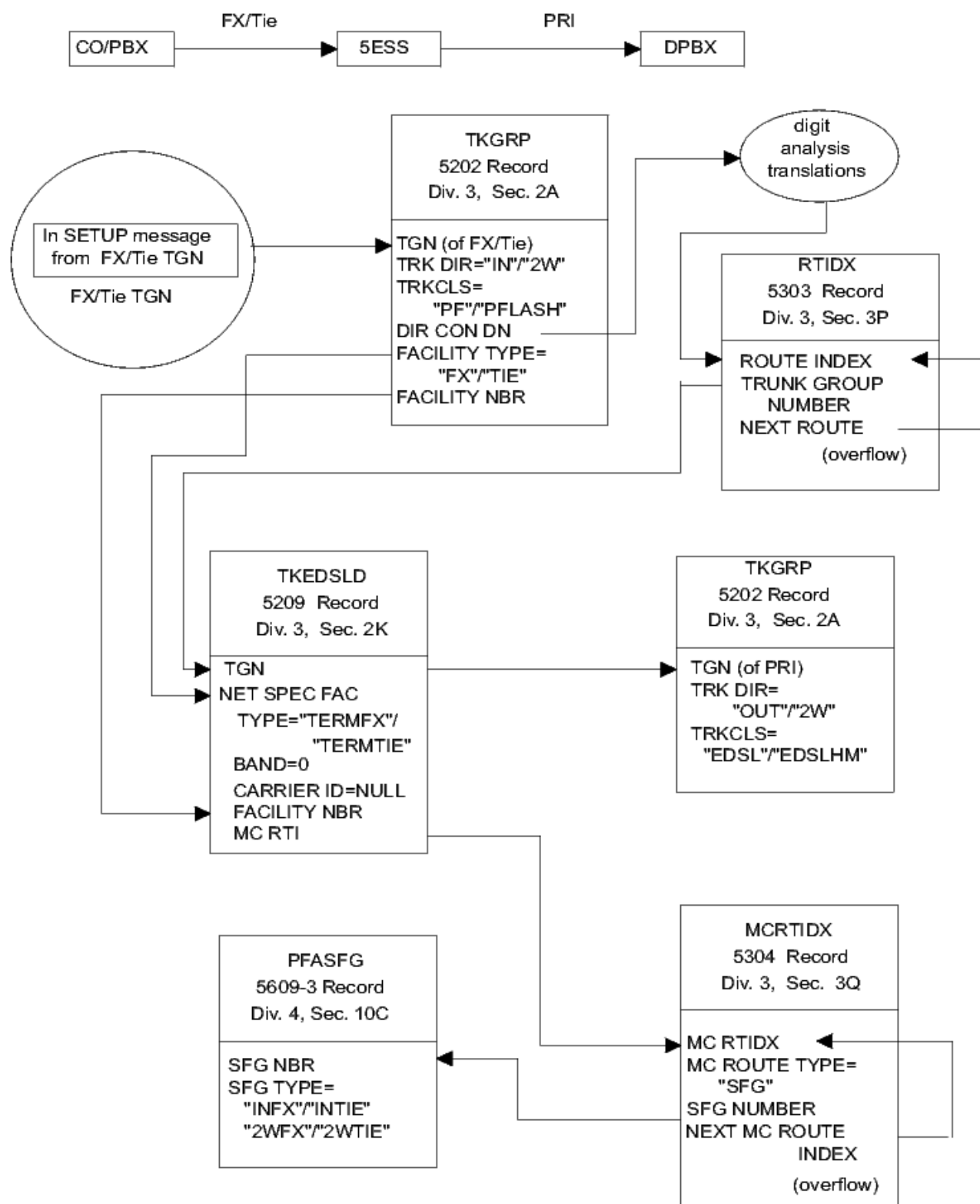


Figure 2 CALL PROCESSING FX/TIE ORIGINATION TO PRI SCENARIO

SEC. 6B: NATIONAL ISDN PRI (PRIMARY RATE INTERFACE)

1. FEATURE DESCRIPTION

Prior to 5E9(1), the D-channel signaling entity only assigns calls to channels on the DS1 facility containing that D-channel. This is called FAS (Facility Associated Signaling) which supports the following configuration:

- 1 D-channel and up to 23 B-channels.

The 5E9(1) and later Software Releases continue to support this configuration (referred to as "AT&T Custom") which is CCITT and ANSI compatible but not compatible with the Bellcore's expansion of these standards.

For 5E9(1) and later, National ISDN PRI is available which is compatible with Bellcore current technical requirements (TR1268).

1.1 NFAS (Non-Facility Associated Signaling)

The National ISDN PRI feature allows the D-channel signaling entity to assign calls to B-channels on more than one facility (including the one containing the D-channel). This is referred to as NFAS. Specifically, National ISDN PRI supports the following PRI configurations:

- 1 D-channel and up to 23 B-channels (supports Bellcore requirements); without NFAS.
- 1 D-channel and up to 479 B-channels; with NFAS.
- 2 D-channels and up to 478 B-channels; with NFAS and D-Channel Backup.

1.2 D-Channel Backup Option

When NFAS is employed, the reliability of the signaling performance for the PRIs controlled by the D-channel may be unacceptable. The DCBU capability is suggested to improve the reliability of the D-channel control signaling.

DCBU permits continued access to the network, even if one of the D-channels fails, by transferring the signaling information to a back-up D-channel. DCBU allows a customer to designate a pair of D-channels in separate DS1 facilities as a mated pair. Both D-channels must terminate on the same SM.

1.3 PRI Group

The "PRI Group" is defined as a collection of B-channels and the controlling D-channel(s). The B-channel and D-channel trunks must be in separate trunk groups. The identification tag (i.e., number) given to the PRI GROUP does not necessarily have to be the same identification tag as the trunk group PRI GROUP. With DCBU, there are two D-channels, one Primary and one Secondary. All members of a PRI Group must terminate on the same SM. Applicable with 5E9(1) and later software releases, all new and existing PRIs must have a PRI GROUP assigned.

For more information on PRI Group, see Division 3, Section 2M.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
PRIGRP	5211	3	2M	5.2
TRUNK	5204	3	2C	5.5

PRIGRP form (5211 Record) - This form is available with 5E9(1). It is used to establish the PRI GROUP and PRI TYPE for a D-Channel facility. The PRI GROUP can be defined in the range of 1 - 4096; the PRI TYPE can be either "CUSTOM" (AT&T) or "STD" (National ISDN Bellcore Compliant). For the NFAS/DCBU feature, PRI TYPE must be "STD".

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. Two new fields were added to this form: PRI GROUP and DCHN DESG (D-Channel Designation). The DCHN DESG indicates whether the D-Channel trunk is a Primary or Secondary D-Channel for a PRI GROUP. If only one D-channel trunk is present for the PRI GROUP, the value "PRIM" is recommended. The DCHN DESG field applies to D-channel trunks that are members of a trunk group with TRKCLS on the TKGRP form (5205 Record) set to "EDSL" (Extended Digital Services Line).

SEC. 6C: FRACTIONAL DS1/ISDN

1. FEATURE DESCRIPTION

Effective with the 5E9(1) Software Release, the Fractional DS1/ISDN Switching via PRI (Primary Rate Interface) feature provides a multibearer circuit switched service capability which allows multiple DS0 channels to be switched in increments of 64 kb/s from 128 to 1536 kb/s (NxDS0). (The value of N is the number of DS0s and can be any number from 2 to 24.) This feature supports the industry standard H0 (384 kb/s) and H11 (1536 kb/s) wideband data rates, Q.931, and ISUP (ISDN User Part) protocol procedures. (For more information on Q.931 protocol procedures see the TRUNK form, Division 3, Section 2C.) The multirate standard is also supported for all rates 128 kb/s through 1536 kb/s (in 64 kb/s increments). The 1536 kb/s rate requires the PRI to also have NFAS (Non-Facility Associated Signaling) capability. (For more information on NFAS, see Division 2, Section 6B.)

The feature provides the capability to initiate wideband calls, 128 kb/s through 1536 kb/s, by using ISDN (PRI based) premises equipment connected to either PRI or an ISUP trunk group. The dialing procedures are based on the CPE (Customer Premises Equipment) but are expected to be similar to those of a regular ISDN call set up and call release.

2. FEATURE ASSIGNMENT

The attributes assigned to PRI trunk groups need to be compatible with the functionality of the customer premises equipment.

The wideband functionality of the CPE must match the wideband parameters of data rate and TSA (Time Slot Assignment) type assigned to the access PRI. The CPEs must have the following capabilities:

- Standard Q.931 signaling messages
- Q.931 parameters/information elements needed for wideband calls
- D-channel termination
- Standard PRI interface
- Channel/rate selection capabilities

Other CPE features are optional and not required for this service.

2.1 Numbering Trunk Group Members

For PRI trunk groups, trunk member numbers must be sequential and associated with the channel numbers specified in the DEN (Digital Equipment Number). This can be summarized as: (member + 1) modulo 24 must equal channel number (DEN {7,8}). Note that "modulo 24" means: take the remainder after division by 24. The following table provides an example of the rule:

Numbering of Trunk Members of a Wideband PRI Trunk Group	
Member NBR	Channel Number
0	1
1	2
.	.
.	.
.	.
23	24

24	1
25	2
.	.
.	.
.	.

2.2 Numbering ISUP7 Trunk Group Members

For ISUP trunk groups, trunk members must also be numbered sequentially and associated with the channel numbers specified in the EN field. Also, values of CLCI TRK ID must be sequential and synchronized with the channel numbers. The following table provides an example of ISUP7 trunk group data.

Numbering of Trunk Members of a Wideband ISUP7 Trunk Group		
Member NBR	Channel Number	CLCI TRK ID
0	1	101
1	2	102
.	.	.
.	.	.
.	.	.
23	24	123
24	1	124
25	2	125
.	.	.
.	.	.
.	.	.
48	24	147
.	.	.
.	.	.
.	.	.

A wideband trunk group must consist of enough members within the same facility to carry calls at the data rates that are assigned to the trunk group; this applies to both ISUP and PRI.

2.3 Trunk Group Selection Lists

TGSL (Trunk Group Selection Lists) consists of an ordered list of route index values that are entered on the RTIDX form (5303 Record). The end of each TGSL is marked by a null value in the NEXT ROUTE field. Each route index is associated with a TRUNK GROUP NUMBER value. Eight types of TGSLs are supported and are shown in Figure 1. Trunk groups that are contained in each TGSL must have characteristics that are consistent with the types of calls that use each TGSL. Figure 1 shows the allowed trunk group data for trunk groups that are contained in each of the eight types of TGSL's. An "x" indicates that trunk groups with the indicated data values are legal for the type of TGSL shown. These restrictions are only enforced by the software for the first trunk group in each TGSL, but this should be manually administered for all trunk groups.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
IDFD	5601	4	2A	12.17
ISDNOPT	5941	5	5B	8.1
RTIDX	5303	3	3P	10.2
TGSRFD	5607	4	8A	12.21
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

IDFD form (5601 Record) - This form is used to define various Individualized Dialing Plans. A data rule was added to the FEATURE NAME field to restrict the wideband trunk group to, at most, one TGSR and/or one IDP feature.

ISDNOPT form (5941 Record) - This form is used to define ISDN parameters. The T316 signaling timer field was added to define the time (in seconds) to wait for a Q.931 REST ACK (Restart Acknowledgement) message after sending a Q.931 REST (Restart) message.

RTIDX form (5303 Record) - This form is used to define the DATARATE ALT RI (Alternate Route Indexes) for data traffic based upon data rates. The following data rates were added ; 56K, R64K, 64K, 384K, 1536K, MULTIRATE. For 5E9(1) and later, assignment of alternate data route indexes for both narrow and wideband data rates was moved from the DTRTX form (5314 Record) to the RTIDX form.

TGSRFD form (5607 Record) - This form is used to define Terminal Group and Station Restriction features. A data rule was added to the FEATURE NAME field to restrict the wideband trunk group to, at most, one TGSR and/or one IDP feature.

TGGRP form (5202 Record) - This form is used to define each trunk group in a 5ESS Switch. The WB RATE and WB TSA TYPE fields were added to define the Wideband Data Rate and time slot assignment type (fixed, flexible, or float) transmitted by the trunk group.

TRUNK form (5204 Record) - This form is used to define each member of a trunk group in a 5ESS Switch. Data rules were added to the TGN field to support the wideband feature.

TRUNK GROUP SELECTION LISTS										
TRUNK GROUP DATA			TYPE OF TGSL							
DATA RATE	WBRATE	SPEECH	RTI*	SPEECH ALT RI	56K	R64K	64K	384K	1536K	MULTI-RATE
Null	Null	Y		X						
Null	Null	N	X							
56K	Null	N	X		X					
R64K	Null	N	X		X	X				
64K	Null	N	X		X	X	X			
64K	384K	N	X		X	X	X	X		X**
64K	1536K	N	X		X	X	X		X	X**
64K	384/1536K	N	X		X	X	X	X	X	X**
64K	MULTIRATE	N	X		X	X	X	X	X	X

Notes:

*This is the normal route index value that the TGSL used for speech and 3.1 Khz calls.

**Must be at the end of the TGSL. Calls with certain values of N are released (for example, a 384K TG and a multirate call with N not equal to 6).

Figure 1 TRUNK GROUP SELECTION LISTS TABLE

SEC. 6D: USER-SIDE (PRI) PRIMARY RATE INTERFACE

1. FEATURE DESCRIPTION

This capability provides the software needed to implement user-side procedures of the PRI protocol and support PRIs in public networks (private trunks providing access to public facilities) and private networks.

User-Side Procedures allows different configurations of the 5ESS Switch. PRIs can be configured between two 5ESS Switches (Central Office (CO) to ISDN Private Branch Exchange (IPBX) or IPBX to IPBX), a 5ESS Switch and an Inter-exchange Carrier (IC) and a 5ESS Switch and an IPBX.

With User-Side PRI, 5ESS PBX customers are allowed switched access to public network services and facilities. PRIs must be designated as either network- or user-side (i.e., one end network, the other end user). This is handled administratively by the switch.

The User-Side PRI capability complements the 5E4(2) network-side PRI procedures implemented by the Extended Digital Subscriber Line (EDSL) call processing capability. User-Side PRI provides 64 Kbps end-to-end connectivity and a means to pass the Calling Party Number and Message-Associated-User to User Information to the terminating party.

2. TRANSLATION REQUIREMENTS

2.1 Trunk Translations

The TRUNK form (5204-1/2/3 Record) contains two new fields that indicate the protocol procedures to be used by the PRI D-channel. These fields, Q921 and Q931, determine the use of either user- or network-side procedures. For Q921, the entry "USER" indicates that user-side procedures are followed. A "NETWORK" entry indicates network-side procedures. The Q931 field uses the "SYMUSER" entry for symmetrical user-side procedures and "NETWORK" for network-side procedures.

The TKGRP form (5202 Record) has added the VOICE CUT THRU field to identify the cut through procedure for CSV calls. This field can contain one of two values, "NORMAL" or "EARLY" depending on when the path is to be cut in both directions between the originating and terminating ends. Similarly, the DATA CUT THRU field (also added in 5E6) identifies the procedure used for CSD calls and includes "NORMAL" "EARLY" and "DELAY" options for path cut through.

2.2 Miscellaneous Translations

The OFCOPT form (5509 Record) assigns office parameters and options to a 5ESS Switch. This form has added the required field, CAUSE LOC, which is used by the switch for Q.931 error analysis. An entry of "PUB" in this field indicates that the switch is deployed in a public network. An entry of "PRIV" indicates a private network.

SEC. 6E: ACCESS TO IC SERVICE

1. FEATURE DESCRIPTION

For a 5ESS Digital Central Office (DCO) or a 5ESS Digital PBX (DPBX), the Access to IC Service capability provides the following features:

1.1 PRI Access to Selected AT&T Communications ISDN (ACI) Services via DCO.

PRI Access to ACI Services allows a Local Exchange Carrier (LEC) to provide ISDN services offered by ICs to DPBX subscribers. These services are provided via a switched access arrangement rather than a direct connect. The access arrangement for each service between the 5ESS DCO and the DPBX can be dedicated PRI channels, call-by-call service selection or call-by-call with Simulated Facility Groups (SFG).

1.2 Subscriber Loop Dialed Access to Selected IC Services via DCO.

For analog or BRI terminals on a DCO, the Subscriber Loop Dialed Access to Selected IC Services feature provides access to IC services via Common Channel Signaling System 7 (CCS7) or Equal Access Multi-Frequency (EAMF) trunks. Analog and BRI users of this feature have per-call access to the services supported.

1.3 Call-by-Call Access from 5ESS in a Private Network to IC Services.

Call-by-Call Access from 5ESS in a Private Network to IC Services can be done either by switched or direct access. Access to IC services from the PBX to an end office is done using switched access. For access through a toll office, direct connect is used. Either method can be done over PRIs using dedicated channels, call-by-call channel or call-by-call channels with SFGs.

1.4 Use of Access to IC Services with Services Developed for 5E5 and Earlier Software Releases

The Access to IC Services capability can be used with the following existing services (developed for 5E5 and earlier Software Releases) for a CO or PBX:

- SDN - The Software Defined Network service for large multi-location customers provides a virtual private network using the public-switched network. An SDN can be either a voice or data call.
- Global - Accessed using the same dialing plan as an SDN for calls routed to international destinations.
- SDS - Switched Digital Services is part of the ACCUNET family of end-to-end, full-duplex switched digital transmission facilities for 56 Kbps service, 64 Kbps service, and 56 and 64 Kbps International Switched Digital Service (ISDS).
- OUTWATS - Outward calling to stations in the customer's selected service area from a station associated with the access line.
- 800 - Both Basic and Inbound International 800 Services receive long-distance calls from prescribed service areas. Customers are billed on a bulk basis without charge to the call's originating party.
- LDS - IC's Long Distance Service access.
- ILDS - International LDS access.

- Equal - Allows a user to access an Inter-exchange carrier other than the pre-subscribed carrier.

Also included is Operator and Presubscribed Common Carrier. Operator Access allows a user to select either a Telco operator or an Inter-exchange Carrier operator (per a given call).

Below is a description of the services provided only on a PBX:

- MEGACOM - Unbanded long distance services using direct access to the 4ESS toll switch.
- MEGACOM - A dedicated service for the largest 800 service customers.
- Dial-it-Nova - A direct egress service from a 4ESS toll switch.

2. TRANSLATION REQUIREMENTS

2.1 Trunk Translations

The following fields have been added to the TKGRP form with the 5E6 Software Release for Access to IC Service.

SDN DAS contains a numerical entry (0 - 99 for 5E14 and earlier or 0 - 254 for 5E15 and later) indicating the Digit Analysis Selector (DAS) to be used for an incoming SDN call from a call-by-call group.

The DEDICATED SRV field indicates the dedicated service type used by a PRI (e.g., INWATS, M800, Megacom, OUTWATS, SDN).

The TKEDSLD form (5209 Record) has added entries in the NET SPEC FAC TYPE field for M800 (Megacom 800 Service) and SDN (Software Defined Network Service). These entries for Call-by-Call services are used in assigning multiple features to a B-channel trunk group with a TRKCLS of "EDSL" (defined on the TKGRP form).

2.2 Routing and Charging Translations

Digit analysis for access to feature and operator services is done using entries made on the Prefix/Feature Digit Interpreter (PDIT) form (5300-2 Record). Added to the ACTION field is the entry "SDNUSE" which invokes a Software Defined Network call.

2.3 Miscellaneous Translations

The AMA Call Type (AMACT) form (5506 Record) determines the call type information (e.g., account code, cellular, 411) used to generate billing records at the end of a call. For 5E6, the entry "ICVPN" has been added to the AMA CALL TYPE field to provide originating access to IC virtual private networks.

2.4 BRCS Features Translations

The Business and Residence Custom Services (BRCS) Features description has added the "SDNUSE" option to its list of dialed code Actions. These Actions define dialed codes for PDIT, Individualized Dialing Plan Dialed Code Assignment (IDPCA) and/or CFGGRP for Office Dialing Plan (ODP). SDNUSE invokes a Software Defined Network call and can be used to define dialed codes for each of the three options, ODP, IDP and feature buttons. Consult the BRCS Feature description for information on the system response and customer response.

The PFASFG form (5609-3 Record) defines a Simulated Facility Group (SFG) needed to access features, services or facilities linked to physical groups such as lines, trunks or special circuits. For 5E6, the SFG TYPES of "MEGACOM" and "MEGACOM 800" have been added. The modified entries for the SCRIN INDX field on this form depend on the type of service being requested (e.g., OUTWATS, SDN, MEGACOM, etc.).

The Individualized Dialing Plan Dialed Code Assignment (IDPDCA) form (5601-1/2 Record) has added an entry of "SDNUSE" to the ACTION field. This entry is used to invoke a Software Defined Network call.

2.5 ISDN BRCS Translations

The Configuration Group (CFGGRP) Definition form (5964 Record) has also added the "SDNUSE" entry to the ACTION field to invoke a Software Defined Network call.

SEC. 6F: ELECTRONIC TANDEM NETWORK ON PRIMARY RATE INTERFACE

1. FEATURE DESCRIPTION

ETN (Electronic Tandem Network) on PRI (Primary Rate Interface) is available with 5E6 and later Software Releases. The feature provides ISDN PRI connectivity between two 5ESS switches acting as ETN nodes, and between 5ESS switches (including 5ESS PBXs) functioning as ETN tandem nodes and other ETN nodes that support ISDN PRI (e.g. System 85 PBX). With this type of connection, the PRI enhances the current service offerings by providing, for example, 64kbps end-to-end connectivity, and a means to pass the calling party number to the terminating party.

The ETN on PRI feature builds upon existing 5ESS Switch ETN features, extending their use to PRI trunks. These requirements do not seek to change the already implemented ETN features, but only to expand ETN availability to ETN nodes connected by PRI trunks for voice and data traffic.

This feature supports the set of existing CSV/CSD features shown below for ETS PRI trunks.

- ARS (Automatic Route Selection)
 1. FRL (Facility Restriction Level)
 2. Alternate FRLs
 3. Deluxe ARS
 4. AAR (Automatic Alter Routing)
 5. UNP (Uniform Numbering Plan)
 6. TCM (Traveling Classmark)
 7. Manual and TOD (Time of Day) Control of ARS
 8. Expensive Route Warning Tone
- Facility Management
- MDR (Message Detail Recording)
- ACA (Automatic Circuit Assurance)
- TDC (Traffic Data to Customer)

The major changes required for this expansion are:

- A. Two types of B-channel access arrangements will be provided to PRI ETN customers. They are:
 1. CBC (Call-by-Call Service Selection)

This arrangement allows the 5ESS PBX to request, on a call-by-call basis, services and/or features for a particular call by populating the PRI SETUP message that is sent to another ISDN ETN node. The following information elements in the PRI SETUP message are built by the

originating switch and sent to the terminating switch:

- NSF (Network Specific Facilities) - is used to determine what type of network service (i.e. ETN, SDS, or SDN) is being requested from either an IC, TelCo, or a switch within its own network.
- Transit Network Selection - is used when requesting only a transmission facility from an IC through its local TelCo, no specific network service is requested, can be either voice/data.
- Bearer Capability - is used to determine whether or not voice or data is being sent and the speed at which the data is sent.
- Called Party Number - is used to determine the Called Party Number and whether it is private or public.

If ARS is assigned to a CBC PRI trunk via the TRUNKFA form (5205 Record) and the CBC feature is defined on the TKGRP form (5202 Record) with CBC equal to "Y", then ARS will be used to route calls that are marked as ETN, SDS or SDN in the NSF information element. Otherwise, ARS will not be used to route the call for the other services.

2. Dedicated Channels

By service provisioning, a customer may dedicate a single trunk group of B-channels on their PRI to a single service. In this case, there would be no need for a NSF IE to be included in the PRI SETUP message.

If ARS is assigned to a dedicated PRI trunk (defined on the TKGRP form with the DEDICATED SRV field entered), then ARS will always override the dedicated service, and route the call.

- B. The existing FRL, as well as the new SHC (Satellite Hop Count) and EEICI (End to End ISDN Connectivity Indicator) are passed between ETN nodes over the PRI D-Channel in the TCM IE of the PRI SETUP message. The TCM IE is included for all PRI calls routed within the private network when the TCM IN, TCM OUT, and DEFAULT TCM fields are set to "0" and the TCM OPTION field has a value of "Y" on the ARSFD form (5608-1A/1B). Also, the INHIBIT TCM field on the TKGRP form (5202 Record) can be used to prohibit the TCM IE from being sent in the private network. Whenever a call is routed OFF-NET the TCM IE information will not be "outpulsed" as done on analog trunks.

1. The SHC (Satellite Hop Count) allows a customer to establish a maximum network limit on satellite (not to be confused with the Main/Satellite configuration) hops for all calls routed via ARS. Routing decisions at network tandem switches are based on the destination address and on the number of satellite hops used in route to that point. If the maximum permissible number of satellite hops (defined in the SAT HOP CNT field on the ARSGPA form, 5608-2 Record) has not been reached, the call will continue over either a satellite or a trunk. The treatment of the call and the satellite hop count options will be specified per ARS group (defined in the SAT HOP OPT field on the ARSGPA form) as follows:

- STRICT: Once the SHC limit has been reached, route via a trunk (land based) if available; otherwise clear call.
- PREF: Once the SHC limit has been reached, try to route via a trunk (land based) if

available; otherwise route via satellite (air based). Currently, this option is not available and is treated the same as "ANY".

- ANY: Use either a trunk (land based) or a satellite (air based) to route call.
2. In completing an ARS routed call, there may arise a need for the call to be completed exclusively over PRI trunks. The EEICI will tell the 5ESS switch (based on port) which one of the three following treatments will be used for a PRI trunk:
- REQ: Route exclusively using PRI trunks. Clear the call if PRIs are not available. For example, if the ARS route list contains both PRIs and non-PRIs the non-PRIs will be ignored.
 - PREF: Routing using PRI trunks whenever available. The use of non-PRI trunks are considered second choice, but will not prevent the call from being routed. Currently, this option is not available and is treated the same as "ANY".
 - ANY: Route using either PRI or non-PRI trunks. For example, the first idle route in the ARS route list will be selected.

If the user subscribes to the "ANY" option of EEICI, Calling number subscribers (i.e. analog/ISDN ICLID, ISDN CPN/BN) may receive the calling party number for ETS calls. Since ARS will support a mixture of PRI and non-PRI routes, the calling party number will not always be provided. If the user subscribed to the "Required" option of EEICI, they will experience five differences: (1) the calling party number will be consistent for ETN calls to the same location, (2) the voice quality will be consistent for ETS calls to the same location, (3) Satellite Hop Count will be enforced consistently because SHC will be passed (4) enhanced 64 kbps end-to-end connectivity will be provided, (5) and the failure rate may increase because non-PRI routes are not used as an alternative.

2. FEATURE REQUIREMENTS AND RESTRICTIONS

ETN on PRI has the following restrictions:

- The Modular Queuing feature cannot be assigned to a PRI. Modular Queuing to a PRI or from a PRI is not supported.
- Modular Queuing to a non-PRI is supported as long as the EEICI option is not set to "REQ".
- The ARS feature, defined on the ARSFD form (5608-1A/1B Record), and the MDR feature, defined on the MDRFD form (5624-1 Record) are the only ETN or BRCS features that can be assigned to a PRI trunk.
- An Access Code ARS feature cannot be assigned to a PRI. Only Auto-ARS may be assigned to a PRI.
- No Incoming Private MDR records are generated from a PRI.
- The ARS port fields TCM IN, TCM OUT, and DEFAULT TCM on the ARSTPA form must be set to "0" for PRI Trunk members. The TCM IE is always sent over PRIs unless the INHIBIT TCM field on the TKGRP form is set to "Y" which blocks the TCM IE from being sent over PRIs.

- The INHIBIT TCM field on the TKGRP form should be set to "Y" for ARS SDN calls that are routed as a direct connect PRI trunk to a 4ESS Toll Switch.
- The INHIBIT TCM field on the TKGRP form should be set to "Y" to prevent asserts when all of the following conditions are met:
 1. The trunk has a TRKCL of "EDSL" or "EDSLHM" assigned on the TKGRP form.
 2. Call are routed by ARS through this PRI trunk group.
 3. The far-end of the PRI trunk is connected to an Inter-Exchange Carrier.
- An ARS origination designates the type of call to be SDN through the use of the private network dialing plan by setting the ARS SDN field on the PNDP form (5608-10/11 Record) to "Y".
- The type of service cannot be designated as SDN for digit strings that are recognized using the selective destination screening feature of the private network dialing plan.
- PRIs cannot be used in a private trunks access cut-thru mode of signaling.
- Segmented signaling is not supported on a PRI trunk.

3. TRANSLATION REQUIREMENTS

The following forms are used to implement the ETN on PRI feature. See FIGURE 1 for the form flow.

3.1 Trunk Translations

TKGRP form (5202 Record) This form is used to define the PRI trunk groups. The trunk group may be dedicated to a service by entering the DEDICATED SRV field.

The INHIBIT TCM field was added to prevent the TCM IE from being sent to the terminating switch. TRUNK form (5204-1/2 Record) This form is used to define the trunk group members. TKEDSLD form (5209 Record) This form is used to define PRIs which are used on a call-by-call basis. The TGN must be defined on the TKGRP form (5202 Record), the TRKCLS must have a value of "EDSL" or "EDSLHM" and the CBC field must have a value of "Y".

3.2 Miscellaneous Translations

APCOMM form (5507 Record) This form is used to define the communication path between the 5ESS switch and the Application Processor. Available with 5E3 and 5E4(2) Software Releases. With 5E4(2) and later Software Releases the DSLAP is used to define the links.

The APPLICATION PROCESSOR field on the OFCOPT form (5509 Record) must have a value of "Y".

3.3 BRCS Translations

ARSFD form (5608-1A/B Record) This form is used to define the ARS feature. Two fields, VOICE ETE and DATA ETE were added to allow voice or data calls to be routed primarily over PRI trunks.

ARSGPA form (5608-2 Record) This form is used to define the group level information required for ARS. The SAT HOP CNT field determines how many switches may be hopped during an ARS call. The SAT HOP OPT

field indicates what treatment will be given to the call when the SAT HOP CNT is exceeded.

ARSLPA form (5608-3 Record) This form is used to define the ARS individual line parameters. Two fields, VOICE ETE and DATA ETE were added to allow voice or data calls to be routed primarily over PRI trunks.

ARSMPA form (5608-4 Record) This form is used to define the ARS individual multi-line terminal parameters. Two fields, VOICE ETE and DATA ETE were added to allow voice or data calls to be routed primarily over PRI trunks.

ARSTPA form (5608-5 Record) This form is used to define the ARS individual trunk parameters. Two fields, VOICE ETE and DATA ETE were added to allow voice or data calls to be routed primarily over PRI trunks.

ARSSCRN form (5608-6 Record) This form is used to define the ARS Screening Indexes.

ARSFRL form (5608-7 Record) This form is used to define the alternate Facility Restriction Levels.

PNDP form (5608-10/11 Record) This form is used to define the Private Network Dialing Plan. The ARS SDN field indicates whether or not the type of call is SDN.

PNINFO form (5608-12 Record) This form is used to define the error treatment used by ARS.

PNOFFON form (5608-13 Record) This form is used to convert an off-network number to an on-network number.

PNONOFF form (5608-14 Record) This form is used to convert an on-network number to an off-network number.

APCA form (5620 Record) This form is used to indicate whether or not the Business Customer has the following features: Traffic Data to Customer Location, Automatic Circuit Assurance, and Facilities Management.

APFMA form (5622 Record) This form is used to give the business customer administrative control over certain assignable features (e.g. Authorization Codes).

MDRFD form (5624-1 Record) This form is used to define the Message Detail Recording feature.

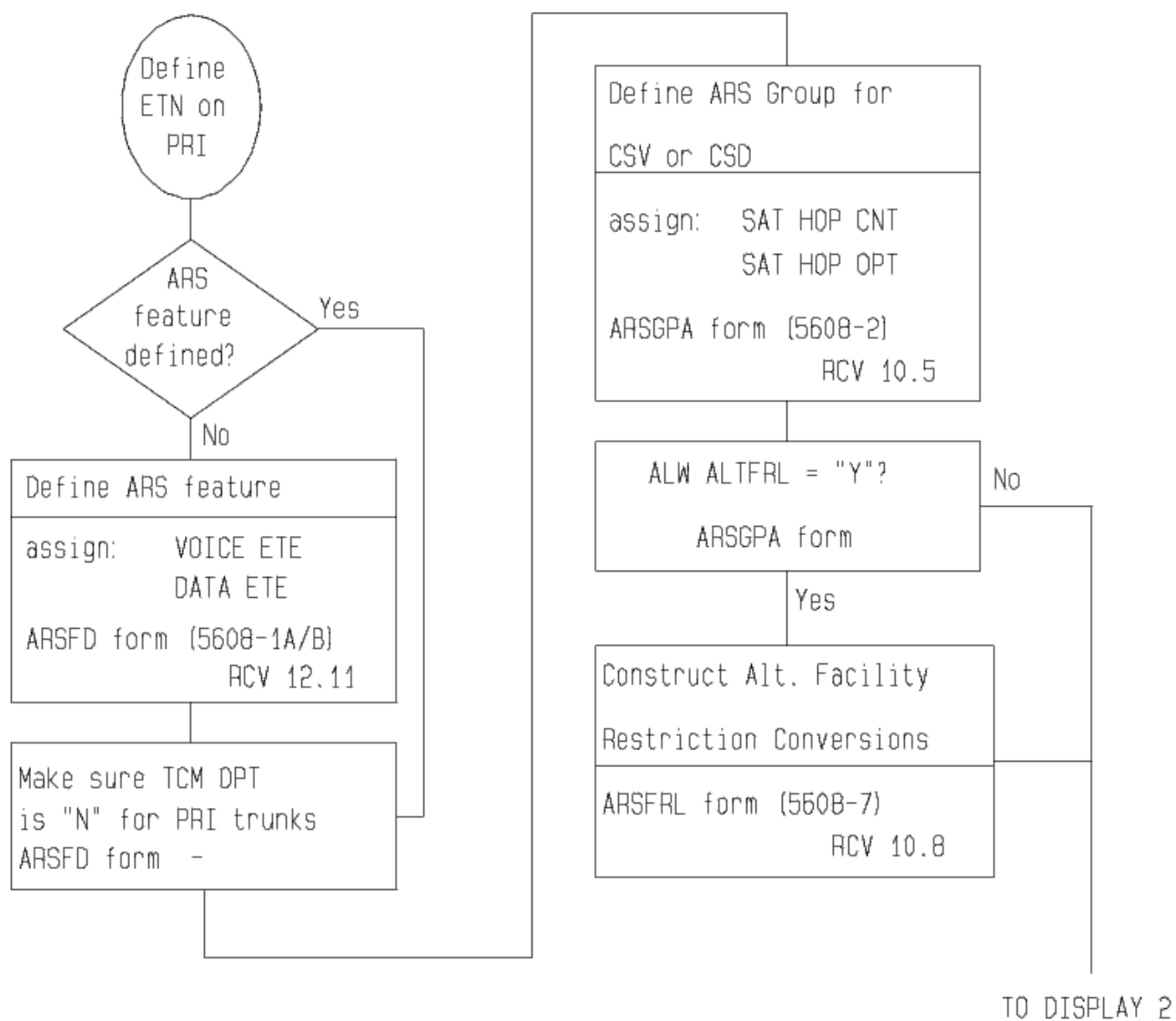
MDRGP form (5624-2 Record) This form is used to define the Message Detail Recording group.

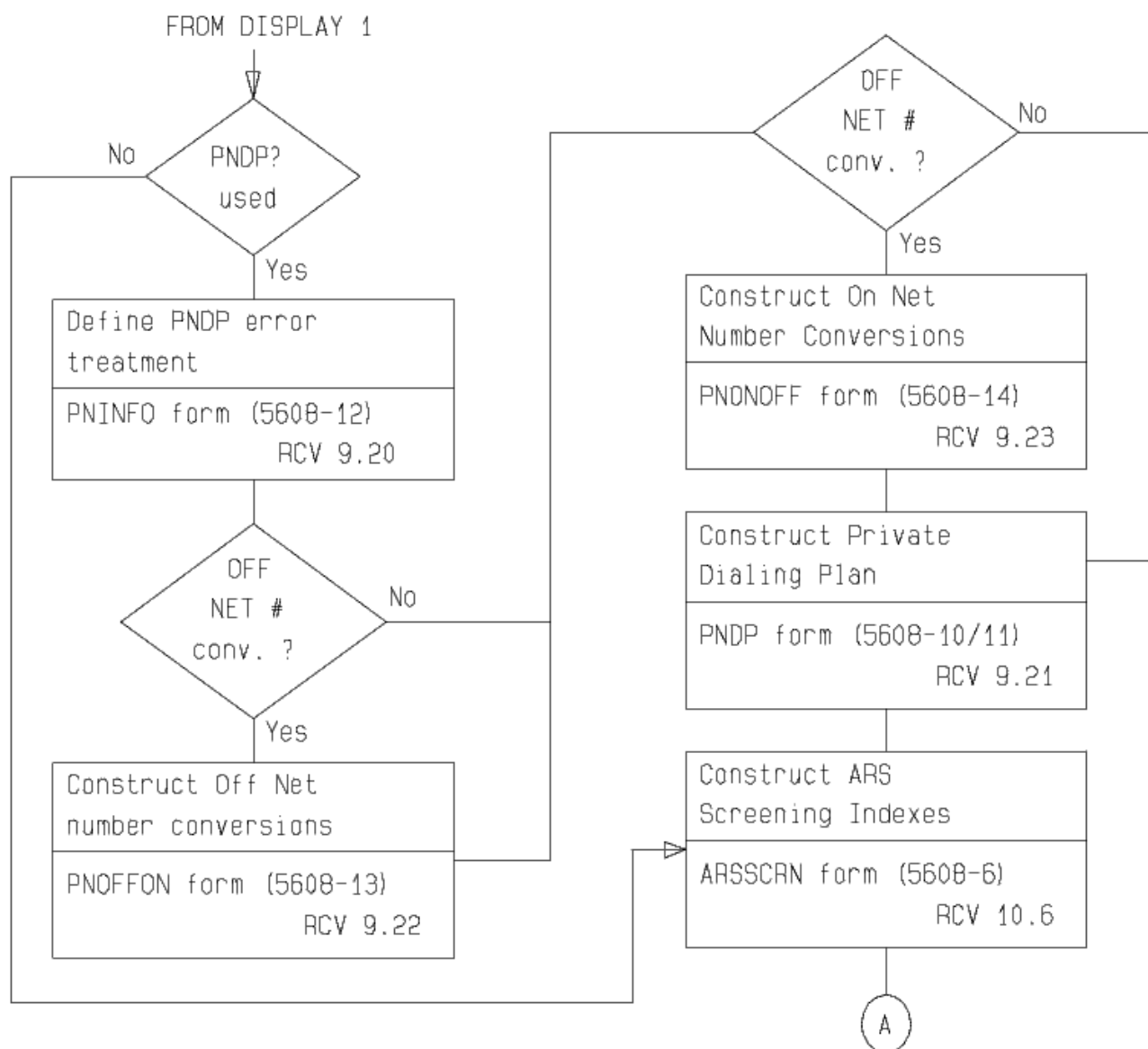
MDRCNT form (5624-3 Record) This form is used to define which business customers will receive Message Detail Recording counts on a daily basis.

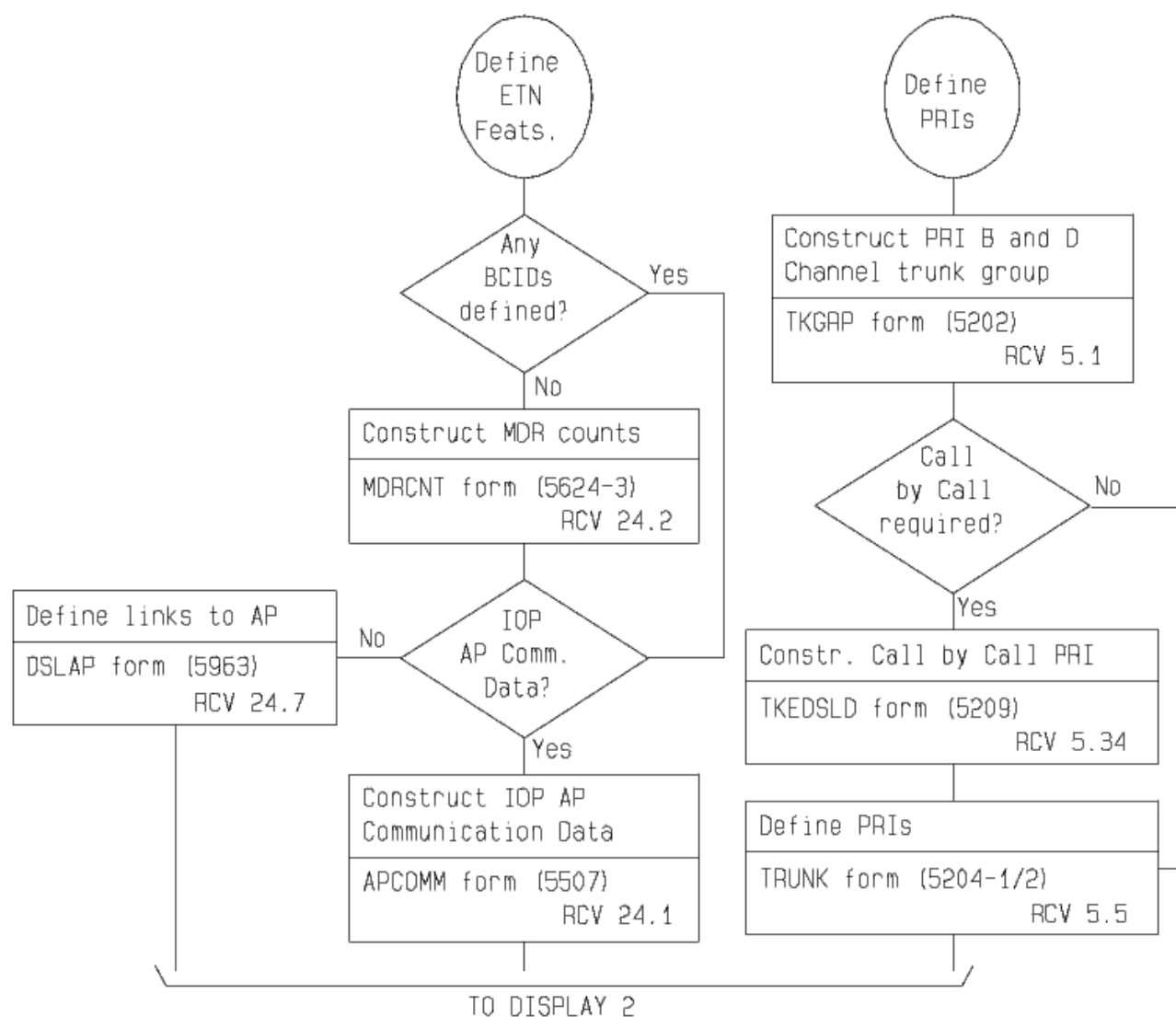
MDRTPA form (5624-6 Record) This form is used to assign Message Detail Recording parameters to a specific PRI.

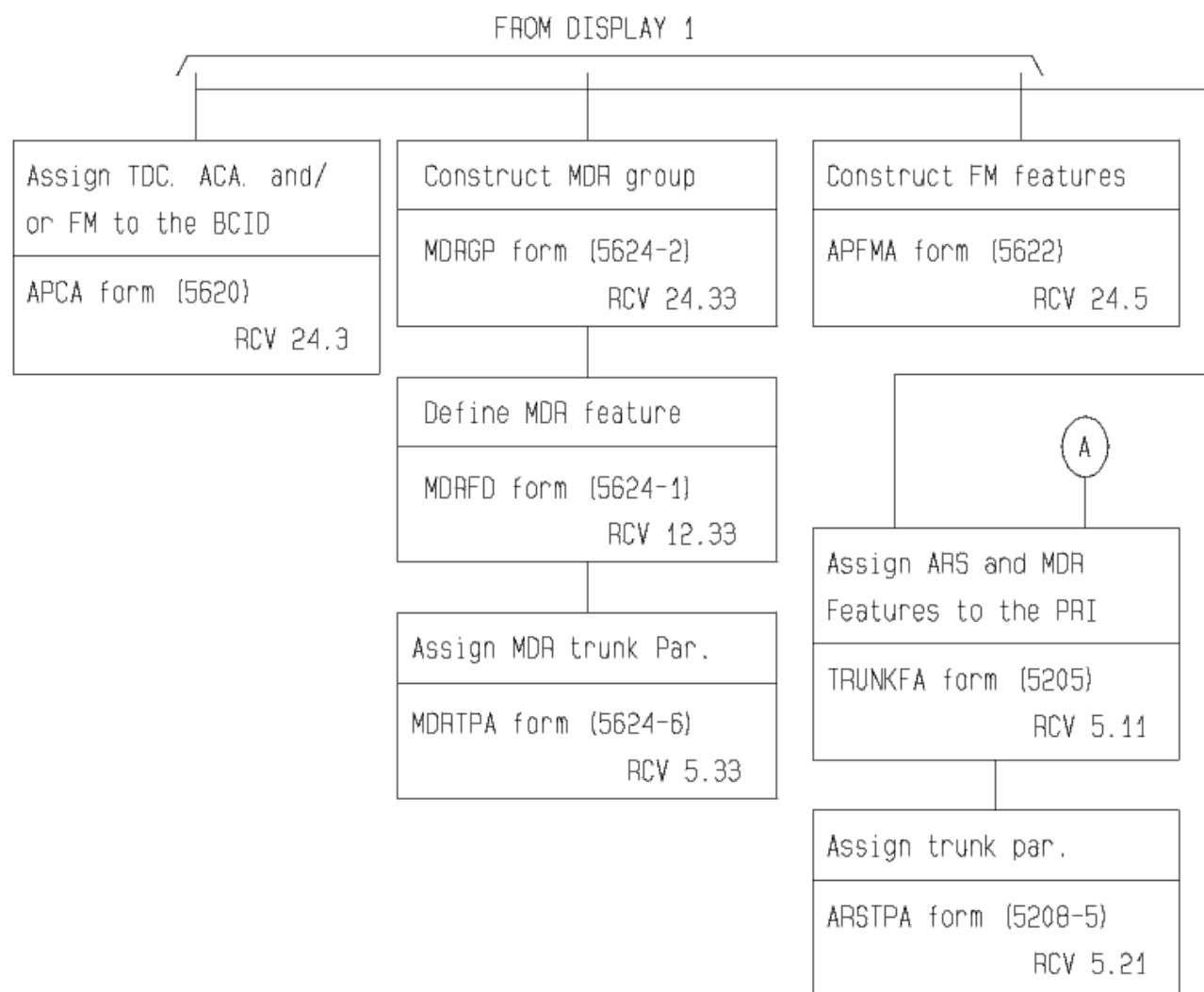
3.4 ISDN BRCS Translations

DSLAP form (5963 Record) This form is used to define the links between the 5ESS Switch and the AP. Available with 5E4(2) and later Software Releases.







**Figure 1 ETN ON PRI FORM FLOW**

SEC. 6G: MULTI-LEVEL PRECEDENCE AND PREEMPTION ON PRI

1. FEATURE DESCRIPTION

The MLPP (Multi-Level Precedence and Preemption) on PRI feature is available for 5E9(2) and later. The feature number for this capability is 99-5E-2336.

The MLPP on PRI feature provides the following functionalities:

- A call with a higher priority can preempt a PRI B-channel. If the preempted B-channel is needed for the subsequent connection, it is preempted for reuse. With the MLPP feature each B-channel can be marked with a precedence level. MLPP also provides the transport of precedence level across the PRI.
- The 5ESS Switch can serve:
 - as a Local Exchange serving one or more PBXs
 - as a PBX interconnected with one or more PBXs in a peer-to-peer arrangement
 - as a PBX connected to a Local Exchange
 - and as a Local Exchange connected to a Local Exchange.
- Connection arrangements are supported for the following:
 - analog line to PRI
 - BRI to PRI
 - PRI to PRI
 - PRI to DP/MF trunk
- An MLPP call can be routed over a PRI B-channel or over a DP/MF trunk depending on how the route indices are provisioned.
- The following DSN (Defense Switched Network) features are supported:
 - Precedence Access Threshold which limits the number of calls at each precedence level which can be offered to the DSN.
 - Polygrid Routing which is a robust, redundant trunking scheme, where in the limiting case, all DSN switches are interconnected with each other.

2. FEATURE ASSIGNMENT

In order for the MLPP feature to operate with the unique DSN dialing plan, a constructed BRCS feature is assigned to each end of a trunk group. This feature defines the MLPP trunk type. In addition to the existing trunk types dedicated to MLPP, three trunk types have been added for the DSN PRI application, and one additional type was added to support MLPP on PRI for commercial customers.

To analyze the called DN (Directory Number) and the precedence level, an ID (Individualized Dialing) feature must be assigned to an MLPP PRI. The assignment of the ID is allowed only if the CENTREX PRI Enhancements Secured feature (SFID 105 for 5E7 and later) has been activated.

The four new Precedence and Preemption trunk types are available on PPFD and PPTPA forms (5618-1 and 5618-5 Records) for use on trunks with a trunk class of "EDSL". Only the "PRBL" (idle/preempt backward linear) and "PRFL" (idle/preempt forward linear) HUNT TYPES are allowed for the new MLPP trunk types.

The MLPP trunk types cannot be assigned on the PPTPA form unless the CENTREX PRI Enhancements secured feature (SFID 105) is activated.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PPFD	5618-1	4	19A	12.31
PPTPA	5618-5	4	19E	5.31

PPFD form (5618-1 Record) - This form is used to define the Precedence and Preemption feature used in DSN (Defense Switched Network) switches to provide direct precedence dialing of calls and precedence treatment for terminating calls such as automatic preemption and the redirection of the call to an DSN (Defense Switched Network) attendant associated with the dialed line. Four trunk types were added to support the MLPP on PRI feature.

PPTPA form (5618-5) - This form is used to assign specific AUTOCON PP feature parameters to trunks. Four trunk types were added to support the MLPP on PRI feature.

SEC. 6H: PRI B/D-CHANNEL CAPACITY EXPANSION FOR SM-2000

1. FEATURE DESCRIPTION

The PRI B/D-Channel Expansion for SM-2000 features increase the PRI (Primary Rate Interface) B- and D-channel capacities.

For the 5E10 and 5E11 Software Releases, the PRI B-Channel Capacity Expansion for SM-2000 feature (99-5E-3521) increases the maximum number of PRI B-channels on an SM-2000 to 3000 (formerly 1000 channels). The maximum number is the sum of all PRI B-channels for all PRIs terminating on a single SM-2000, regardless of the hardware terminating the PRI or the controlling D-channel.

For the 5E11 Software Release, the PRI D-Channel Capacity Expansion for SM-2000 feature increases the maximum number of PRI D-channels on an SM-2000 to 127 (formerly 31 channels). The maximum number is the sum of all PRI D-channels for all PRIs terminating on a single SM-2000, regardless of the hardware terminating the PRI. The Feature Number for this feature is 99-5E-3452 .

For 5E12 and later, the PRI B-Channel Availability Signaling Procedures feature (99-5E-3621) increased the number of PRI B-channels on an SM-2000 to the hardware limits by removing all software limits on the maximum number of PRI B-channels (see Division 2, Section 6I).

For 5E12 and later, the PRI D-Channel Capacity Expansion for SM-2000 feature (99-5E-4373) allows the number of PRI D-channels to be defined up to the hardware limits of that SM (see Division 2, Section 6J).

These features do not change the interface or the protocol and are provided by the base software.

2. FEATURE ASSIGNMENT

The PRI B- and D-channels are assigned via the PRI GROUP field on the TRUNK form (5204 Record). For 5E10 and 5E11, the maximum number of PRI and OSPS D-Channels cannot be exceeded. For 5E12 and later, the maximum number of PRI and OSPS D-channels is driven by hardware limitations. A PRI D-Channel is one where both PRI GROUP and DCHN DESG are entered on the TRUNK form (a DEN or NEN may be used). An OSPS D-Channel is one where DEN[7,8] on the TRUNK form is 24 or 48, and TRKCLS on the corresponding TKGRP form is "IFOPER" or "IFTERM" (only DEN may be used).

For 5E10 and 5E11, if DEN[1,3] or NEN[1,3] values on the TRUNK form match the SM on the EQIM form where UNIT TYPE is an SM-2000 class processor, then the maximum number of PRI and OSPS D-Channels on the TRUNK form per SM is 640. For 5E12 and later, the maximum number of PRI and OSPS D-channels on the TRUNK form per SM is driven by hardware limits of the SM. If UNIT TYPE on the EQIM form is not "SM2000", then the maximum number of PRI and OSPS D-Channels on the TRUNK form per SM is 20.

For 5E10 and later, when TGN/MEMBs have PRI GROUP entered and DCHN DESG is blank on the TRUNK form, indicating that they are EDSL B-Channels, a maximum of 3,000 EDSL B-Channels may be assigned to an SM with an SM-2000 class processor on the EQIM form, and a maximum of 479 EDSL B-Channels otherwise. SM is found by matching DEN[1,3] or NEN[1,3] on the TRUNK form with SM on the EQIM form.

A PRI D-Channel is one where both PRI GROUP and DCHN DESG are entered on the TRUNK form (a DEN or NEN may be used). If DEN[1,3] or NEN[1,3] values on the TRUNK form match SM on the EQIM form where UNIT TYPE is an SM-2000 class processor, the maximum number of PRI D-Channels on the TRUNK form per SM cannot be exceeded as indicated:

- For 5E10 only, the maximum is 31

- For 5E11 and later, the maximum is 127

- For 5E12 and later, the maximum is driven by the hardware limitations in the SM. The hardware limitations

are the number of PIDB/PCT link timeslots connected to the PSU shelf, the number of PH channels per shelf, and the number of DSOs per SM.

If UNIT TYPE on the EQIM form is not an SM-2000 class processor, the maximum number of PRI D-Channels on the TRUNK form per SM is 20.

SEC. 6I: PRI B-CHANNEL AVAILABILITY SIGNALING PROCEDURES

1. FEATURE DESCRIPTION

The PRI BCAS (B-Channel Availability Signaling) Procedures feature is available with the 5E12 Software Release. It provides a new maintenance capability on the National ISDN Primary Rate Interface to send SERVICE and SERVICE ACKnowledgement messages for B-channel "status" information. This feature is provisionable for National ISDN PRI only.

This feature significantly improves B-channel maintenance procedures for National ISDN PRI by allowing either end (central office network or the CPE (Customer Premises Equipment) end user) to notify the opposite end when the status of an individual B-channel is changed (e.g., the B-channel has been taken OOS (Out Of Service) or is ready to be brought IS (Into Service)). CPE must support BCAS signaling in order for this feature to be successfully implemented for the STD (Standard) PRI. This capability currently exists for the Custom PRI.

The feature number for this feature is 99-5E-3621.

1.1 T323 Timer

The T323 Timer limits the amount of time that the 5ESS-2000 Switch will wait for a response to a SERV message (120 seconds). A per switch parameter limits the number of times (provisionable as 1 to 4) that the 5ESS-2000 Switch will retransmit a SERV message following T323 timeouts.

Whenever the switch transitions the B-channel to OOS due to internal stimuli, the status is printed on the ROP at that time. The switch never resends a SERV message with a change status of OOS if it times out on the first attempt. Retransmissions are only performed when the switch has sent a SERV message with a change status of IS.

For more feature information, see the 5ESS-2000 Switch PRI Interface Specification (235-900-342), Issue 4.0 and GR-892-CORE, "Switching System Operations Generic Requirements for ISDN".

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ISDNOPT	5941	5	5B	8.1
PRIGRP	5211	3	2M	5.2
SREINCR	5547	3	5AW	8.40

ISDNOPT form (5941 Record) - This form is used to define options for ISDN (Integrated Services Digital Network). The RETRY SERV field was added to set the number of times a SERV message is resent or "retried" after the T323 timer has expired while waiting for a SERV ACK message.

PRIGRP form (5211 Record) - This form is used to define PRI Groups. The B CHAN SERV field was added to indicate if B-channel Service messages can be sent to a designated National ISDN PRI.

SREINCR form (5547 Record) - This form is used to increment global parameters. The "GPFTIME" software resource was added to support this and other features.

SEC. 6J: PRI D-CHANNEL CAPACITY EXPANSION

1. FEATURE DESCRIPTION

This feature is available as 5E12 and 5E13 Software Updates. This feature removes the software limitation of 127 PRI D-channels on an SM-2000 and allows the office to provision the number of PRI D-channels up to the hardware limitations of the SM. Hardware limitations are PSU PIDB shelf timeslots, PH timeslots, and DS1 facilities within an SM.

The software limitation of 4095 PRI groups within an office is not changed. The software limitation of 479B+D or 498B+2D per PRI group is not changed. There are no changes to the RC/V Views or I/O commands for this feature. These commands will operate the same as they did before the feature was introduced with the exception that the OP: OFFNORM, PRIGRP commands prints the output in PRI group order instead of SM/PRI group order.

The feature number for this feature is 99-5E-4373.

See Division 2, Sections 6H which has been updated to reflect the limitations removed by this feature.

SEC. 6K: PRI B-CHANNEL NEGOTIATION

1. FEATURE DESCRIPTION

PRI B-Channel Negotiation feature is available with the 5E14 and later Software Releases.

Prior to this feature, when the 5ESS switch selects a B-channel to terminate a call to a PRI (Primary Rate Interface), it indicates in the SET-UP message to the CPE (Customer Premises Equipment) that the channel is EXCLUSIVE. That tells the CPE that the call must be set up on that B-channel, and no other. With this feature, the trunk group that the PRI B-channel is in can be marked that it is available for B-channel negotiation by a new field, B CHAN NEG, on the TKGRP form. If that field is set to "Y", when the switch selects a B-channel to terminate a call on a PRI and the B CHAN NEG field is "Y", the switch will send the SET-UP message to the CPE with an indication that the channel selected is PREFERRED. This tells the CPE that it may set up the call on a B-channel different from the offered channel. The CPE's first message in response to the SET-UP message will contain the new channel it requests that the call be set-up on. The switch will attempt to complete the set-up of the call on the channel that the CPE replied with, rather than on the channel it sent in the SET-UP message. The channel requested must meet the official feature requirements (be in the same PRI group, in the same trunk group, same SM, etc.). If the B CHAN NEG field is "N", the switch will mark the channel as EXCLUSIVE in the SETUP message, and the CPE must respond to the SETUP message with the same channel as the switch offered - as is the case prior to the addition of this feature. If not, the call does not complete - as is the current procedure.

Traffic Measurements will also be run on this capability to track its usage.

The feature number for this feature is 99-CP-4748.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9
TKGRP	5200	3	2A	5.1

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. For this feature, the "BCHNEG" entry was added to allow collection of traffic measurements. If the corresponding PRI B-channel trunk group is degrown on the TKGRP form, those measurements are automatically removed.

TKGRP form (5200 Record) - This form is used to assign trunk groups for all trunk types. The B CHAN NEG field was added to enable (Yes/No) this feature.

SEC. 6L: MLPP SUPPORT FOR ISDN CIRCUIT SWITCHED DATA CALLS

1. BACKGROUND

Before this feature, only ISDN (Integrated Services Digital Network) voice calls had the MLPP (Multi-Level Precedence and Preemption) feature capability.

2. FEATURE DESCRIPTION

The MLPP Support for ISDN CSD (Circuit Switched Data) Calls feature is made available with the 5E16(2) FR2 (Feature Release 2) and later Software Releases. The feature number for this feature is 99-5E-8404.

This feature provides support for precedence and preemption on ISDN circuit switched data calls. The feature adds the existing MLPP functionality to ISDN CSD calls. When making a CSD call, a preference level can be used. The call receives appropriate priority through the defense switched network and preempt network resources and/or busy lines as necessary to complete the call. (Refer to the 235-200-300 document, Defense Switched Network Applications for detailed information on the MLPP.)

This feature's benefits include enabling the use of a precedence level when placing ISDN CSD calls. CSD calls receive the the same priority treatment within the DSN as voice calls. An ISDN calling party has the option of using precedence by selecting a precedence level (i.e., P, I, F, FO - up to their assigned maximum precedence level) when placing a CSD call.

3. FEATURE ASSIGNMENT

There are no ODA (Office Data Administration) translation requirements for this feature.

3.1 Recent Change Provisioning

When this feature is installed, MLPP lines originating and trunks carrying CSD calls route those calls using Precedence and Preemption Screening, and share trunk groups with voice calls. If numbers dialed for CSD calls result in Destination or Code indices that are not in Precedence and Preemption Screening then these values must be added. In addition, if POTS (non-DSN network) alternative routing based on CSD bearer is used, then entries with the appropriate code and screening indices with a resulting route index of REGL must be added to Precedence and Preemption Screening.

SEC. 6M: SS7/ISDN PRI INTERWORKING WITH T1 CAS ROUTE DIGIT

1. FEATURE DESCRIPTION

The SS7 (Signaling System 7)/ISDN (Integrated Service Digital Network) PRI (Primary Rate Interface) Interworking with T1 CAS (Channel Associated Signaling) Route Digit feature is made available with the 5E16(2) FR2 (Feature Release 2) and later Software Releases. The feature number for this feature is 99-5E-8408.

This feature provides the interworking of SS7/PRI trunks to T1 CAS trunks (primarily MF trunks) by outputting the route code/digit for all calls.

Within 5ESS DSN (Defense Switched Network) Switches, the route code/digit is outputted for all T1 CAS calls. The subscriber dialing format for the DSN is as follows for (A) + (P/S) + (1X) + (NYX) + NNX + XXXX:

A = Access code (optional)

P/S = Precedence or service digit (optional)

1X = X is the route code/digit (optional)

NYX = Area Code (optional)

NNX = NOC (Normalized Office Code)

XXXX = Line number

The following route codes/digits are used for voice and data calls:

0 - voice call (10 if dialed)

1 - data call (11 if dialed)

5 - hotline voice call (15 if dialed)

6 - hotline data call (16 if dialed)

Analysis and routing processes have been modified to output (outgoing) and to analyze (incoming) the route code/digit for all T1 CAS trunks. When a 5ESS DSN Switch receives an incoming call on a T1 CAS trunk, the switch routes the call based on the value of the route digit. If the route code/digit is 0 or 5 and the routing data routes the call to an outgoing SS7/PRI trunk, the switch sets up the outgoing PRI call using "speech" as the bearer capability. If the route code/digit is 1 or 6 and the routing data routes the call to an outgoing SS7/PRI trunk, the switch sets up the outgoing SS7/PRI call using "56K" as the bearer capability. If the incoming call is on a SS7/PRI trunk and routing data routes to an outgoing T1 CAS trunk, the route code/digit is outputted. The route code/digit outputted is determined by the SS7/PRI trunk bearer capability, if "speech" 0 is outputted, if "56K/64K" 1 is outputted.

This feature provides the following benefits for 5ESS DSN switches:

The interworking of SS7/PRI trunks to T1 CAS trunks (i.e., MF trunk) within a 5ESS DSN Switch is enabled.

The outputting of the route code/digit to indicate bearer capability of T1 CAS trunks eliminates the need

for separate "voice" and "data" T1 CAS trunk groups.

Prior to this feature, CSD calls did not cause a route code digit of "1" to be outpulsed. This currently requires the receiving switches to have this provisioned in the dialing plans.

2. FEATURE ASSIGNMENT

This feature has no ODA impact, and therefore no provisioning is required.

SEC. 7: EQUIPMENT

SEC. 7A: COMPACT DIGITAL EXCHANGE (CDX)

1. FEATURE DESCRIPTION

Effective with the 5E9(1) Software Release, the 5ESS Switch CDX (Compact Digital Exchange) configuration is introduced. The CDX is a 5ESS Switch configuration that is particularly suited to provide telephone services to rural areas serving as few as 100 subscribers. Because it uses the same software and hardware architecture as the 5ESS Switch, it can be configured to serve up to 6,000 access lines and can be evolved into a full-sized 5ESS Switch for larger applications.

The 5ESS Switch CDX is composed of three major components:

- The Administrative Module (using the 3B21D Processor system introduced in 5E9(1)) which provides administrative and maintenance capabilities.
- The CM2C (Communications Module 2 Compact), the new hardware element (in effect, a scaled down CM2), is the core of the CDX configuration interconnecting the SMs and AM. It is limited to interfacing to a maximum of two local or host SMs because of Time Multiplexed Switch limitations.
- The Switching Modules which perform 95 percent of call processing.

The CDX configuration is limited to two SMs (local and host), four Time Multiplexed Switch Links and a maximum of six RSMs (Remote Switch Modules). The CM2C houses the CMPU (Communications Module Processing Unit).

Some examples of 5ESS configurations supported by the CDX include:

- A single switch module (the CM2C) for small line size applications (1,000-3,000 lines).
- A single switch module with a Optically Remote Module.
- Two switching modules with up to six Remote Switch Modules.

NOTE: Refer to Division 2, Section 9A for SM-2000 information regarding the CDX.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	Not applicable.
EQCORE	5701	8	3	17.1
EQIM	5700	8	2	18.1

ECDOPT form (5706 Record) - This form is used to define Administration Module options for all offices. To provision the CDX, CMTYPE must be "CM2C".

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments. To provision the CDX, the following rules apply to this form:

- TMS (Time Multiplexed Switch) CLI must be 20.
- CM VINTAGE must be 2.

- TMS CONFIGURATION must be "SNGL" (single-fabric).
- If NETWORK CLOCK UNIT CLOCK TYPE is "24CHAN2", the following conditions must be met:
 - The range of values for REFERENCE on the NCLKREF (Network Clock 2 Reference) form (5525 Record) must be 1.
 - There must be at most 1 NCLKREF form where REFERENCE TYPE is "ANALOG" and the corresponding REFERENCE on this EQCORE form must be 1.
 - There must be at most 2 NCLKREF forms where REFERENCE TYPE is "24CHAN2".

EQIM form (5700 Record) - This form is used to define Switching Module equipage assignments. To provision the CDX, the following conditions must be met:

- NCT EVEN LINK must be either 2 or 4
- CTS EVEN LINK must be either 2, 10, 18, 26, 34, 42, 50, or 58.
- the maximum number of EQIM forms must be equal to or less than 8.
- the maximum number of EQIM forms with SM USAGE of "IM", "HIM", "TRM" or "ORM" must be equal to or less than 2.
- the maximum number of EQIM forms with an SM USAGE of "RSM" must be equal to or less than six.

SEC. 7B: ADMINISTRATION MODULE PROCESSOR 3B21D

1. FEATURE DESCRIPTION

Effective with the 5E9(1) Software Release, the 3B21D Processor replaces the 3B20D Processor in the AM (Administration Module) for new ship 5ESS Switch offices.

The 3B21D offers the following advantages to the 5ESS Switch customer:

- reduced floor space requirements
- capability to support larger SCSI Disk (i.e., 1 gigabyte)
- support of SCSI tape drives
- higher processor throughput and less power consumption

The 3B21D supports only SCSI disk drives and SCSI 9-track tape units; optical drives are not supported.

The 3B21D main memory store can accommodate up to 48 MB of memory with the 5E9(1) Software Release.

1.1 Minimum Configuration

The minimum 3B21D configuration for the 5ESS Switch consists of the Processor Cabinet without the growth units. (A typical 5ESS Switch is configured with two pairs of MHDs (Moving Head Disks). A pair of optional disks for SMOOD/AMA (Switching Module Office Dependent Data/Automatic Message Accounting), and/or one or two optional simplex software backup disks (MHD 14 and/or MHD 15) can be added as needed.)

The basic unit can be equipped according to any of the following options:

- 30 PC slots and 2 MHD pairs
- 28 PC slots and 2 MHD pairs
- 26 PC slots and 3 MHD pairs

1.2 Growth Configuration for MHD/PC

The 3B21D processor configuration can be equipped with either one or both Growth Units. The following are examples of growth unit possibilities:

- 16 PC slots and 0 MHD (if one growth unit is used)
- 32 PC slots and 0 MHD (if both growth units are used)
- 24 PC slots and 3 MHD pairs (if both growth units are used)
- 16 PC slots and 5 MHD pairs (if both growth units are used)

Therefore, a maximum 3B21D AM configuration consists of 8 MHD pairs, by equipping the basic unit with 3 MHD pairs along with 5 MHD pairs in both the growth units.

1.3 Peripheral Cabinet

The peripheral cabinet can accommodate a maximum of 2 SCSI 9-track tape units. The 5ESS Switch requires a Peripheral Growth Cabinet equipped with at least one SCSI 9-track tape unit.

2. TRANSLATION REQUIREMENTS

For 5E9(1) and later, the 3B21D AM is the only available processor. Its assignment is defaulted and displayed on the ECDOPT form (5706 Record) as follows:

PROCESSOR MODEL = 3B21D
PROCESSOR MEMORY TYPE = KLM
PROCESSOR MEMORY SIZE = 40

As the 3B21D AM is deployed only as new ship 5ESS offices, evolution needs are not applicable. However, evolution needs and impacts must be investigated in order to meet future conversion or growth needs. There will be OS (Operating System) impacts associated with the new message formats associated with tape diagnostics.

SEC. 7C: 5ESS-2000 VERY COMPACT DIGITAL EXCHANGE SWITCH

1. BACKGROUND

The 5ESS-2000 CDX (Compact Digital Exchange) provides call processing capabilities for a small to medium size office. The 5ESS Switch provides call processing capabilities for medium to large size offices. In situations where an RSM or ORM is not practical due to distance or other considerations, the 5ESS-2000 VCDX (Very Compact Digital Exchange) Switch provides cost effective call processing capabilities for a very small size office configuration.

2. FEATURE DESCRIPTION

Available with 5E9(2) and later, the 5ESS-2000 VCDX Switch has feature number 99-5E-1616. The 5ESS-2000 VCDX Switch provides a cost effective very small switch configuration with a line capacity from approximately 100 to 1500 lines (and may go as high as 2000 lines) and the same quality and reliability as the 5ESS Switch.

The 5ESS-2000 VCDX Switch consists of three major components:

- A simplex workstation which provides AM, CM, and CMP functionality using a 3B20 emulator.
- Only one SM (Switching Module).
- An Ethernet link which provides communication between the workstation and the SM. Call processing software runs on the SM and does not rely on the AM, CM, or CMP. Therefore, even though the workstation is simplex, call processing is not dependent on it in any way. For this reason call processing reliability and quality will be the same as the 5ESS Switch.

The VCDX office has the following equipment which is needed to connect the AWS (Administration Work Station) with the switching module.

- MCTI External Timing Reference Circuit which provides the AWS-SM with an external timing reference.
- MCTSI Clock Synchronization Circuit which is an MCTSI subunit board only usable by a VCDX (non SM-2000).
- MCTSI Ethernet Interface Board which is an MCTSI subunit board only usable by a VCDX (non SM-2000).

Memory board zero side 0 and side 1 (circuit positions 30h and 50h) cannot be populated in a VCDX office. These circuit positions are needed by the VCDX Ethernet. Circuit positions for memory boards must begin at 31h for side 0 and 51h for side 1.

3. FEATURE ASSIGNMENT

Figure 1 shows the form flow when VCDX is set to "N" on the EQCORE form. For a non-VCDX office a dgn (diagnostic) test schedule must be defined on the RXSCHD. When REMOTE SWITCHING MODULE is assigned on the EQRAU form or REMOTE MODULE assigned on the RALM form, it must be defined on the EQSITE form and EQIM form or have SM USAGE set to "RSM>", "ORM" or "TRM".

Figure 2 shows the form flow for a VCDX office and indicates a number of features which are not implemented and, therefore, blocked. When VCDX is "Y" on the EQCORE form, the fields shown in Figure 2 for the

EQCORE form are automatically populated.

Only one EQIM form must be entered and UNIT TYPE must be "SMPU4", MEMORY BOARDS BRD0 CLI must not be entered, SM USAGE must be "IM", STAND ALONE must be "N", STAND ALONE BILLING must be "Y" and OSPS PSM must not be "Y".

On the RALM form, REMOTE SWITCHING MODULE must match the entry of SM on the EQIM form, and ALARM POINT values 0 - 3, 32 - 54 and 100 - 113 should be assigned on this form.

Since simulated facility group is not allowed in VCDX office, the PFASFG form must not be populated.

Since FTS2000 Network Management and Trunk Queuing is not allowed in a VCDX office, LN VIRT cannot be "Y" and QUEUE FEATURE cannot be entered on the TKGRP form.

Since various features such as ASP, ASI, and E911 are not allowed, the entries on the OFCOPT form shown in Figure 2 are required.

On the RXSCHD form, ENTITY must not be 0.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ECDOPT	5706	8	8	Not Applicable
EQCORE	5701	8	3	17.1
EQRAU	5705	8	7	18.1

ECDOPT form (5706 Record) - This form is used to define Administration Module options for all offices.

For 5E9(2) and later the field VCDX was added to this form. This field indicates whether or not the office is a VCDX office. To provision a VCDX office, see the data rules for the VCDX OFFICE field on this form in Division 8, Section 8.

EQCORE form (5701 Record) - This form is used to define Core Unit Assignment in a 5ESS Switch office.

For 5E9(2) and later the field VCDX OFFICE was added to this form. This field indicates whether or not the office is a VCDX office. To provision a VCDX office, see the data rules for the VCDX OFFICE field on this form in Division 8, Section 3.

EQRAU form (5705 Record) - This form is used to define the equipment status of the TMS (Time Multiplexed Switch) Link Interface Boards.

RAU VERTICAL on this form allows the new values 69, 76. The fields RAU BAY and RAU VERTICAL are required fields for 5E9(2) and later.

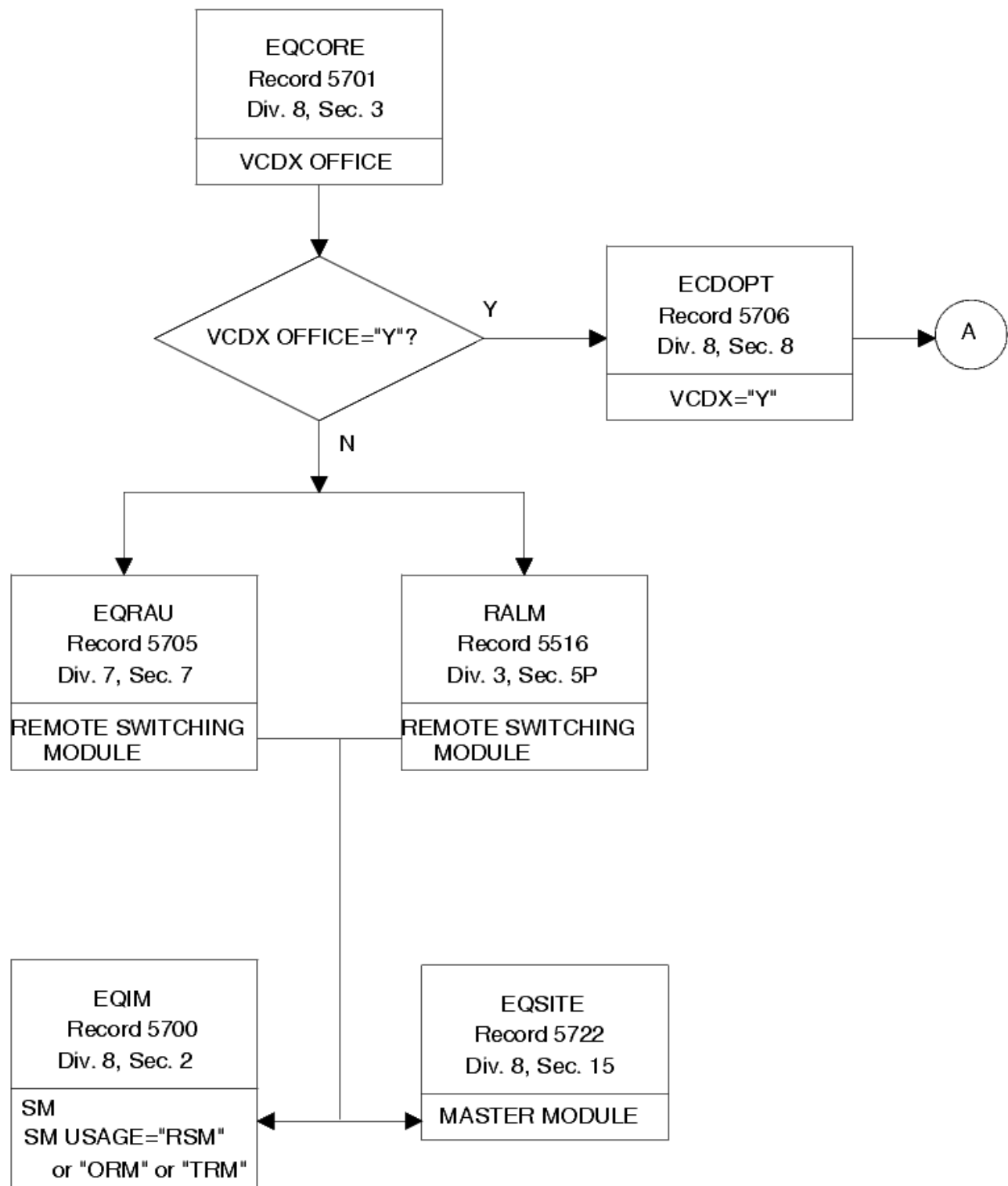


Figure 1 NON-VCDX FORM FLOW

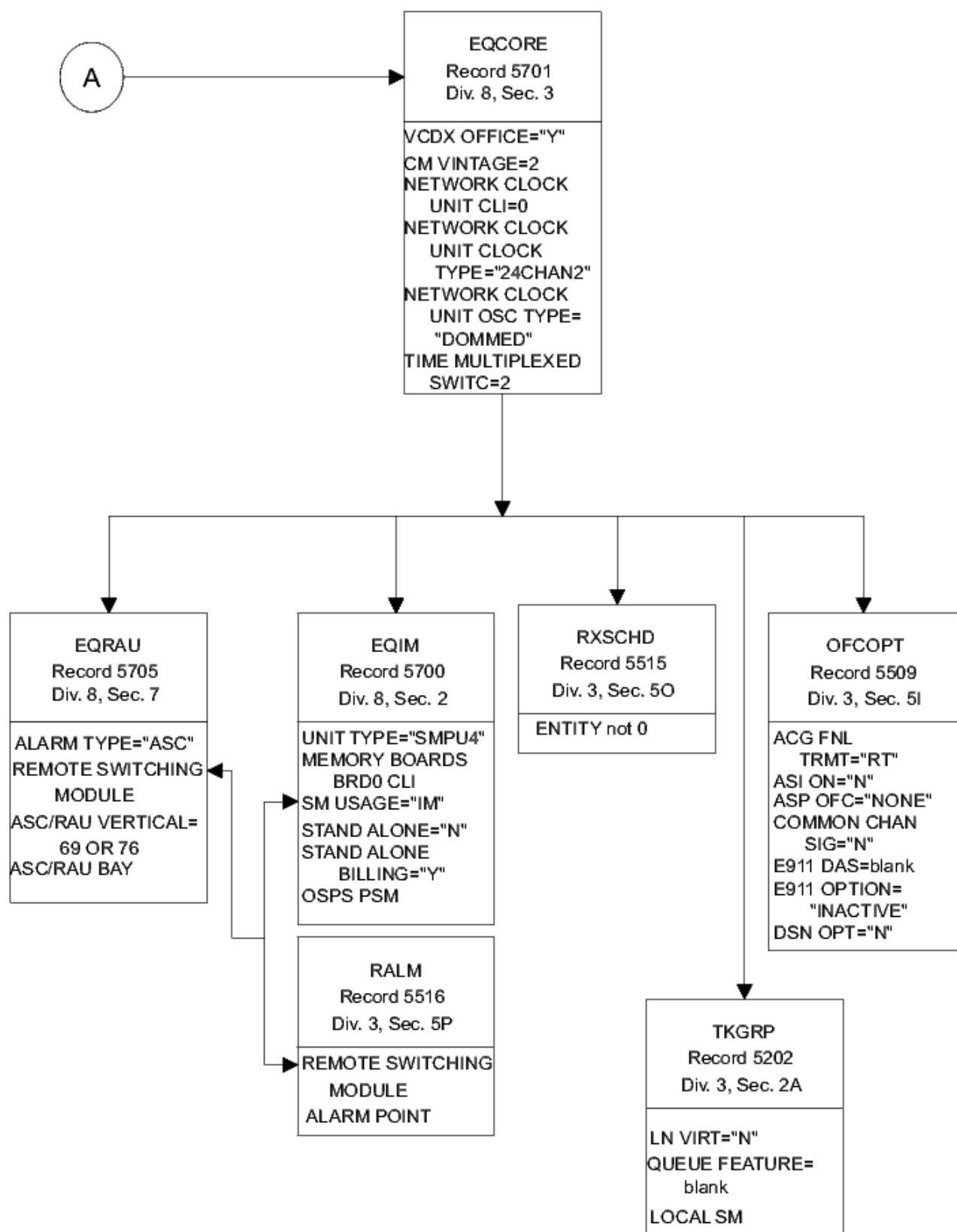


Figure 2 VCDX FORM FLOW

SEC. 7D: LINE UNITS

1. FEATURE DESCRIPTION

The LU (Line Unit) terminates standard analog facilities to provide the local customer interface to the 5ESS Switch for single-party, multiparty, coin, and certain PBX (Private Branch Exchange) lines. Each LU is capable of terminating a maximum of 640 customers and two SGs (Service Groups) of customer interface hardware. Line Units are defined on the EQLU form (5710 Record). See Division 8, Section 10.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQLU	5710	8	9	19.1

EQLU form (5710 Record) - This form is used to define SM (Switching Module) and LU assignments.

SEC. 7E: PIDB GROWTH CONTROL

1. FEATURE DESCRIPTION

The PIDB (Peripheral Interface Data Bus) Growth Control feature (97-5E-2678) is available with 5E9(1) (via BWM 94-0039) and later software releases.

The PIDB Growth Control feature provides the Telephone Company with the ability to grow the IDCU (Integrated Digital Carrier Unit) hardware to maximize the capability of a TR-303 RDT (Remote Digital Terminal).

By providing a means to grow the PIDB level in two TSS (Time Slot Set) increments for each IDCU on an SM, the Telephone Company has flexibility in managing the IDLC (Integrated Digital Loop Carrier) application by growing in the minimum hardware required for the specific needs.

The functionality of growing the PIDB hardware is secured and must be purchased. The regional Lucent Technologies Secured Feature Administrator must be consulted in order to obtain the necessary password on RC view 19.12 to allow the PIDBs which are needed to provide additional CCS (Centrum Call Seconds) to be grown on the IDCU.

2. FEATURE ASSIGNMENT

The assignment of PIDBs to the IDCU is done on the EQIDCU form (5846 Record) and the RC/V view (19.12). The type of PIDBs that this feature is concerned with are PIDBs of type "DUAL". The initial PIDB level is provided when the customer purchases the basic IDCU configuration that is represented by the NSEP (Network Switching Engineering Practice) symbol IDCU. Initially 4 PIDBs correspond to a PIDB level of four for this IDCU. Each IDCU on a given SM has a unique PIDB level assigned to allow for maximum flexibility in growing in TR-303 Large RDTs.

The initial PIDB level of four allows the Telephone Company to assign up to four (4) active PIDBs to an IDCU.

In order to provide additional CCS for the higher number of lines served by TR-303 applications, the Telephone Company must now contact the regional Lucent Technologies representative to obtain a password to activate an additional set of PIDBs for a given IDCU. A total of four PIDB groups can be assigned for a total of 16 PIDBs per IDCU.

The password is entered on the 19.12 view to activate the new PIDB group and allow the PIDBs to be "active" for the unit. The following table illustrates the three PIDB groups that require activation via this password mechanism.

5ESS SWITCH NSEP SYMBOLS FOR IDCU PIDB	
PIDB NSEPs	PIDB Range
IDCU	1-4*
IDCUPB1	5-8
IDCUPB2	9-12
IDCUPB3	13-16

*First group of PIDBs included in the IDCU basic equipment package.

The PIDB Growth Control Feature has two primary users. The first is the Telephone Company switch engineering person that is responsible for configuring the IDLC (Integrated Digital Loop Carrier) lines served on a IDCU. This person is responsible for ordering the equipment with the PIDB equipage to meet the needs of a particular configuration. The 5ESS Switch NSEPs for ordering PIDB groups would be utilized in placing this request.

The second user of this feature is the Telephone Company RC/V technician who is involved in the growth of an existing system to accommodate additional IDLC lines on an IDCU. This person would utilize the password information in the MAP X field taken from a review of 19.12 and provides this information to the Lucent Technologies regional contact. The Lucent Technologies regional Secured Feature Administrator then provides the password for the PASSWORD field to allow the growth of additional PIDBs for expanded CCS service for that IDCU.

The following are two typical scenarios for service providers for the growth of existing service or engineering of new service for TR-303 IDLC applications on the IDCU.

1. Growth of PIDBs on existing IDCU. The Switch Engineer has determined from engineering sources (e.g. DOPS) that the number of lines served by TR-303 RDTs requires additional PIDBs to accommodate the desired CCS utilization. A review of the 19.12 view for the affected IDCU is required. For example IDCU # 1 is affected. Referencing the MAP X field on the 19.12 view, the Switch Engineer contacts the Lucent Technologies region representative to acquire the password for the desired PIDB level required for IDCU #1 using the engineering data previously established. Once the password from the region representative has been entered in the PASSWORD field on the 19.12 view the PIDB level for IDCU #1 can be increased via an update.
2. Establishing IDLC Service on a new IDCU. This scenario is very similar to the growth scenario. However, the IDCU can be ordered with the PIDB level set at the desired level and all associated fees are accounted for in the pricing of the unit. In this case the 5ESS Switch NSEPs are used in ordering this predetermined configuration. Ordering of all other IDCU hardware remains unchanged. The table above titled "5ESS SWITCH NSEP SYMBOLS FOR IDCU PIDB" provides the NSEP symbols and the associated PIDB level information

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIDCU	5846	8	48	19.12

EQIDCU form (5846 Record) - The 5846 Record is available with the 5E8 Software Release. It is used to define the IDCU (Integrated Digital Carrier Unit) and the LSI (Loop Side Interface) packs, ELI (Electric Line Interface) packs, and the PIDBs associated with the IDCU.

For 5E9(1) and later the MAP X, PIDB LIMIT, and PASSWORD fields were added to support the PIDB Growth Control feature.

4. GLOSSARY

CCS	Centrum Call Seconds
DOPS	Digital Office Provisioning System
IDCU	Integrated Digital Carrier Unit
IDLC	Integrated Digital Loop Carrier
NSEP	Network Switching Engineering Practice
ODA	Office Data Assembler

PIDB	Peripheral Interface Data Bus
RC	Recent Change
RDT	Remote Digital Terminal
SM	Switching Module
TSS	Time Slot Set

SEC. 7F: COMBINED SERVICES UNIT

1. FEATURE DESCRIPTION

The CSU (Combined Services Unit) feature is available with 5E10 and later and has AT&T feature number 99-5E-2636.

The Combined Services Unit provides a cost-reduced service circuit repackaging capability. This new compact shelf is targeted for smaller sites such as the VCDX (Very Compact Digital Exchange), CDX (Compact Digital Exchange), and RSM (Remote Switching Module) configurations but is also applicable to standard 5E office SMs. The repackaging combines functions of the DLTU2 (Digital Line and Trunk Unit 2), MMSU (Modular Metallic Service Unit), DSU2-SAS (Digital Service Unit - Service Announcement System), and the GDSF (Global Digital Services Facility) into one shelf, thereby eliminating three backplanes. See Figure 1.

The new shelf is compatible with existing DLTU2, DSU2-SAS and GDSUs (Global Digital Service Units) in the same office and in the same SM or in different SMs.

Although intended principally for the small site market, these sites may grow to a more standard office configuration; therefore, this unit and its global services are compatible with the same functionality provided by existing units in a standard configuration. An exception is made for the MMSU in the repackaged service circuit shelf. Similar to the remote MSU on RSM applications, the repackaged version has only one service group thereby making it incompatible with the standard MMSU which has two service groups in that SM. Therefore, if office growth to conventional configurations necessitate greater metallic services, the standard MMSU needs to be provided and the MMSU portion of the repackaged service circuit shelf will be degrown.

The CSU unit supports the following:

- up to five of either DFI2 (Digital Facility Interface 2) type circuit packs for trunking purposes,
- one GDSF circuit pack arranged to provide trunk testing and conference circuit functionality
- 400, 1200 or 2500 seconds of SAS capability,
- metallic testing by way of SLIM2 (Subscriber Line Interface Measurement 2) with optional compensator circuit pack.
- up to 64 scan points and 64 signal distribute points as typified in Figure 2.

Each unit in the compact shelf has its own power and fusing. The compact shelf contains dedicated slots, meaning certain packs must go in certain locations in the compact shelf. For example, slots 0 and 1 of the compact MMSU must contain packs 494LA and TN879B, respectively. Slots 2 - 9 can be equipped with either metallic access, scan, dist, GDXC (Gated Diode Crosspoint Compensator Pack) or SLIM2 packs while slot 10 can only be equipped with a MTIB (Metallic Test Interconnection Bus) access pack. RC/V (Recent Change and Verify) and ODA (Office Data Administration) must restrict the number and types of packs that can be grown into the compact shelf. RC/V and ODA do not refer to the pack numbers by their physical slot number. For example, physical slots 2 - 9 of the compact shelf are referred to as MMSU pack numbers 0 - 7. Figure 3 shows the packs and locations allowed in the compact shelf.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
EQGDSC3	5860	8	63	19.19
EQDU	5730-1	8	17	19.4
EQIM	5700	8	2	18.1
EQLU	5710	8	9	19.1
EQMSU	5750	8	25	19.7
EQMTIB	5750	8	25	19.7
EQRA	5821	8	35	19.10

EQGDSC3 form (5860 Record) - This form defines the RAF unit and the SAS services unit. The CSU field was added to specify if a SAS unit is located on a Combined Services Unit.

EQDU form (5730-1 Record) - This form is used to define equipment location information for the Digital Line/Trunk Units. The CSU field was added to specify if a DLTU is located on a Combined Services Unit.

EQIM form (5700 Record) - This form is used to define Switching Module Equipage Assignments. Data rules for UNIT TYPE entry of "SM2000" were changed.

EQLU form (5710 Record) - This form is used to define SM and LU (Line Unit) assignments in a 5ESS Switch. Data rules were changed for the Metallic Test Bus field.

EQMSU form (5750-1 Record) - This form is used to define MSU (Metallic Service Unit) assignments from the EQMSU and the EQMSP or EQMMSP forms. The CSU field was added to specify if an MSU is located on a Combined Services Unit.

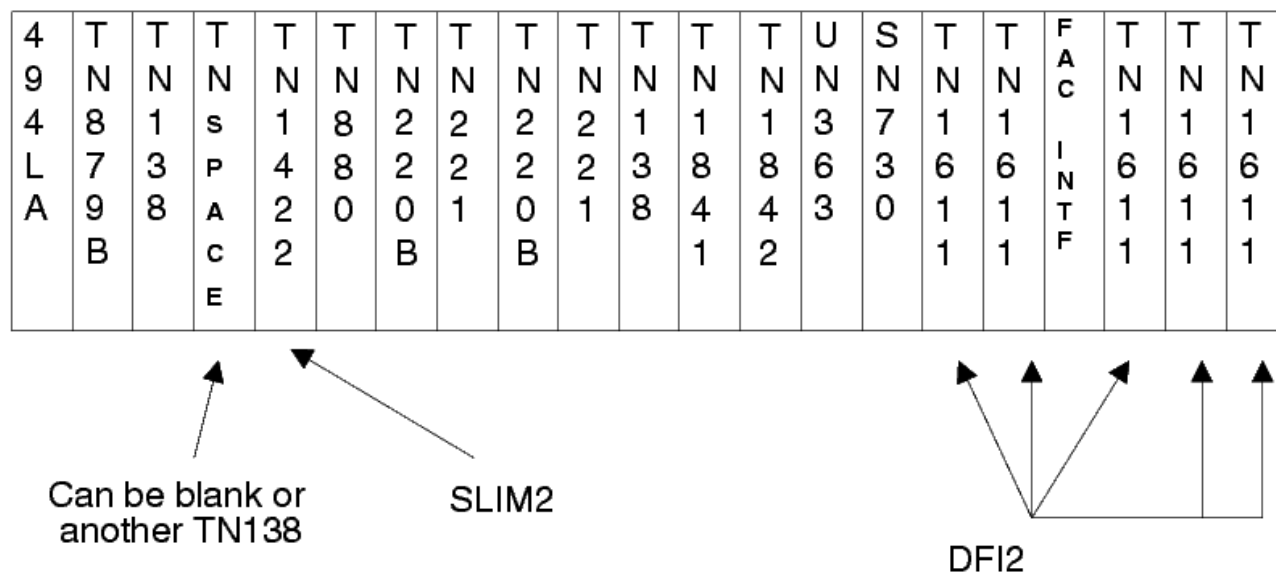
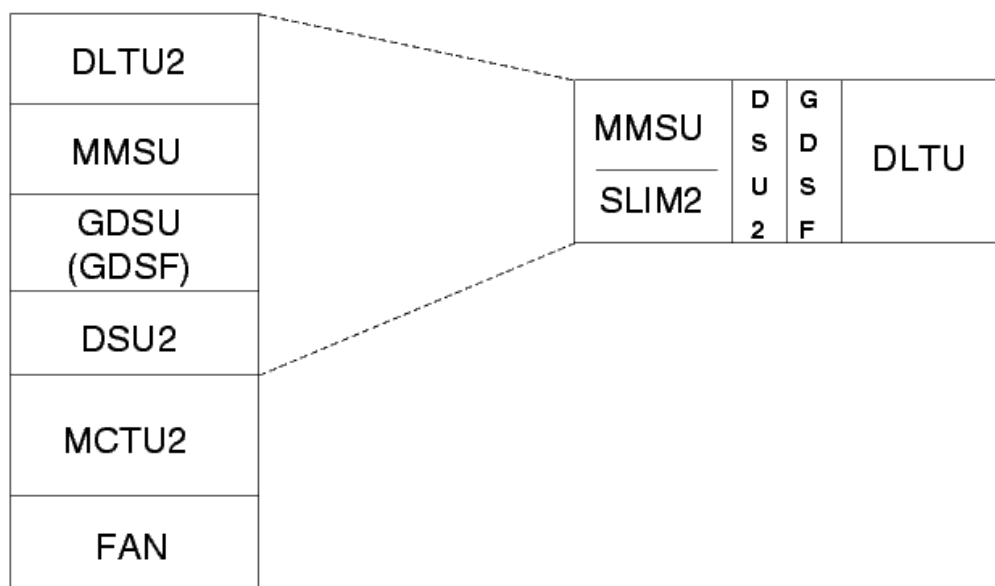
EQMTIB form (5750 Record) - This form was added for Metallic Test Interconnection Bus assignments.

EQRA form (5821 Record) - This form defines the RAF (Recorded Announcement Function) unit and the SAS (Service Announcement System) services unit. The field CSU was added which specifies if a GDSF unit is located on a Combined Services Unit.

3. GLOSSARY

CDX	Compact Digital Exchange
CSU	Combined Services Unit
DFI	Digital Facility Interface
DLTU	Digital Line and Trunk Unit
DSU	Digital Service Unit
GDSF	Global Digital Services Facility
GDSU	Global Digital Services Unit
GDXC	Gated Diode Crosspoint Compensator Pack
MMSU	Modular Metallic Service Unit
MTIB	Metallic Test Interconnect Bus
ODA	Office Data Administration
RAF	Recorded Announcement Function

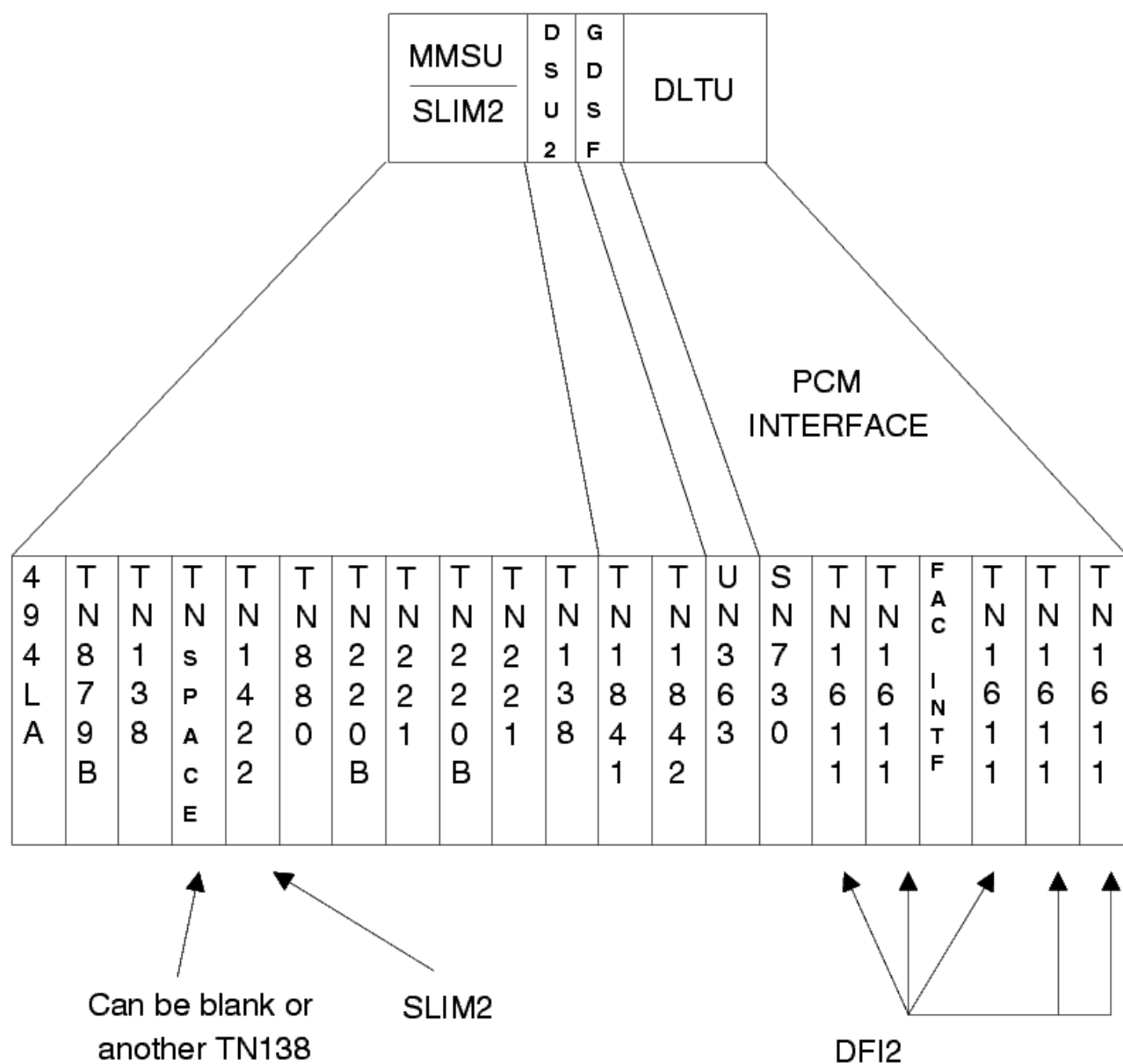
RC/V	Recent Change and Verify
RSM	Remote Switching Module
SAS	Service Announcement System
SLIM2	Subscriber Line Interface Measurement 2
VCDX	Very Compact Digital Exchange



Note: TN1612 may be used in place of the TN1611 (but not mixed for the first two positions).

TYPICAL LAYOUT

Figure 1 TYPICAL SHELF REDUCTION



Note: TN1612 may be used in place of the TN1611 (but not mixed for the first two positions).

TYPICAL LAYOUT

Figure 2 COMBINED SERVICES UNIT

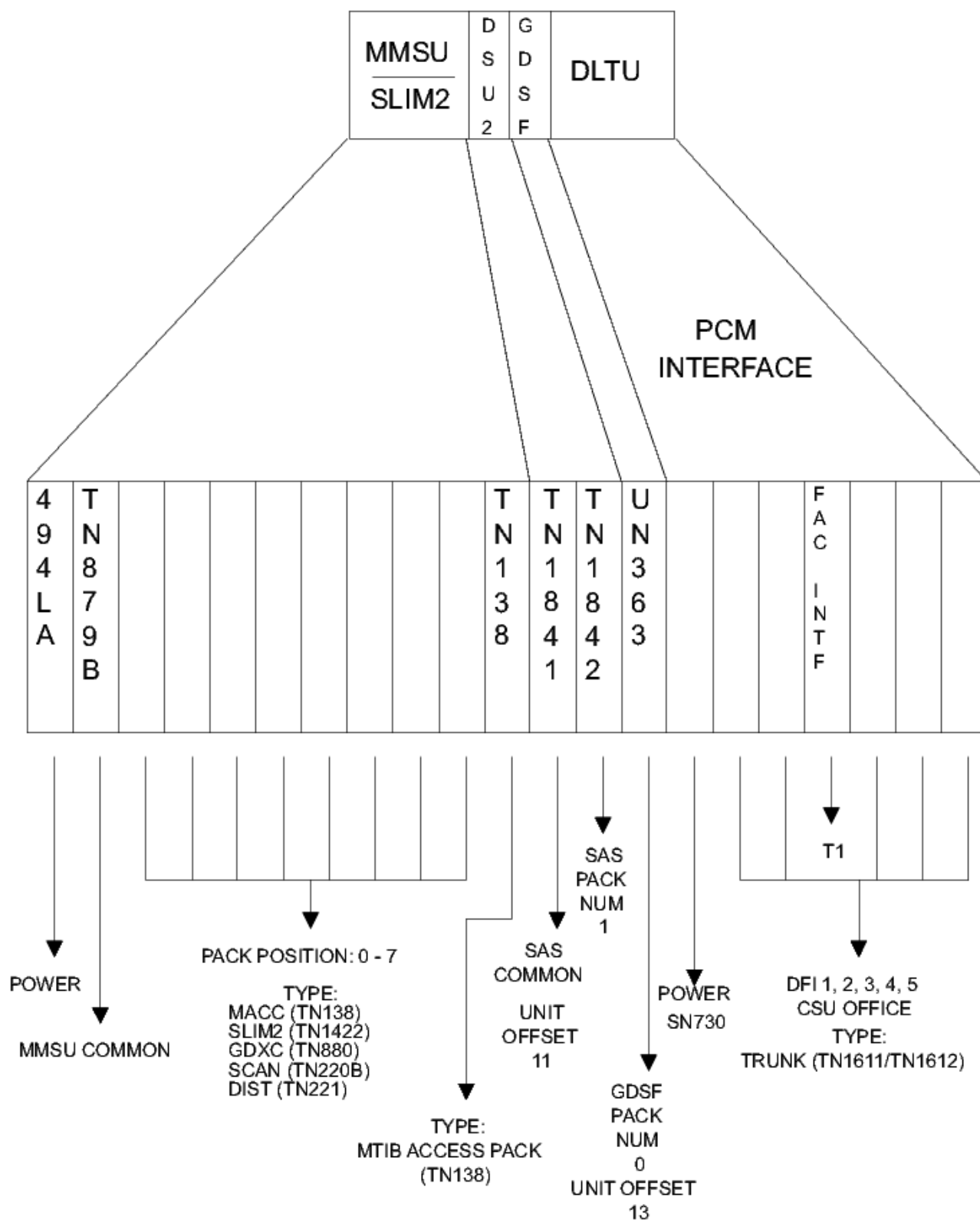


Figure 3 PACK NUMBERS AND TYPES

SEC. 7G: GLOBAL DIGITAL SERVICES FUNCTION

1. FEATURE DESCRIPTION

The GDSF (Global Digital Services Function) feature is available with 5E10 and later Software Releases and has AT&T feature number 99-5E-1584. It is defined on the EQGDSC3 (Global Digital Service Circuit 3) form (5860 Record).

The GDSF provides a cost-reduced service circuit repackaging capability with expanded tone generators and decoders for the SM-2000. For the SM-2000, GDSF is located in the DSU3 (Digital Service Unit 3). For the SM-2000, there are 16 DSC3 slots per DSU3 with a maximum of 2 DSU3s per SM-2000.

For the SM-2000, the GDSF is defined on the EQGDSC3 form (5860 Record) equipped with a UN363 circuit pack (see Division 8, Section 63). For the SM, this functionality is provided via the CSU (Combined Services Unit) which is defined on the EQRA form (5821 Record). Typically, however, the CSU is used in a CDX (Compact Digital Exchange) or the VCDX (Very Compact Digital Exchange) applications (see Division 8, Section 35).

Engineering restrictions for both units are as follows:

SM TYPE	SHELF MOUNTING	MAXIMUM GDSFs	NUMBER OF PIDs (Duplexed)
SM-2000	DSU3	32	4
SM	CSU	1	1 or 2

Refer to the Figures section in Division 2, Section 7F for equipment diagrams for the CSU and the GDSU (Global Digital Service Unit).

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDSC3	5860	8	63	19.18
Equipment Assignment	N/A	8	1	N/A

EQDSC3 form (5860 Record) - New form used to define the position of the GDSF on the GDSU3 for the SM-2000.

Equipment Assignment - This TG-5 section is used to identify CLI value information. The UN363 circuit pack information was added.

SEC. 7H: MODULE CONTROLLER AND TSI (TIME SLOT INTERCHANGE) UNIT 3

1. FEATURE DESCRIPTION

The feature number for the MCTU3 (Module Controller and TSI (Time Slot Interchange) Unit 3) feature is 99-5E-2709. This feature is available with the 5E10 and later Software Releases for the SM (Switching Module), VCDX (Very Compact Digital Exchange), LSM (Local Switching Module), and RSM (Remote Switching Module) environments.

The MCTU3 provides a cost reduction for the core SM hardware by combining several circuit packs and reducing the MCTU2 from two shelves to one. The MCTU3 contains a new Single Board 20 Core pack which combines the two core support packs, the application pack, memory boards and an Ethernet interface pack on a single board. For cases where the Ethernet configurations are used, a paddle board is mounted to the backplane to provide for the physical Ethernet connections. A new Power pack, combined with the SN516B pack functionality, is also implemented. The unit is equipped with the TSIU3 together with existing PI, DI, DSU2 and CI circuit packs. The unit provides for only a single PI slot, thus limiting the MCTU3 to support two PSU's (PI2), which limits the number of ISDN data connections. There are two CI slots which permit a maximum of 46 PICBs. There are two DI packs which provides a total of 32 PIDBs.

The MCTU3 design is based on the SMP20 hardware and software implementation. However, enhancements inherent to the SMP40 were typically incorporated into the design for the MCTU3. The MCTU3 uses the MC68LC040 microprocessor.

The hardware development impacted by the MCTU3 consist of:

- SB20CORE core board containing all SMP functions
- Ethernet Physical interface paddle board
- Power Control and Display board
- CPI interface paddle board (for VCDX)
- Backplane to support all the circuit packs

In a VCDX (Very Compact Digital Exchange), either the TN1077E DLI (Dual Link Interface) pack or TN1077F DLI pack (which combines the VCDX clock circuit pack and the DLI function on one pack) can be used. When using an external reference, a TN1077F circuit pack must be used for the DLI. In a VCDX, a CPI paddle board is located on the backplane of the MCTU3 to provide the UART (Universal Asynchronous Receiver and Transmitter) which handles the CPI (Central Processor Intervention) messages coming from the work station. These paddle boards, one on each side, also take care of providing the DLI clock information.

The SB20CORE (Single Board 20 Core) circuit pack contains three memory SIMM (Single In-line Memory Module) slots. Initially, these slots can be populated with 32 Mbyte memory SIMMs. The SB20CORE board requires 32 Mbytes of memory to operate.

The following table lists the minimum series of (existing) circuit packs required for the MCTU3.

MCTU3 Required Circuit Packs		
Circuit Pack	Code	Minimum Required
Time Slot Interchange/SP	TN1086B	Series 3
Data Interface	TN1377	Series 4

Control Interface	UN71B	Series 1
Packet Interface	TN1042B or UN395 MC5D095A1B	Series 2,, Issue 1
Data Link Interface	TN1077B	Art Master 4, Series 4
	TN1077E	Art Master 1, Series 1
	TN1077F	Art Master 1, Series 1
Digital Service Unit	TN833	Series 1

All MCTU3 circuit packs are APR (Auto-Power Recovery) compliant, but the MCTU3 should be shipped with APR disabled. A backplane connector/strap is added to activate APR.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
Equipment Assignment	N/A	8	1	N/A
EQIM	5700	8	2	18.1

EQIM form (5700 Record) - This form is used to define Switching Module equipage assignments. The MCTU3 was added as a valid unit type and the following conditions must be met:

- DLI CLI on CONTROLLER 0 and CONTROLLER 1 must be entered.
- CONFIGURATION cannot be "SM2000".
- LDSU CLI on CONTROLLER 0 and CONTROLLER 1 must be entered.
- MH0 SG0 CLI and MH0 SG1 CLI must not be entered.
- TSICOM 0 CLI and TSICOM 1 CLI must not be entered.
- SM MEMORY BRD CLIs must not be entered.
- MODULE PROCESSOR VERT must be 15, except when IMPU0 indicates the SM is the second-SM-in-a-cabinet, MODULE PROCESSOR VERT must be 41.
- NUMBER OF MEM BOARDS must be blank.
- SM USAGE can be "ORM".
- PI0EQST or PI1EQST can be entered.
- IMPU0/1 CLI values must have one or both of the following bit positions set:
 - position 18 (value of 40000h); 32 Mbytes of memory
 - position 19 (value of 80000h); 64 Mbytes of memory

When both bits are set, indicates 96 Mbytes of memory

Equipment Assignment) - This section is used to document CLI values. CLI values were added as indicated above.

SEC. 7I: SMP23 CORE BOARD WITH DYNAMIC MEMORY

1. FEATURE DESCRIPTION

The SMP23CDM (Switching Module Processor 23 Core Dynamic Memory) board is available with 5E10 and later and has AT&T feature number 99-5E-2564. As a software update, it is available for 5E9(1) and later.

The SMP23CDM feature introduces the TN1423 core board with dynamic memory for the SM. The TN1423 replaces the TN1397 on the SMP12 and the TN1407/TN1407B) on the SMP23. For a non-SM2000, only SMP20/SMP20DC processors are available for new shipments. The new board is available for applications that need memory extension but without sufficient physical space for extra memory board (e.g., units without MEU (Memory Expansion Units). The new board requires no additional backplane changes with respect to the existing SMP23.

The new SMP23 Core/Memory Board (TN1423) contains the same functionality as the TN1407/1407B, and in addition, contains on-board DRAM (Dynamic Random Access Memory).

The SMP23CDM is still an SMP23 but has on-board memory. The amount of memory addressable by the TN1423 is 32 Mbytes. Any additional off-board memory is not addressable when MCTSI is equipped with SMP23CDM.

The MCTSI (Module Controller Time Slot Interchange) CLI value on the EQIM form (5700 Record) is affected by the introduction of the SMP23CDM. This feature uses a combination of existing values to introduce MCTSI CLI values that accommodate the two processor variations and the additional off-board memory. See Division 8, Section 1 for CLI value information.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIM	5700	8	2	18.1
Equipment Assignment	N/A	8	1	N/A

EQIM form (5700 Record) - This form is used to define Switching Module equipage assignments. If the SMP23CDM is equipped, the appropriate CLI value must be set. Refer the Division 8, Sec.1.

SEC. 7J: SM-2000 ON VERY COMPACT DIGITAL EXCHANGE

1. BACKGROUND

Available with 5E9(2) and later, the feature 5ESS-2000 VCDX (Very Compact Digital Exchange) Switch feature provided a cost effective very small switch configuration with a line capacity from approximately 100 to 1500 lines (and as high as 2000 lines) and having comparable quality and reliability as the 5ESS Switch. For more information on this feature (AT&T feature number (99-5E-1616) see Division 2, Section 7C.

2. FEATURE DESCRIPTION

Available with 5E10 and later, the SM-2000 on Very Compact Digital Exchange has AT&T feature number 99-5E-2610. This feature provides a low cost VCDX configuration with increased line and trunk sizes provided by the SM-2000. Incorporation of the SM-2000 on the VCDX expands line capacity to approximately 10,000 lines.

The changes to the SM-2000 for VCDX are:

- No NLIs (Network Link Interface).
- The MH (Message Handler (UN538)) is replaced by the MHEIB (Message Handler Ethernet Interface Board (UN584)) to provide ethernet functionality.
- The TSICOM (Timeslot Interchange Common Pack (UM74B)) is the same used in the EXM-2000 (Extended SM-2000).
- CPI (Call Processing Intervention) functionality is implemented via an RS-232 connection on a paddle board placed on the backplane of the BSN (Bus Service Node).

3. FEATURE ASSIGNMENT

See SM-2000 on VCDX form flow in Figure 1.

4. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
EQIM	5700-1/2	8	2	18.1
EQCORE	5701	8	3	17.1

EQIM form (5700-1/2 Record) - This form is used to define Switching Module Equipage Assignments.

For 5E10 and later, VCDX is restricted for certain links. Data rules were added for this form.

EQCORE form (5701 Record) - This form is used to define Core Unit Assignment in a 5ESS Switch office.

For 5E10 and later, data rules were added to this form.

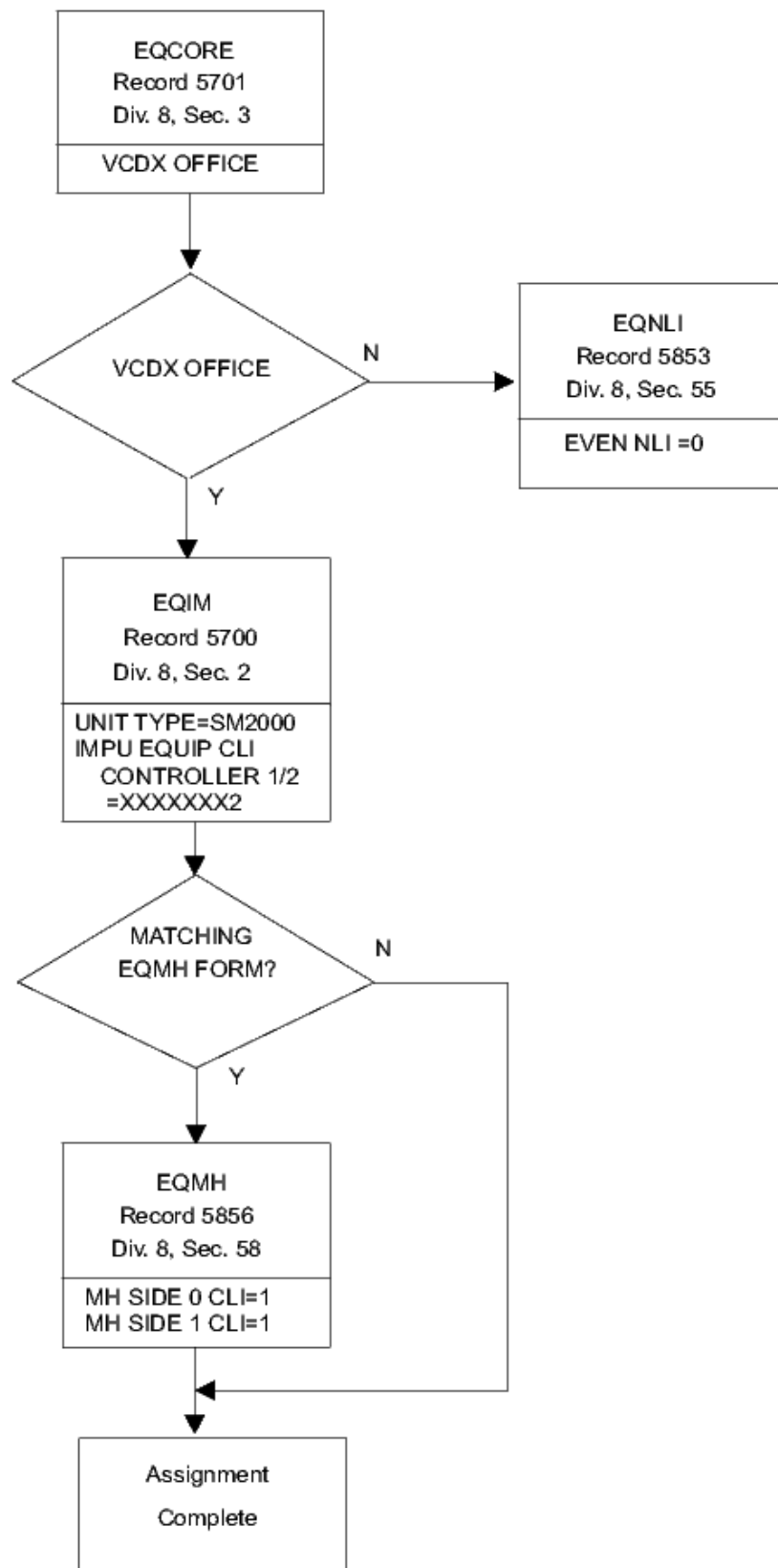


Figure 1 SM-2000 ON VCDX FORM FLOW

SEC. 7K: ACCESS INTERFACE UNIT - AIU

1. FEATURE DESCRIPTION

The AIU (Access Interface Unit) is available with the 5E11 Software Release. This new line access unit minimizes the common hardware thereby allowing for all common equipment to be centralized on a single COMDAC (COMMon DAta and Control) circuit, for each service group. The COMDAC provides a control interface between the SMP (Switching Module Processor) and application packs. The AIU uses front access for all cables.

In the initial AIU release, the only application packs supported are analog line packs which terminate the subscriber lines and ringing generators. Ringing is provided by two ringing generators.

As a 5E11 software update, a coin pack capability (99-5E-2758) is available. For 5E12 and later, Remote AIU (99-5E-3560) is available. See Division 2, Section 90. (Note that Remote AIU is also referred to as "Extended AIU").

1.1 AIU Traffic Measurement

The AIU feature introduces a new traffic measurement architecture for the collection of traffic data. One new ODA traffic-related form and three new Recent Change traffic-related views were introduced to support the new traffic architecture:

1. MEASSUM (Measurement Collection Summary) - (5563 Record)
2. Measurement Collection Selectivity - 13.7
3. Measurement Range Selectivity - 13.8
4. Measurement Collection Summary - 13.9

The MEASSUM form is used, along with the Recent Change views, to designate and display the components for measurement on the "30-minute" AIU (Access Interface Unit) measurement report. AIU measurements are available for the AIU as a unit ("AIU"), for an individual customer line ("AIULN"), or all or specific lines on an SM ("AIULC").

In general, if measurements are being collected for equipment that is being degrown, those measurements will automatically be removed. For example, if AIU 9 is being collected for section name AIU, and that AIU is degrown from operational, AIU 9 will no longer be collected.

The feature number for the AIU feature is 97-5E-3116.

2. FEATURE ASSIGNMENT

Three new ODA forms were created to support the initial release of the AIU: EQAIU, EQAIUP, and MEASSUM. The EQAIU and EQAIUP forms define the AIU and AIU packs, respectively. Ring Generators packs must be equipped in pairs (see the EQAIUP form). The MEASSUM form supports traffic measurement. Measurements are performed on two levels: by unit and by line (i.e., by circuit).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
ACOFRF	5968	6	11	12.6
EMRNM	5108	3	1H	4.9
EQAIUP	5746	8	65	20.16
EQAIU	5745	8	64	19.16
Equipment Assignment	N/A	8	2	N/A
LCC	5306	3	3S	4.1
LINE	5109	3	1I	1.6
MEASSUM	5563	3	5BG	13.9
MLHLN	5111	3	1K	1.6
SLJOB	5555	3	5BA	14.16
SLEN	5548	3	5AX	14.13

ACOFRF form (5968 Record) - This form is used to define the Controlling Line for an Attendent Control of Facility Restriction. The AIU was added as a valid unit associated with the TN.

EMRNM form (5108 Record) - This form is used to define Remote Site or Local SM Stand-Alone emergency TNs. The AIU was added as applicable to this feature.

EQAIUP form (5746 Record) - This new form is used to define AIU packs.

EQAIU form (5745 Record) - This new form is used to define the AIU.

Equipment Assignment - This section of the TG-5 identifies CLI values for equipment. The AIU and AIUP forms were added.

LCC form (5306 Record) - This form is used to define each Line Class Code. Data Rules were added or updated to include the AIU unit.

LINE form (5109 Record) - This form is used to define TNs. The AIU was added as a valid UNIT type and NUMBER and related data rules were added or updated.

MEASSUM form (5563 Record) - This form is used to identify components selected for traffic measurement reported on the AIU Measurements report.

MLHLN form (5111 Record) - This form is used to define Multi-Line Hunt Lines. The AIU was added as a valid unit and related data rules were added or updated.

SLJOB form (5555 Record) - This form is used to define test jobs for scheduled SLIM2 (Subscriber Line and Instrument Measurements-2) test sessions. The AIU was added as a valid unit for testing.

SLEN form (5548 Record) - This form is used to define the range of subscriber office equipment numbers that are to be tested by the SLIM2 feature. The AIU was added as a valid unit for testing.

SEC. 7L: VCDX CCS7 ON THE PSU

1. FEATURE DESCRIPTION

The VCDX (5ESS-2000 Switch Very Compact Digital Exchange) CCS7 (Common Channel Signaling System 7) on the PSU (Packet Switch Unit) feature has feature number 99-CP-2345.

The VCDX CCS7 on the PSU feature provides a signaling platform for SS7 (Signaling System No. 7) on an SM (Switch Module) of a VCDX. This platform consists of the first three layers of the MTP (Message Transfer Part) and the connectionless procedures of the SCCP (Signaling Connection Control Part). The MTP gives the VCDX, which acts solely as an SEP (Signaling Endpoint), the ability to send and receive MSUs (Message Signal Unit) on one SM. The SCCP gives the VCDX connectionless services sufficient to receive as an SEP SCCP MSUs that require no further Global Title translation and to send locally originated SCCP MSUs to the STP (Signaling Transfer Point) that is their first GTT (Global Title Translation) point in the signaling network. Therefore, the introduction of CCS7 on the VCDX allows features and services that require SS7 signaling to be offered to subscribers on a VCDX such that it will be transparent to these subscribers that their lines are terminated by a VCDX.

This feature integrates the SS7 signaling platform with the hardware units of the SM. The external appearance of a signaling link can be on two types of equipment:

- a channel on a T1 facility of a DFI (Digital Facility Interface) in a DLTU (Digital Line and Trunk Unit).
- a channel (DS0) on a DS1 of a VT (Virtual Tributary) on a DNU-S (Digital Networking Unit - SONET (Synchronous Optical Network)).

The PH (Protocol Handler) in a PSU runs the link-level procedures that manage a signaling link. The DLTU, DNU-S and PSU are peripheral units of an SM. The SMP (Switch Module Processor) runs the signaling network management procedures of the MTP. The message-handling procedures of the SCCP execute on both the SMP and the PH.

The PSU SS7 platform is supported on both the SM and SM-2000.

2. FEATURE ASSIGNMENT

2.1 Data Link to Trunk Group

See Figure 1 for feature assignment form flow for data link to trunk group.

- Define the GSM (Global Switching Module) that supports the signaling system on the CCGSM form (6008 Record).
- The MDLNK form (6009 Record) is used to specify the message delivery link and the bunny-hop PH (a link internal to the SM where SS7 messages originate or terminate).
- The CC7PR form (6001-1/2 Record) is used to specify and update the GSM CCITT7 office parameters and MTP Level 3 timers.
- On the CCPDL form (6002 Record), specify and update the CCITT7 MTP (Message Transfer Part) Level 2 Data Link Rate timers.
- Use the LNKSET form (6003 Record) define CCS7 signaling link sets.

- On the CLKSET form (6005 Record), define combined link sets.
- Use the PC form (6006 Record) to specify the point code and alternate link set routing.
- Create CCS7 link sets and members on the CCLNK form (6004-1/2 Record).
- Add the GSM's Originating Point Code and Destination Point Code from the PC form to the TKGRP form (5202 Record) and add trunk members to the Trunk form (5204 Record).
- Use Recent Change View 16.11 to verify CCS Channel Groups.

2.2 SCCP

See Figure 2 for feature assignment form flow for SCCP.

- Use the CCNET form (6010 Record) to grow (degrow) an SCCP GSM.
- Define the individual parameters for a SCCP GSM on the CCSPR form (6011 Record).
- On the CCPBD form (6012 Record) define the primary and backup GSM-DPC-SSN (Subsystem Number) destinations for SCCP signaling.
- Define the SCCP GTT (Signaling Connection Control Part Global Title Translation) mask for a translation group on the CCTGM form (6013 Record).
- Specify the Global Title Translation for incoming digit strings on the CCSGT form (6015 Record).
- On the CCTT form (6014 Record) define the Global Title Translation treatment for the data in the called party address.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms

Form Name	Record Number	Div.	Sec.	RC View
CC7PR	6001-1/2	9	10A	16.2
CCGSM	6008	9	10H	16.1
CCLNK	6004-1/2	9	10D	16.6
CCNET	6010	9	10K	16.20
CCPBD	6012	9	10M	16.22
CCPDL	6002	9	10B	16.3
CCSGT	6015	9	10N	16.25
CCSPR	6011	9	10L	16.21
CCTGM	6013	9	10P	16.23
CCTT	6014	9	10O	16.24
CLKSET	6005	9	10E	16.7
LNKSET	6003	9	10C	16.5
MDLNK	6009	9	10J	16.17
PC	6006	9	10F	16.10

CC7PR form (6001-1/2 Record) - This form is used to specify and update the CCITT7 office parameters and MTP level 3 timers.

CCGSM form (6008 Record) - This form is used to specify data used for the global switching module.

CCLNK form (6004-1/2 Record) - This form is used to display the CCS7 (Common Channel Signaling System No. 7) link sets and members.

CCNET form (6010 Record) - This form is used to define a signaling connection control part network.

CCPBD form (6012 Record) - This form is used to define the primary and backup destinations for SCCP signaling.

CCPDL form (6002 Record) - This form is used to specify and update the CCITT7 MTP (Message Transfer Part) Level 2 Data Link Rate timers.

CCSGT form (6015 Record) - This form is used to maintain single fixed or primary plus secondary digit string for Global Translations.

CCSPR form (6011 Record) - This form is used to define the individual parameters for a Signaling Connection Control Part Global Switching Module.

CCTGM form (6013 Record) - This form is used to define the SCCP GTT mask for a translation group.

CCTT form (6014 Record) - This form is used to define whether the global title data in the called party address will receive Global Title Translation.

CLKSET form (6005 Record) - This form is used to define the link sets that comprise the combined link set.

LNKSET form (6003 Record) - This form is used to define CCS7 signaling sets.

MDLNK form (6009 Record) - This form is used to specify the message delivery link and the bunny-hop PH.

PC form (6006 Record) - This form is used to specify the point code and alternate link set routing.

4. GLOSSARY

CCS	Common Channel Signaling
CCS7	Common Channel Signaling System 7
DFI	Digital Facility Interface
DLTU	Digital Line and Trunk Unit
DPC	Destination Point Code
GTT	Global Title Translation
MSU	Message Signal Unit
MTP	Message Transfer Part
PH	Protocol Handler
PSU	Packet Switch Unit
SCCP	Signaling Connection Control Part
SM	Switching Module
SMP	Switching Module Processor

SS7	Signaling System No. 7
SSN	Subsystem Number
STP	Signaling Transfer Point
VCDX	5ESS-2000 Switch Very Compact Digital Exchange

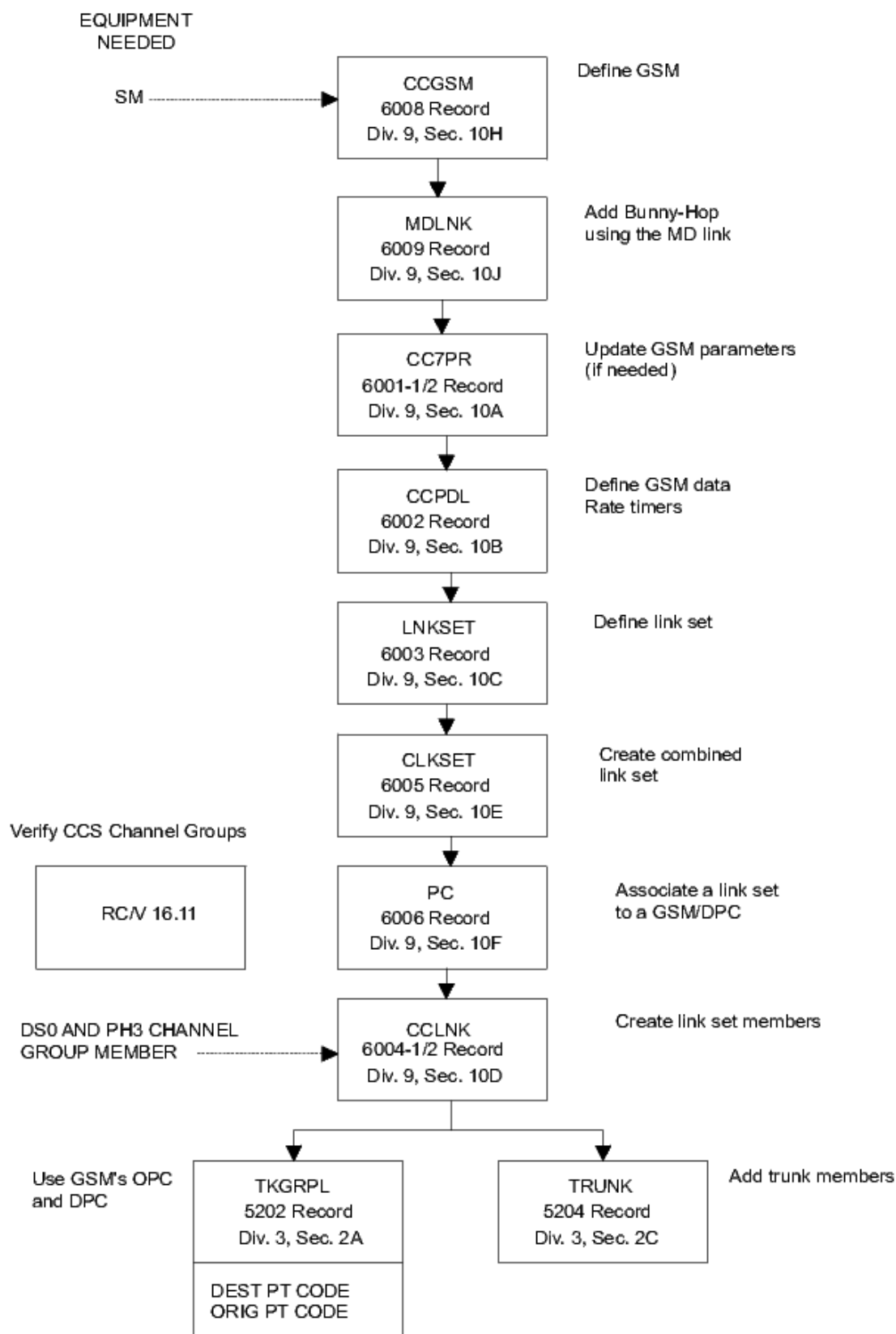


Figure 1 FORM FLOW FOR DATA LINK TO TRUNK GROUP

Grow (Degrow)
an SCCP GSM

CCNET
6010 Record
Div. 9, Sec. 10K

Specify parameters
for SCCP GSM

CCSPR
6011 Record
Div. 9, Sec. 10L

Specify a primary and
backup GSM-DPC-SSN
destination

CCPBD
6012 Record
Div. 9, Sec. 10M

Maintain the digit strings
for global title translations

CCTGM
6013 Record
Div. 9, Sec. 10P

Specify the global title
translation group mask
for incoming digits strings

CCSGT
6015 Record
Div. 9, Sec. 10N

Specify the global title
translation treatment
for the data in the called
party address

CCTT
6014 Record
Div. 9, Sec. 10O

Figure 2 FORM FLOW FOR SCCP

SEC. 7M: PARALLEL PUMP WITH CONTROL INTERFACE 2

1. FEATURE DESCRIPTION

The Parallel Pump with CI-2 (Control Interface 2) feature is available with 5E11 and later Software Releases. This feature improves the "pump" time required to initialize an SM or an SM-2000 class processor. With this feature, a new circuit pack (UN71C) is implemented which allows the broadcasting of control signals to all ports. A faster scanning time also speeds up call processing.

The feature number for this feature is 99-5E-3055.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQCI	5848	8	50	18.2

EQCI form (5848 Record) - This form is used to define the Control Interface assignments. These assignments define PICB (Peripheral Interface Control Buses) which are used to send messages between a switching module and peripheral units. With implementation of the UN71C circuit pack for the Parallel Pump CI2 feature, a new CLI (Change Level Indicator) value was added.

See the EQCI form in Division 8, Section 1 for CLI values.

SEC. 7N: SFG AND NM FOR VCDX

1. FEATURE DESCRIPTION

The SFG (Simulated Facility Group) and NM (Network Management) on the VCDX (Very Compact Digital Exchange) feature is available with 5E11 and later Software Releases. The feature number for this feature is 99-5E-2962.

SFG and NM on VCDX feature provides the following functionality in a Very Compact Digital Exchange 5ESS-2000 Switch.

- APCP (Application Processor Communication Package)
- ARS (Automatic Route Selection)
- NM (Network Management)
- PFA (Private Facility Access)
- SFG (Simulated Facility Groups)
- TKQ (Modular Queueing for Trunks)

All the functionality listed above is supported on both VCDX SMs as well as VCDX SM-2000s with the exception of Network Management. NM is only supported in the VCDX SM-2000 environment.

All the functionality listed above functions in the VCDX environment when the links to the Workstation are down.

For more information concerning VCDX, see Division 2, Section 7C.

2. TRANSLATION REQUIREMENTS

There are no new fields or forms added for this feature.

3. GLOSSARY

APCP	Application Processor Communication Package
ARS	Automatic Route Selection
NM	Network Management
PFA	Private Facility Access
SFG	Simulated Facility Group
TKQ	Modular Queueing for Trunks
VCDX	Very Compact Digital Exchange

SEC. 70: E911 N VCDX

1. FEATURE DESCRIPTION

Available with 5E12 and later, this feature allows service providers to utilize the 5ESS-2000 Switch VCDX (Very Compact Digital Exchange) to offer E9-1-1 (Enhanced 9-1-1) service to their subscribers, without the need to trunk 9-1-1 call traffic to another provider's switch. E9-1-1 is a critical public safety feature which uses the capability of the switch and adjunct database systems to quickly route 9-1-1 callers to the public safety agency that serves them while delivering the caller's telephone number. This is especially important where central office boundaries do not coincide with public safety jurisdictions or when the emergency caller is unable to identify their location.

The VCDX platform provides a compact solution to introduce this service in rural areas, private networks, and in competitive access providers' networks.

Enhanced 9-1-1 features currently available on the 5ESS-2000 Switch which will be offered on the VCDX SM2000 and SM platforms, include: ESA (E9-1-1 Service Adjunct) interface for selective routing; alternate, default, and non-selective routing; full transfer capabilities; support for both analog and ISDN-based PSAPs (Public Safety Answering Points); and 9-1-1 call screening.

The Lucent feature number for E911 on VCDX feature is 99-5E-3341.

2. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQCORE	5701	8	3	17.1
DSLAP	5963	6	6A	24.7

EQCORE form (5701 Record) - This form is used to define the Message Interface Control Unit, Time Multiplexed Switch and Message Interface Control Unit Subunits. A data rule was added for this form.

DSLAP form (5963 Record) - This form is used to define the data links connecting an AP (Application Processor) and the 5ESS-2000 Switch. A data rule was added for this form.

SEC. 7P: ASP ON VCDX

1. FEATURE DESCRIPTION

Available with 5E11 and later, the ASP (Advanced Services Platform) on VCDX (Very Compact Digital Exchange) feature has feature number 99-5E-3085.

This feature provides for the full support of the ASP Release 0.1B platform (feature number 99-5E-1150) on the VCDX. This feature allows the use of the VCDX with all of the ASP 0.1B capabilities provided by the ASP platform as well as the numerous ASP additional features that build upon the ASP 0.1B platform. For more information on the ASP feature, see Division 2, Section 4A126.

Support of ASP on the VCDX platform allows the use of ASP capabilities in the single SM-2000 VCDX. Note that the ASP additional features must be purchased separately.

This feature, along with the the SS7 on PSU feature, 99-CP-2345, provides ASP-based services using the Bellcore, AIN Release 0.1 TCAP (Transaction Capabilities Application Part) protocols to query the serving SCP (Service Control Point). The AIN (Advanced Intelligent Network) Release 0 triggers and protocols support are not provided with this feature.

2. FEATURE INTERACTIONS

This feature provides support of the ASP 0.1B platform and AIN Release 0.1 protocol set only. The AIN Release 0 triggers are not be supported in with this feature. This feature will also support the numerous software updates and additional ASP features which build on the ASP 0.1B platform.

This feature requires that the SS7 interface to the VCDX, as provided by the VCDX CCS7 on the PSU (Packet Switch Unit) feature (feature number 99-CP-2345), be available on the VCDX. For more information concerning this feature, see Division 2, Section 7L.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1, 8.15

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. An enumeration was added to a data rule for this form.

SEC. 7Q: CORE60MM BOARD WITH INTEGRATED DRAM

1. FEATURE DESCRIPTION

The CORE60MM feature is introduced with 5E12 and later Software Releases, but is available as a Software Update for 5E11 and later. This feature introduces two new processor packs that are designed to improve processor performance and provides multiple memory configurations of 64 Mbytes and 128 Mbytes of on-board DRAM (Dynamic Random Access Memory), as indicated below:

SM-2000 MCTSI equipped with UN594, 64MB on-board memory; backplane, CLI value = 45.

SM-2005 MCTSI equipped with UN588, 128MB on-board memory; backplane, CLI value = 49.

These packs are defined on the EQIM form (5700 Record) via the IMPU (Interface Module Processing Unit) field.

The feature number is 97-5E-3671.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIM	5700	8	2	18.1
Equipment Assignment	n/a	8	1	n/a

EQIM form (5700 Record) - This form is used to define SM (Switching Module) assignments. CLI values for the equipment being assigned are entered on this form.

Equipment Assignment - This TG-5 section contains CLI information.

SEC. 7R: LOCAL DIGITAL SERVICE FUNCTION TECHNOLOGY UPGRADE ON THE NON-SM-2000 SWITCHING MODULE

1. FEATURE DESCRIPTION

This feature is available with 5E12 and later Software Releases. It provides a technology upgrade for the LDSF (Local Digital Service Function) circuit pack.

For the non-SM-2000, a new circuit pack, TN1890 (pumpable) with Auto Power Recovery, replaces the TN833. A new CLI value of 800019 hex is introduced.

The feature number for this feature is 97-5E-2895.

See also Division 2, Section 9I for information on the LDSF technology upgrade for the SM-2000.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIM	5700	8	2	18.1
Equipment Assignment	N/A	8	1	N/A

EQIM form (5700 Record) - This form is used to define the Digital Service Circuit for the SM. The CLI value is used to define the appropriate pack.

Equipment Assignment - This TG-5 section contains the CLI information.

SEC. 7S: SMP23CDMX PROCESSOR MEMORY EXPANSION

1. FEATURE DESCRIPTION

The SMP23CDMX feature is available with the 5E12 and later Software Release as a 5E10 and 5E11 Software Update. This feature creates a version of the SMP23CDM with the ability to address memory beyond the 32MB (on the core board of the TN1423) without an MEU (Memory Expansion Unit). This capability is applicable for the SM (non-SM-2000) environment. The increase-in-addressability is achieved by adding the TN1418 (Bootstrapper) board, the TN1408(B) (Memory Controller) board, plus the expanded update bus cable set.

The feature number for this feature is 99-5E-4141.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIM	5700-1/2	8	2	18.1
Equipment Assignment	N/A	8		N/A

EQIM form (5700 Record) - This form is used to define SM (Switching Module) assignments. The IMPU field is used to define the desired memory processor circuit packs.

Equipment Assignment - This TG-5 section is used to document CLI values. Refer to Division 8, Section 1.

SEC. 7T: PSU CAPACITY EXPANSION

1. FEATURE DESCRIPTION

The PSU (Packet Switching Unit) Capacity Expansion feature is available with the 5E12 and later Software Releases. It increases the number of time slots available between the SM-2000 Switch TSIU (Time Slot Interface Unit) and each PSU shelf from 128 to 768.

This feature provides an increase in the traffic capacity of the PSU2. This results in more circuit packs being equipped per PSU2, resulting in fewer PSU2 and SM-2000 units being equipped in an office to serve a given traffic load. With this feature, one new circuit pack is employed, the DF2 (Data Fanout 2) UN592.

The feature number for this feature is 99-5E-3411.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741-1/2	8	22	22.2
Equipment Assignment	N/A	8	1	N/A

EQPSU form (5741 Record) - This form is used to define PSUs equipped in an 5ESS-2000 Switch. Three new fields were added to define time slot information.

Equipment Assignment - This form is used to define CLI values for circuit packs. A cli value was added for the new UN592 circuit pack.

SEC. 7U: MCTU3 ON CM1

1. FEATURE DESCRIPTION

The MCTU3 On CM1 (Communications Module 1) feature is available with the 5E12 Software Release and as a SU (Software Update) for 5E10 and 5E11.

This feature provides the capability to equip the MCTU3 in a CM1 office. Three new circuit packs were introduced to indicate the MCTU3 core board version that allows use with a CM1: KBN20B, KBN21B, or KBN22B, replacing KBN20, 21, and 23, respectively.

The feature number for this feature is 97-5E-4169.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIM	5700	8	2	22.1
Equipment Assignment	N/A	8	1	N/A

EQIM form - This form is used to make equipment assignments and to assign CLI values. CLI values for the IMPU field on the EQIM form were updated for the MCTU3 on CM1 feature.

Equipment Assignment - This section of the TG-5 is used to document CLI values.

SEC. 7W: 4-WIRE FXO LINE VIA DFI

1. FEATURE DESCRIPTION

The 4-Wire FXO (Foreign Exchange Office) Line Via DFI (Digital Facility Interface) is available with the 5E12 and later Software Releases and as a 5E10 and 5E11 Software Update. This feature provides a 4-wire (T1) FX (Foreign Exchange) service from a digital port on the DFI without the use of FXO type channel units. With this feature, the 5ESS-2000 Switch provides A and B bit signaling from the DFI to remote terminal FXS (Foreign Exchange Subscriber) type channel units.

The feature number for this feature is 99-5E-2536.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LCC	5306	3	3S	4.1
TIMING	5520	3	5T	8.5
LINE	5109	3	1I	1.6

LCC form (5306 Record) - The Line Class Code form is used to define the type of service classification assigned to a TN (Telephone Number) line. To activate this feature, the following field parameters must be set:

SERVCL = "4WINDIV"
TERM = "INDIV"

TIMING form (5520 Record) - The Digit Analysis Timing form is used to assign miscellaneous timing parameters for a TN. To activate this feature, the following field parameters must be set:

ORIG = "4WINDIV"
START SIGNAL = "GRND" or "LOOP"
SIGNAL TYPE = "TT"
CRIT = "4"
PART DL = "20"
PERM SIG = "20"
OVLDT PART DL = "10"
OVLDT PERM SIG = "10"

LINE form (5520 Record) - The Line form is used to define miscellaneous line parameters. To activate this feature, the following field parameters must be set:

RTNRNG = "4W24" or "4W0FF"
PRITYRNG = "4W1650" or "4W350"
INSTRSIG = "GRND" or "LOOP"

SEC. 7X: SS7 PSU MAINTENANCE/RELIABILITY ENHANCEMENTS

1. FEATURE DESCRIPTION

The feature number for the SS7 (Signaling System 7) PSU (Packet Switching Unit) Maintenance/Reliability Enhancements feature is 99-CP-4246.B. This feature is available with the 5E13 Software Release.

This feature provides three enhancements to the SS7 PSU signaling platform to achieve feature parity with capabilities offered on the CNI (Common Network Interface) signaling platform. These enhancements are as follows:

- Elimination of False Link Congestion
 - Network providers and vendors have experienced situations where a link or link set remains in service while transmitting few or no service supporting messages. The consequence of this problem is that the link or link set can become severely congested.
 - The CNI MTP (Message Transfer Part) software supports link congestion status procedures that will take a link out of service and restart it if it remains in a particular congestion level for a given time interval.
 - SS7 PSU MTP software should be enhanced to support this capability.
- Improved SLT (Signaling Link Test) Procedures
 - The SLT verifies physical link assignments, such as terminating on the correct signaling point, and can detect looped links and other irregularities in the operation of a link.
 - In the 5E11 Software Release, a feature, Improved SLT Procedures, enhanced the CNI MTP procedures to always send the same test pattern in a second SLT as was sent in the first SLT. This allows a failed link to be put into service quicker in the event that an acknowledgment to the first SLT was delayed.
 - CNI MTP Procedures were also enhanced to continue to send the SLT in the event that link congestion was encountered. Because of the SLT tests for loops and link irregularities, the test would then not fail when there is congestion on the link or processing delays.
 - SS7 PSU MTP software currently supports the ability to send the same test pattern in a second SLT as was sent in the first SLT. SS7 PSU software should be enhanced to support the sending of SLT even if the link is encountering congestion. Based on prior contractual commitments, the sending of SLT during congestion should be secured.
 - The 5ESS-2000 also allows the craft to enter an input command that inhibits/allows a periodic SLT to be run. The command should be enhanced to allow the customer to specify whether periodic SLT should be inhibited/allowed to run for a specified CCS (Common Channel Signaling) Global SM.
- SL (Signaling Link) Failure / T19 Timer Support
 - When a CNI signaling link fails, Level 3 timer T19 is started. If timer T19 expires before the link is returned to service, a report is generated to alert the craft that the link has not returned to service.
 - SS7 PSU MTP software should be enhanced to support this capability for its STPHs (Signaling

Terminal Protocol Handlers).

These enhancements are applicable to the 5ESS-2000, CDX (Compact Digital Exchange) and VCDX (Very Compact Digital Exchange) Switches.

2. FEATURE ASSIGNMENT

For 5E13 and later, to provision this feature the following steps must be done:

- Define a GSM (Global Switching Module) on the CCGSM form.
- Add Bunny-Hop using the MDLNK form.
- Update GSM parameters on the CC7PR form.
- Define GSM Data Rate Timers on the CCPDL form.
- Define Link Set on LNKSET form.
- Create Combined Link Set on the CLKSET form.
- Create Link Set Members on the CCLNK form.
- Add trunk members on TRUNK form.

See provisioning form flow on Figure 1.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
CC7PR	6001	9	10A	16.2
OFCOPT	5509	3	5I	8.15

CC7PR form (6001 Record) - This form is used to specify and update the CCITT7 office parameters and MTP level 3 timers. For 5E13 and later, 2 new fields (FALSE LINK CONG and FAILED LINK REF) are being added.

OFCOPT form (5509 Record) - This form supplies various miscellaneous office options and parameters. For 5E13 and later, one new field (FLCONG LVL 1) is being added.

4. GLOSSARY

CDX	Compact Digital Exchange
CNI	Common Network Interface
MTP	Message Transfer Part
PSU	Packet Switching Unit
SL	Signaling Link

SLT	Signaling Link Test
SS7	Signaling System 7
STPH	Signaling Terminal Protocol Handler
VCDX	Very Compact Digital Exchange

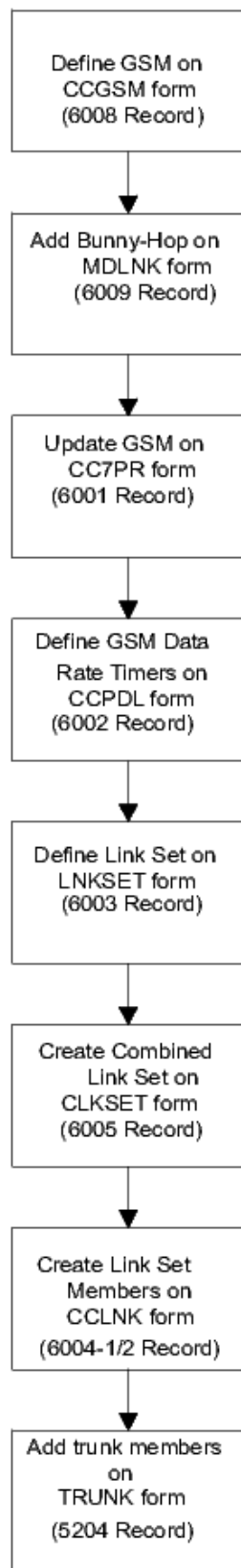


Figure 1 SS7 PSU MAINTENANCE/RELIABILITY ENHANCEMENTS FORM FLOW

SEC. 7Y: SS7 PSU MTP AND SCCP ROUTE VERIFICATION TESTS

1. FEATURE DESCRIPTION

The feature number for the SS7 (Signaling System 7) PSU (Packet Switching Unit) MTP (Message Transfer Part) SCCP (Signaling Connection Control Point) Route Verification Tests feature is 99-CP-4246.E. This feature is available with the 5E13 Software Release.

This feature provides the capability for craft to verify the correctness of MTP and SCCP network data thru the use of new MRVT (MTP Routing Verification Test) and SRVT (SCCP Routing Verification Test) input commands.

MTP Routing Verification Test:

The MTP Routing Verification Test is intended to specifically address the problems of administering and maintaining the SS7 network. It is a means of verifying MTP routing data between SPs (Signaling Points) in an SS7 network. It confirms all MTP routes between an "initiating SP" (the initiator) and a "terminating SP" (the terminator) and reports the findings back to the initiator.

The MRVT checks the accuracy and consistency of the administrable MTP routing data at all the SPs involved in routing between a given source and a destination. Administrable routing data is "static" routing data that can be modified directly through a recent change mechanism.

SCCP Routing Verification Test:

The SCCP Routing Verification Test is an ANSI (American National Standards Institute) and ITU (International Telecommunication Union) standard OMAP (Operations Administration, Maintenance, and Provisioning) procedure that provides an SS7 protocol-defined set of procedures that are used for operation, maintenance and administration of SS7 signaling networks. The SRVT provides a mechanism for testing the SCCP GTT (Global Title Translation) data for accuracy, completeness, and consistency in the SS7 network and to sectionalize any routing problems discovered in the network.

The SRVT checks the static database SCCP routing data for a tested GT (Global Title). Static database routing data is different from dynamic routing data, which is the data that determines the routing in effect at a given time. The dynamic routing data is determined by the static routing database and the history of network outages and recoveries.

2. FEATURE ASSIGNMENT

For 5E13 and later, to provision this feature the following steps must be done:

- Define a GSM (Global Switching Module) on the CCGSM form.
- Add Bunny-Hop using the MDLNK form.
- Update GSM parameters on the CC7PR form.
- Define GSM Data Rate Timers on the CCPDL form.
- Define Link Set on LNKSET form.
- Create Combined Link Set on the CLKSET form.
- Create Link Set Members on the CCLNK form.

- Add trunk members on TRUNK form.

See provisioning form flow on figure 1.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
CCVRT	5025	9	10R	16.4

CCVRT form (5025 Record) - This form is used as a OMAP MTP and SCCP Route Verification Test initialization/support. For 5E13 and later, this is a newly added form to support this feature.

4. GLOSSARY

ANSI	American National Standards Institute
GT	Global Title
GTT	Global Title Translation
ITU	International Telecommunication Union
MRVT	MTP Routing Verification Test
MTP	Message Transfer Part
OMAP	Operations Administration, Maintenance, and Provisioning
PSU	Packet Switching Unit
SCCP	Signaling Connection Control Point
SP	Signaling Point
SRVT	SCCP Routing Verification Test
SS7	Signaling System 7

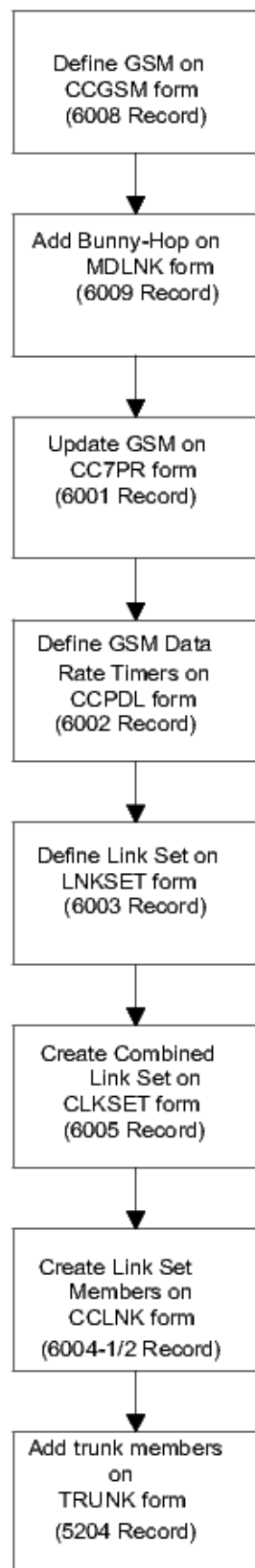


Figure 1 SS7 PSU MTP AND SCCP ROUTE VERIFICATION TESTS FORM FLOW

SEC. 7Z: DUAL ESA FOR E911 ON VCDX

1. BACKGROUND

Without the existing Dual ESA (E911 Service Adjunct) for E911 (Enhanced 911) feature, a single pair of E911 AP (Application Processor) data links is used to connect one ESA to a 5ESS-2000 Switch. This provides some redundancy in case of a communications failure on one link, however, it does not address a failure within the ESA or problems with both AP data links. The Dual ESA for E911 feature permits a single 5ESS-2000 Switch to interface with two ESAs for E911 selective routing service.

2. FEATURE DESCRIPTION

The Dual ESA for E911 on VCDX (Very Compact Digital Exchange) feature is available as a 5E12 Software Update. The feature number for this feature is 99-5E-4217. This feature permits a single 5ESS-2000 VCDX Switch to interface with two ESAs for E911 selective routing service. This improves the reliability of E911 service by allowing the use of a second pair of E911 AP links to a backup or secondary ESA. If communication with the primary ESA fails, the 5ESS-2000 VCDX Switch attempts to communicate with the secondary ESA via the second AP link pair. This prevents a failure with a single ESA (or its AP link pair) from interrupting E911 selective routing.

3. FEATURE ASSIGNMENT

For 5E12 and later, to enable this feature for VCDX, the ACT field on the SFSYS form for SFID (Secured Feature ID) 108 must be set to "Y".

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLAP	5963	6	6A	24.7
SFSYS	5713-1	3	5AR	8.22

DSLAP form (5963 Record) - This form is used to define the data links connecting an AP and the 5ESS-2000 Switch. For 5E12 and later, a data rule was removed for the SEC E911 SITE field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is activated for VCDX by setting the ACT field for SFID 108 to "Y".

SEC. 7AA: VCDX TO 5ESS-2000 CONVERSION

1. FEATURE DESCRIPTION

The VCDX (Very Compact Digital Exchange) to 5ESS-2000 Conversion feature is being deployed as a Software Update to 5E12. The feature number for this feature is 99-5E-3849.

This feature provides a set of instructions to convert a VCDX to a 5ESS-2000 Switch with minimal call processing down time. If a VCDX on an older Software Release needs to be converted, the VCDX will need to retrofit to 5E12 before initiating the conversion procedures.

These procedures support:

- conversion to a 3B21 AM (Administration Module) with CM2 (Communication Module Model 2), and does not support conversion to a 3B20 with CM2 or conversion to a CDX (Compact Digital Exchange)
- VCDX SM (Switching Module) conversion to an LSM (Local SM), and does not support VCDX SM conversion to an RSM (Remote SM), HSM (Host SM), or TRM (Two Mile Optically Remoted Module).

These procedures do not support office growth. All planned growth including QLPS (Quad Link Packet Switch) is done after successful conversion.

For conversion procedures, see:

235-120-120-Issue 4.00 A - Very Compact Digital Exchange User's Guide, Appendix 8: VCDX to 5ESS-2000 Switch Conversion, and

SIG-C-WU-100 - 5ESS-2000 Switch Growth/Degrowth/Conversion - U.S. Software Releases, Section 9602.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQCORE	5701	8	3	17.1 17.14

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments. Added a new data rule.

SEC. 7AB: CDX TO 5ESS-2000 CONVERSION

1. FEATURE DESCRIPTION

The CDX (Compact Digital Exchange) to 5ESS-2000 Conversion feature is being deployed as a Software Update to 5E11 and 5E12. The feature number for this feature is 99-5E-3892.

This feature provides a set of instructions to convert a CDX to a 5ESS-2000 Switch. Converting means replacing an existing CDX's CM2C with a newly installed two cabinet Dual Fabric CM2 (Communication Module Model 2).

The hardware for the new CM2 should be completely installed. The office must be running on the 5E11 or 5E12 Software Update required for this feature. The procedures follow the LTG (Large Terminal Growth) process throughout the conversion. There are certain "stop points" during the LTG that are used to integrate the new CM2 hardware and run diagnostics. This activity should be scheduled during off peak traffic times. During testing of the new CM2, the system will experience periods of simplex operation but duplex operation is attainable via the backout procedures. Cutover to the new CM2 hardware will be made to one side initially and should remain in simplex mode for 30 minutes before cutting over the other side. Continuous on-site coverage by the Operating Company is required during this phase.

For conversion procedures, see:

235-120-020-Issue 3.00 - CDX (Compact Digital Exchange) User's Guide, and

SIG-C-WU-100 - 5ESS-2000 Switch Growth/Degrowth/Conversion - U.S. Software Releases, Section 9603.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQCORE	5701	8	3	17.1 17.14

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments. Added a new data rule.

SEC. 7AC: VCDX ADDITIONAL SERIAL PORTS

1. BACKGROUND

Additional ports for RC/V (Recent Change and Verify) and STLWS (Supplementary Trunk Line Work Stations) terminals are needed for the increased OA&M (Operations, Administration, and Maintenance) activity on the 5ESS-2000 Switch VCDX (Very Compact Digital Exchange). Without this feature, there are 6 asynchronous serial RS-232 ports available. This feature increases the number of available asynchronous serial R2-232 ports from 6 to 14. This allows the service provider to increase efficiency in assigning services.

2. FEATURE DESCRIPTION

The VCDX Additional Serial Ports feature is available as a 5E12 Software Update. The feature number for this feature is 99-5E-4085. The new port assignments made available by this feature are described in the following table.

PORT ASSIGNMENTS				
S/PI NO	AW SBUS SLOT NO	SPC PORT	TTY TERMINAL	EXISTING OR NEW
0	3	Parallel	ROP0	Existing
0	3	2	TTY9	Existing
0	3	3	TTY10	Existing
0	3	4	TTY11	Existing
0	3	5	TTY12 or TTY21	Existing
0	3	6	TTY13 or TTY07	Existing
0	3	7	TTY14 or TTY43	Existing
1	1	0	TTY28 or TTY18	New
1	1	1	TTY29 or TTY19	New
1	1	2	TTY30	New
1	1	3	TTY31	New
1	1	4	TTY32	New
1	1	5	TTY33	New
1	1	6	TTY34	New
1	1	7	TTY50	New

AW = Administrative Workstation

ROP = Read Only Printer

SBUS = Small Computer Interface Bus

SPC = Serial Parallel Controller

SP/I = Serial Parallel Interface Controller

TTY = Teletype

The VCDX Additional Serial Ports feature requires the following:

- new hardware
- a second Sun Microsystems SPC (Serial Parallel Controller) card
- a second mounting bracket for the additional patch panel
- an additional cable
- additional patch panel

The new hardware can be ordered from the Lucent Technologies drawing number ED5D764-30 Group 4A. For procedural information on the installation and growth of the new hardware, see document 235-120-120, *Administrative Workstation (AW) Serial Parallel Interface Controller (SPC) Growth*, in the *5ESS-2000 Switch VCDX User's Guide*.

To perform STLWS and RC/V growth, see also the Human Interface procedures in the *5ESS-2000 Switch VCDX User's Guide*, document 235-120-120. These procedures provide a method to grow RC/V or STLWS terminals on the 5ESS-2000 Switch VCDX.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	Not Applicable

ECDOPT form (5706 Record) - This form is used to define Administration Module options for all offices. For 5E12 and later, VCDX/SPC and VCDX/HSI Device Type Restrictions tables were added for the VCDX field, and the new field, VCDX ADDITIONAL SERIAL PORTS was added.

SEC. 7AD: VCDX LOOP-AROUND INTRA-MODULE TRUNK

1. FEATURE DESCRIPTION

The VCDX Loop-Around Intra-Module Trunk feature is available as a 5E13 Software Update. It allows the SM-2000 Switch the capability of full interworking between local and toll software platforms and allows a call originating on a line to access long distance platform toll features such as the LDP (Long Distance Platform) ANI (Automatic Number Identification) table.

The feature number for this feature is 99-5E-4360.

2. FEATURE ASSIGNMENT

The single-SM loop-around IMT (Intra-Module Trunk) must have a network indicator of 000 populated in the first three digits of the POINT CODE field on the PC form (6006 Record).

The single-SM loop-around IMT must have its DPC (Destination Point Code) and OPC (Originating Point Code) populated in the DEST PT CODE field on the TKGRP form (5202 Record) in the format of 000sss255 or 000255sss, where :

- 000 = network indicator,
- sss = number of the switching module on which both ends of the loop-around trunk reside,
- 255 = indicates that the loop-around trunk is on a single SM.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PC	6006	9	10F	16.10
TKGRP	5202	3	2A	5.1

PC Form (6006 Record) - This form is used to define the point code and alternate link set routing for PSUs. New point codes were added for the IMT.

TKGRP Form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. New point codes were added for the IMT.

SEC. 7AE: ISUP7 LOOP-AROUND INTRA-MODULE TRUNK

1. FEATURE DESCRIPTION

The ISUP7 (ISDN User Part 7) Loop-Around Intra-Module Trunk feature is available as a 5E13 Software Update. It allows the SM-2000 switch the capability of full interworking between local and toll software platforms and allows a call originating on a line to access long distance platform toll features such as the LDP (Long Distance Platform) ANI (Automatic Number Identification) table. This feature is applicable to the VCDX (Very Compact Digital Exchange), the CDX (Compact Digital Exchange), and all generics of the 5ESS switching module. In each of these applications, at least one SM-2000 Switch must exist. For example, with the VCDX application, one SM-2000 Switch is allowed. In the CDX application, up to 6 SM-2000 Switches are allowed. In the 5ESS-2000 application, 192 SMs (Switching Modules) are allowed, but at least one must be an SM-2000 Switch.

The feature number for this feature is 99-5E-7213.

2. FEATURE ASSIGNMENT

The single-SM loop-around IMT must have its DPC (Destination Point Code) and OPC (Originating Point Code) populated in the DEST PT CODE field on the TKGRP form (5202 Record) in the format of 000sss255 or 000255sss, where:

- 000 = network indicator,
- sss = number of the switching module on which both ends of the loop-around trunk reside,
- 255 = indicates that the loop-around trunk is on a single SM.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP Form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. New point codes were added for the IMT.

NOTE: For the ISUP7 IMT application, the PC form (6006 Record), which must be defined for the VCDX Loop-Around Intra-Module feature, is not required.

SEC. 7AF: ADSL ON THE AIU/BROADBAND BACKPLANE FOR THE AIU

1. FEATURE DESCRIPTION

The ADSL (Asymmetric Digital Subscriber Line) on AIU (Access Interface Unit) and the Broadband Backplane for the AIU features are available as a Software Update for the 5E11, 5E12, and 5E13 Software Releases and are included in the 5E14 and later Software Releases.

ADSL Network Services on the 5ESS-2000 Switch provides more data bandwidth over existing copper loop equipment to provide more efficient transport of data traffic. It allows subscribers to send and receive data on their analog telephone line without interfering with their voice telephone service.

The following features provide this capability:

- ADSL on the AIU (99-5E-3847) provides support for ADSL APs (Application Packs) on the AIU. The OAM&P for the ADSL service is done via the Element Manager, a management system that communicates directly with the AIU, not the switching module.
- Broadband Backplane for the AIU (99-5E-4473) adds a broadband backplane to the AIU. This permits ADSL APs in the AIU to exchange information with the AFM (ATM Feeder Multiplexer) over a broadband backplane interconnection.

2. TRANSLATION REQUIREMENTS

To provide ADSL to a subscriber, the switch must be equipped with a BAIU (Broadband AIU), the BAIU must be equipped with an AFM, and the subscriber's line must be connected to an ADSL AP on a BAIU.

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AIU	5745	8	64	19.16
AIUP	5746	8	65	20.16
LINE	5109	3	11	1.6

AIU form (5745 Record) - This form is used to define the AIU unit. The BROADBAND field was added to define whether Broadband is allowed.

AIUP form (5746 Record) - This form is used to define AIU packs. The following TYPE entries were added to support ADSL:

Valid TYPE Entries for ADSL	
Entry	Definition
AIGLC	5E11-5E12 Software Update: Asymmetric Digital Subscriber line pack.
AIGLP	5E11-5E12 Software Update: ATM Feeder Multiplexer pack.
[AIUAD]SLLP	5E13 Software Update and 5E14 and later Software Releases: Asymmetric Digital Subscriber Line pack.
[AIUAF]M	5E13 Software Update and 5E14 and later Software Releases: ATM Feeder Multiplexer pack.

LINE form (5109 Record) - This form is used to define the customer subscriber line. The appropriate OE

entries must be defined.

SEC. 7AG: SS7-PSU ARCHITECTURAL ENHANCEMENTS

1. FEATURE DESCRIPTION

The SS7 - (Signaling System 7) PSU (Packet Switch Unit) Architectural Enhancements feature is available with the 5E15 Software Release. The feature number is 99-CP-4246.

This feature is one of several features that are a part of the PSU based SS7 signaling platform. Figure 1 provides a high level statement describing the function of each feature. Note that dependencies exist between these features and that SFID 522 (97-CP-4246.A) is required to achieve full functionality. Please refer to the TG-5 sections referenced in Figure 1 for more detailed information on each of these related features. The remainder of this section provides information for the 99-CP-4246 base feature.

The primary function of the 99-CP-4246 feature is to provide a messaging architecture between the NGSM-2000 (non-Global SM-2000) and GSM-2000 (Global SM-2000) to allow a NGSM-2000 SM to send/receive SS7 signaling messages to/from a Host GSM-2000. The messaging path used between the NGSM-2000 and the GSM-2000 which utilizes the QLPS (Quad-Link Packet Switch) as follows:

For NGSM-2000 to GSM-2000, the path is SMP (Switching Module Processor -> MH (Message Handler) -> QLPS (Quad-Link Packet Switch) -> QPH (QLPS Protocol Handler) -> STPH (Signaling Terminal Protocol Handler).

For GSM-2000 to NGSM-2000, the path is STPH -> QPH -> QLPS -> MH -> SMP.

The messaging architecture chosen for this feature leverages the MH on a SM-2000 to allow NGSMs to communicate with the GSM-2000. The (fault free) communication path is as follows:

For NGSM to GSM-2000, the path is SMP -> MMP (Module Message Processor) -> MSCU (Message Switch Control Unit) -> QGP (QLPS Gateway Processor) -> S (Switch) -> MH -> QLPS -> QPH -> STPH.

For GSM-2000 to NGSM, the path is STPH -> QPH -> QLPS -> MH -> S -> QGP -> MSCU -> MMP -> SMP.

It should be noted that a CNI or Island GSM (an Island GSM is a GSM that does not support NGSMs) can coexist with a Host GSM-2000 in the same office.

For provisioning information, refer to Figure 2.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CMTMH	6021	9	10U	16.16
EQUIPE	5544	8	78	17.20
EQQLPS	5854	8	56	17.19
PSULINK	5057	7	2A	22.22
QPHPIPE	5828	8	70	17.24
TKGRP	5202	3	2A	5.1

CMTMH form (6021 Record) - This form defines which message handler will be used for CCS (Common Channel Signaling) message transport for communication between a GSM and NGSM. New form for this feature.

EQUIPE form (5544 Record) - It is used to assign QLPS (Quad-Link Packet Switch) MH (Message Handler)

pipes in an SM-2000 office. Added data rule to the SM field.

EQQLPS form (5854 Record) - It is used to define a QLPS (Quad-Link Packet Switch) board. Added data rule to the EQSTAT field.

QPHPIPE form (5828 Record) - This form provides the basic description of the SM (Switching Module) side of the QLPS (Quad-Link Packet Switch) pipe connecting the QPH (QLPS Protocol Handler) to the QLPS network. New form for this feature.

FEATURE NUMBER	FEATURE NAME	DESCRIPTION
99-CP-4246	SS7-PSU Architectural Enhancements	Software Release: 5E15 and later. Enhances the SS7 messaging architecture within the switch so that a PSU on a Host Global SM-2000 can support the SS7 signaling to or from any SM in the office. See Division 2, Sec. 7AG.
97-CP-4246.A	SS7-PSU MTP Routing Enhancements	Software Release: 5E15 and later. Adds the CNI functionality to the PSU platform to allow routing data without full point code definitions. Allows provisioning of the primary point code plus up to 15 additional alias point codes. This is a secured feature (SFID 522). See Division 2, Section 4A522.
99-CP-4246.B	SS7-PSU Maintenance/Reliability Enhancements	Software Release: 5E13 and later. Enhances the maintenance procedures. See Division 2, Section 7X.
99-CP-4246.E	SS7-PSU MTP and SCCP Route Verification Tests	Software Release: 5E13 and later. Enhances verification of MTP and SCCP network data. See Division 2, Section 7Y.
97-CP-4246.G	SS7-PSU Call Processing Supporting TCAP	Software Release: 5E15 and later. Enhances the ISUP (Integrated Services Digital Network User Part) and TCAP (Transaction Capability Application Part) capabilities to support a Host GSM (Global Switching Module). See Division 2, Section 7AV.
97-CP-4246.H	Link/MTP Measurements For SS7/PSU	Software Release: 5E15 and later. Enhances TRFC30 measurement reports. See Division 2, Section 7AX.
97-CP-4246.I	Wireless Support of SS7/PSU	Software Release: 5E15 and later. Provides the wireless functionality interface. See Division 2, Section AY.
97-CP-4246.L	SS7-PSU Terminal Maintenance	Software Release: 5E15 and later. This feature provides enhancements to Terminal Maintenance to support the base feature. See Division 2, Section 7AW.
97-CP-4246.K	SS7-PSU Link Enhancements	Software Release: 5E14 and later. Enhances Signaling Link Selection capability. See Division 2, Sec. 7AH.
97-CP-4246.M	SS7-PSU ISUP Support	Software Release: 5E15 and later. Enhances 5ESS ISUP call processing capabilities to support message transport between a host GSM which is equipped with a PSU, and a NGSM which needs the PSU to transport messages to the network. See Division 2, Section 7AO.
97-CP-4246.N	SS7-PSU Inter/Intra Module Trunk Enhancements	Software Release: 5E15 and later. Provides provisioning capability of SS7 Intramodule trunks on 5ESS Switches using an OPC provisioned with a GSM

		point code and related enhancements. See Division 2, Section 7AT.
99-5E-4246/99-5E-4302	Protocol Handler 22 Base System	Software Release: 5E14 and later. Provides PH22 software for signaling equipment. See Division 2, Section 5L.

- 1) The following features depend on the Protocol Handler 22 Base System (99-5E-4246/99-5E-4302) feature:
99-CP-4246, 4246.A, G, H, I, L, K, M, N.
2) 97-CP-4246.H depends on 97-CP-4246.A.

Figure 1 SS7-PSU FEATURE LIST

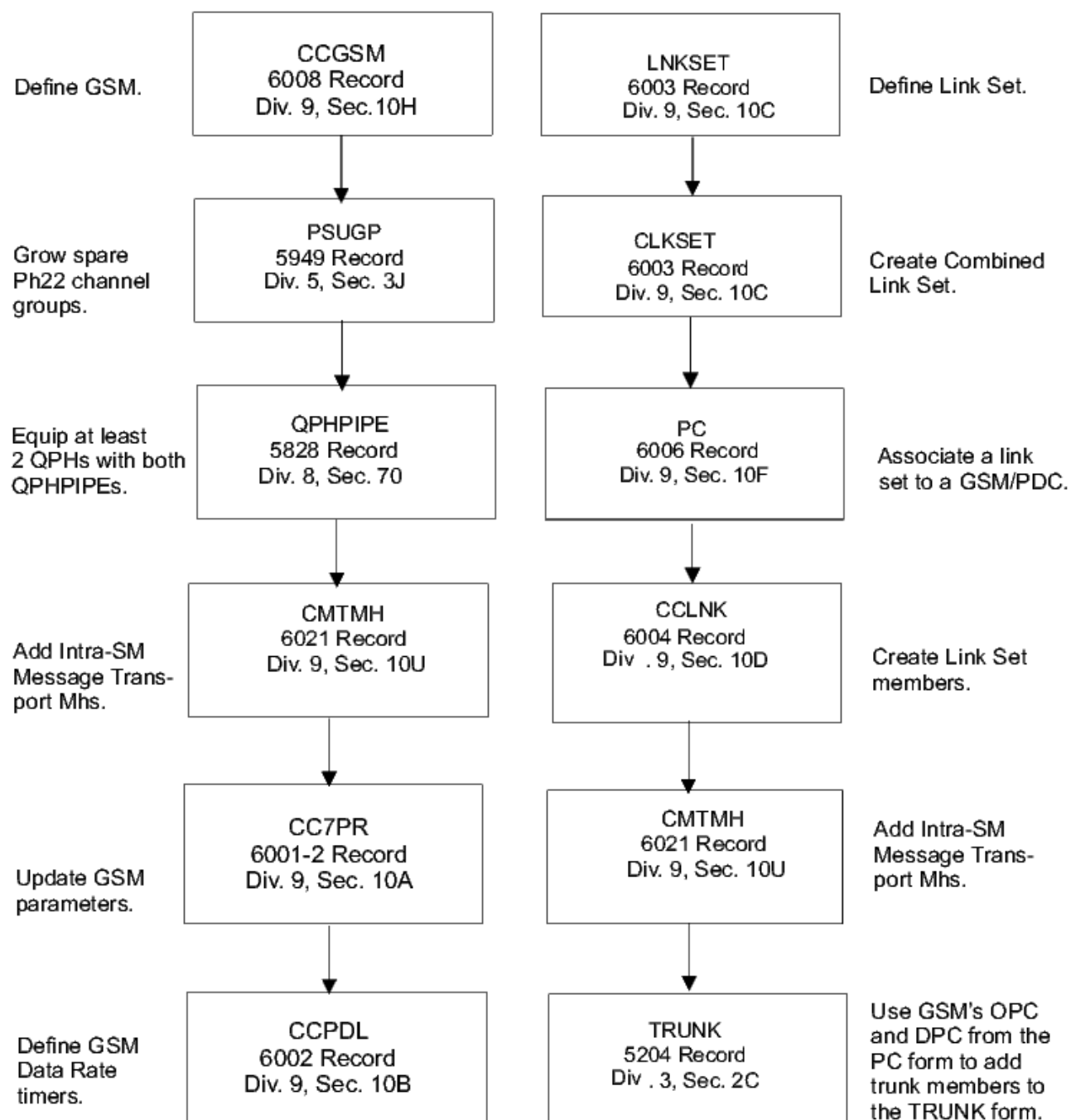


Figure 2 FORM FLOW FOR SS7 PSU ARCHITECTURAL ENHANCEMENTS FEATURE HOST GSM GROWTH PROVISIONING

SEC. 7AH: SS7 PSU LINK ENHANCEMENTS

1. FEATURE DESCRIPTION

The SS7 (Signaling System 7) PSU (Packet Switch Unit) Link Enhancements feature is being deployed in the 5E14 Software Release. This feature is dependent upon the secured feature (SFID 175 (Expanded SLS)). For more information, see Division 2, Section 7AH. The feature number for the SS7 PSU Link Enhancements feature is 97-CP-4246.K.

This feature implements a set of enhancements. Each enhancement is described as follows:

SLS (Signaling Link Selection) Code Expansion

- The number of SLS codes will be expanded to those specifically using the full 8-bit SLS field in ANSI (American National Standards Institute) MSUs (Message Signal Units), or 256 SLS codes. The current 5-bit SLSs, supporting 32 SLS codes, will also continue to be supported.

By default, 5-bit SLS codes will be used (the Expanded-SLS feature will be disabled). Either the 5 or 8 bit SLS mode can be selected on a per-GSM (Global Switching Module) basis.

SLS code expansion will be a secured feature - that is, it will be necessary to enter a secured feature password before 8-bit SLSs can be used.

The finer granularity allowed by 8-bit SLS codes will allow traffic distribution that is more even than is possible with the existing 5-bit SLS.

It will not be possible to enable the 8-bit SLS mode unless all CCS (Common Channel Signaling) PHs (Protocol Handlers) are of hardware type PH22. This is necessary due to the large increase in PH memory usage necessitated by this feature. Either PH22s or PH3s can be used if the 8-bit SLS mode is not enabled (i.e., if "sls expansion" is disabled).

Even SLS Distribution Upon Changeback

- The international feature (i1312-145), "Even SLS Distribution Upon Changeback", is being ported to 5E14(1) from 5EE12(1) as part of this feature. When this even distribution ability is combined with the finer granularity of 8-bit SLSs, it is expected that the traffic distribution will be much more evenly distributed across the links in a linkset or combined linkset than is currently achieved in either the CNI (Common Network Interface) in the NAR markets or by the similar algorithm in the 5EE12(1) environments (where a 4-bit SLS is used in non-ANSI applications).

Currently, in pre-5E14(1) generics, the PSU Platform CCS does not achieve even SLS distribution upon changeback. This is also true in pre-5EE12 international generics. When changeback occurs (when a signaling link becomes available), only the normal SLSs are assigned to the link coming up in the current NAR and international implementations. This simplistic treatment results in uneven SLS distributions when equipped (grown) links in a linkset or combined linkset are not all available (active). This deficit is being repaired as part of this feature (by porting the international (i1312-145) feature).

When changeback or changeover occurs, after this feature is implemented, even distribution of the SLSs within the affected linksets and combined linksets will be achieved. Even distribution of the SLSs means that the difference between the number of current SLSs assigned to one link and the number of current SLSs assigned to any other link will differ by no more than 1. Even distribution of SLSs does not guarantee even distribution of traffic (this depends also on network engineering,

including routing provisioning and usage patterns).

Each signaling link has both "current" and "normal" SLSs. Current SLSs are what are actually used to distribute traffic - they are dynamically assigned depending on normal SLSs for that link, and depending on the link state and link priority. In NAR, the only priority is priority 1, so link priority does not need to be considered. Once this feature is implemented, the current SLSs will also depend on how many SLSs are assigned to each of the other links in the linkset or combined linkset of interest. The current SLSs are equal to the normal SLSs if every equipped link in the linkset or combined linkset is available. The normal SLSs are static and depend only on the number of equipped links within the linkset or combined linkset. Each time a link is inserted or deleted from a linkset or combined linkset, the normal SLSs for that linkset or combined linkset are recomputed for all members of that linkset or combined linkset.

Normal SLSs are evenly distributed within linksets for all load sharing algorithms, including ANSI (when viewing ANSI/NAR as one variation of CCITT7 (CCITT Common Channel Signaling System Number 7)). This is true in both international and NAR generics. However, the ANSI version of normal SLS distribution is different than non-ANSI for combined linksets. The current ANSI algorithm for distributing normal SLSs for combined linksets does not distribute evenly across all links in combined linksets - only within the member linksets. This is being changed as part of this feature.

For the purposes of this feature, even distribution of SLSs within a linkset or combined linkset means that each link within a linkset or combined linkset will have the same number (or differing by no more than 1) of SLSs as other links within that same linkset or combined linkset. This is what the requirements demand and the standards imply. For references, see [FSD95010027], [ANSI.111]. This results in even distribution according to bandwidth rather than according to path. Each link gets the same load and each link has the same bandwidth. The load is evenly distributed across the available bandwidth if the links are reasonably allocated to PHs. If half of the traffic is allocated within each component linkset of a combined linkset, the traffic is distributed evenly across the routes but not across the links - this is not the required manner of distribution.

Increasing Number of Linkset Members

Adding the Labeling of Links (A, E, or F)

Supporting ISUP Call Throttling

- Providing a method of throttling ISUP (ISDN (Integrated Services Digital Network) User Part) calls during unavailability or overload. This capability will be implemented in the PHs (PH3,PH22). The unavailability checked will be that of the NGSM (Non-Global Switching Module) owning the trunk involved in the call. The overload checked will be that of the trunk NGSM or congestion/overload of the path to that trunk's NGSM.

2. FEATURE ASSIGNMENT

For 5E14 and later, in order to provision this feature, there are three different types of provisioning actions that can be followed:

Global SM Provisioning

- This feature is dependent upon the Expanded SLS feature, therefore, before this feature can be used,

the ACT field for SFID 175 on the SFSYS form (5713-1 Record) must be set to "Y". For more information, see Division 2, Section 4A175 of the TG-5 (Translation Guide 5).

Signaling Link Provisioning

- The CCLNK form (6004 Record) allows provisioning of 16 link members per linkset.

Signaling Linkset Provisioning

- The LINK TYPE field on the LNKSET form (6003 Record) can be used to provision A/E/F links.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCGSM	6008	9	10H	16.1
CCLNK	6004	9	10D	16.6
CLKSET	6005	9	10E	16.7
LNKSET	6003	9	10C	16.5
SFSYS	5713-1	3	5AR	8.22

CCGSM form (6008 Record) - This form is used to specify data used for the global switching module. Added the EXPANDED SLS field.

CCLNK form (6004 Record) - This form is used to display the CCS7 (Common Channel Signaling System No. 7) link sets and members. Added a data rule to the GSM field.

CLKSET form (6005 Record) - This form is used to used to define the link sets that comprise the combined link set. Modified the VALID ENTRIES section for the MEMBER field.

LNKSET form (6003 Record) - This form is used to define CCS7 signaling sets. Added the LINK TYPE field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature is dependent upon the Expanded SLS feature, therefore the ACT field for SFID 175 must be set to "Y" before this feature can be activated.

SEC. 7AI: PSU RELIABILITY ENHANCEMENTS

1. FEATURE DESCRIPTION

This feature will be released in two phases. The first phase, PSU (Packet Switch Unit) Critical Unit, will be available in the Beginning Managed Introduction of the 5E14 Software Release. The second phase, CCS (Common Channel Signaling) PH (Protocol Handler) Soft Switch, will be available in a 5E14 Software Update. The PSU Reliability Enhancements feature has feature number 99-5E-4553.

There are PSU applications that can be considered critical to call processing. Examples are PSUs that are used for Wireless and CCS applications. If PSUs in these applications duplex fail, there will be little call processing in that SM (Switching Module).

This feature introduces the concept of the PSU being designated a Critical Unit, similar to the MCTSI (Modular Controller Time Slot Interchange Unit). If a PSU is designated a critical PSU, the PSU is considered critical to the operation of the SM, and PSU fault recovery uses different strategies to restore service to the PSU. When a fault occurs on this PSU, fault recovery has more control over MCTSI/PSU configurations in order to try to find a working combination, and prevent the PSU from duplex failing. If these steps fail to restore service to the PSU, fault recovery escalates to one or more SM initializations attempting to restore PSU service.

Designating a PSU as a Critical Unit also allows the office technicians to use Force commands on PSU Service Groups. This allows customers to have more control over PSU configurations and a mechanism to prevent thrashing. The Force commands work similar to those used for the MCTSI.

If the PSU is not designated a Critical PSU, PSU fault recovery works as it currently does, which means that the PSU could duplex fail under severe fault conditions. The EQPSU (Packet Switching Unit Equipage) form defines whether or not a PSU is designated as a Critical PSU.

Phase Two of the PSU Reliability feature also provides soft switches for CCS PH applications. "Soft" means that the switch is not disturbing to customers, subscribers, or external equipment. With the introduction of CCS PH soft switch, PH soft switch will now be supported on all PH types. Because CCS PHs can now be soft-switched, CCS PHs will now be restored to the active state, instead of the standby state. Restoring CCS PHs to the active state allows CCS PHs to have Routine Exercises (REXs) performed on them the same way as non-CCS PHs, ensuring that REX runs on all PH types.

2. FEATURE ASSIGNMENT

Activation of this feature is dependent upon whether or not the PSU is considered critical for this SM. To activate this feature, the CRIT PSU field on the EQPSU form (5741-1/2) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741-1	8	22	22.2

EQPSU (5741-1/2) - This form is used to define PSUs equipped in a 5ESS-2000 Switch. For 5E14 and later, the CRIT PSU field and its data rule were added.

SEC. 7AJ: TNM INTERFACE ON VCDX

1. FEATURE DESCRIPTION

The TNM (Total Network Management) Interface on VCDX (Very Compact Digital Exchange) feature is being deployed for the BMI (Beginning Managed Introduction) of the 5E14 Software Release. The feature number is 99-5E-3397.

One of the functions of the TNM is to support the SCCS (Switching Control Center System) interface. The TNM Interface on VCDX feature provides the 5ESS Switch VCDX AW (Administrative Workstation) with a simplex TNM interface. This new TNM interface provides the capability to remotely monitor and administer the 5ESS Switch VCDX from a centralized location along with other VCDX and non-VCDX 5ESS Switches. This feature enhances network reliability center offerings.

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	Not Applicable

ECDOPT form (5706 Record) - This form is used to define Administration Module options for all offices.

SEC. 7AK: CMP Memory Expansion

1. FEATURE DESCRIPTION

For 5E13 and earlier, a standard CM2 is comprised of a core board (TN1800) and one auxiliary memory board (TN1369, with a CLI value of 01). Effective with the 5E14 Software Release, the CMP Memory Expansion (99-5E-4918) feature is available which requires two TN1369s. Although this feature also provides the option of equipping a third TN1369 (with a CLI value of 0d), a third board is not required for the 5E14 Software Release.

- CAUTION:** Note that **before performing the** retrofit procedure from 5E13 to 5E14, the CMP is **required to be equipped with at least two TN1369 boards - with a CLI value of 05**. Note also that no ODA checks (i.e., error messages) are provided to test for the second TN1369 during the retrofit. To implement this feature, a new field, NUMBER OF MEM BOARDS, is added to the EQCORE form (5701 Record). In addition, two new CLI values are implemented. (For reference, the 5E13 and earlier information is also shown below.)

5E13 and earlier: CLI 01, TN1800, plus 1 TN1369, J5D010AF-1, L4 or J5D020AF-2, L5

5E14: CLI 05, TN1800, plus 2 TN1369s, J5D010AF-2, L1A, L2B, L5A, L8

NOTE: Two TN1369s must be equipped prior to retrofitting to 5E14.

5E14: CLI d, TN1800, plus **Three TN1369s** (but not a requirement for 5E14), J5D010AF-2, L1A, L2B, L5A, L8

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQCORE	5701	8	3	17.11/17.14 17.16/17.17

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments. A new field, NUMBER OF MEM BOARDS, was added to define the appropriate number of memory boards, as follows:

2 = 1 TN1800, plus 2 TN1369s (CLI = 05)

3 = 1 TN1800, plus 3 TN1369s (CLI = d); allowed
but not required (available for future development).

Notes:

- Although the CM2 is translated on the EQCORE form, the documentation for the CLI information for this update is noted on the **EQPC** form in the CLI Table (see Division 8, Section 1).
- For Recent Change, this entry is translated on RC view 17.14 by setting PC TYPE to "CMP", and entering the appropriate CLI value as indicated above.

SEC. 7AL: FLEXIBLE ASSIGNMENT OF DCTU PORTS TO MMSU SHELVES

1. FEATURE DESCRIPTION

The Flexible Assignment of DCTU (Directly Connected Test Unit) Ports to MMSU (Modular Metallic Service Unit) Shelves feature is available with the 5E14 and later Software Releases. This feature provides additional MTIB paths to enhance availability of test setups in the MMSU. To reduce blockage caused by a lack of MTIB access to an otherwise available DCTU port, the following capabilities are provided:

- direct access to a DCTU port (not involving an MTIB) by every MMSU Half-Shelf
- a more flexible means to distribute DCTU ports among MMSUs
- access to using a Pair Gain Test Controller with minimal need for MTIBs

This capability is provided via a new metallic test bus cable capable of allowing each DCTU PMU port to access up to four MA (Metallic Access) packs (one MA pack on each shelf of an MMSU), where all shelves are within one service group, and where each MA pack is in the same relative board position on each shelf to relieve MTIB blockage. Thus, previously, only 1 DCTU/PMU port connected to 1 MA circuit pack via an MTB was allowed. With this feature, 1 DCTU/PMU port can be connected to (up to) 4 MA circuit packs, via a 1-to-4 fan-out MTB.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQMSU	5750	8	25	19.7
EQPMU	5752	8	27	20.9

EQMSU form (5750 Record) - This form is used to define MSU (Metallic Service Unit) assignments. A new field, FLEX DCTU CON, was added to indicate if the Flexible Directly Connected Test Unit Connection to the MSU is enabled.

EQPMU form (5752 Record) - This form is used to define PMUs (Precision Measurement Units) associated with the DCTU. Twelve new MTB fields were added to the existing 4 MTB fields. The MTB A0, B0, C0, and D0 are input fields. The remaining twelve MTB fields provide display-only, system-calculated data based on entries entered in the MTB A0, B0, C0, and D0 fields.

SEC. 7AM: AM/CMP MEMORY MINING**1. FEATURE DESCRIPTION**

The AM (Administrative Module/Communications Module Processor) Memory Mining feature is available with 5E14 and later Software Releases. This feature re-engineers appropriate software configurations to more effectively utilize AM and CMP memory.

The feature number for this feature is 97-5E-4722.

SEC. 7AN: GLOBAL MESSAGING SERVER

1. FEATURE DESCRIPTION

The Global Messaging Server (GMS) feature (previously named CM3 (Communication Module Model 3)) is being deployed in the 5E15 Software Release. The feature number for this feature is 99-5E-3228.

The purpose of this feature is to replace the Communication Modules, CM1 (Communication Module 1), CM2 (Communication Module 2), CM2C/CDX (Communication Module 2 Compact/Compact Digital Exchange) of the 5ESS Switch.

The GMS feature provides all of the functionality of an existing CM2, including:

- Dual Serial Channel Interface to the AM (Administration Module)
- Network Clock Distribution Function
- NCT/NCT2 Link Interconnections to SM-2000s (Switching Modules 2000)
- Equivalent TMS (Time Multiplexed Switch) functionality Between NCT Links
- TMS Controller functionality
- NCT Link Control Time Slot processing
- CPI (Central Processor Intervention) to the SM-2000s for Low-Level Reset and Hardware Control
- Message Switch functionality for 192 Odd and 192 Even 48 Kb/s Control Timeslots between SM-2000 SMs (Switching Modules) and to/from AM and All Other Messaging Endpoints of the CM2/CM2C/CDX
- CMP (Communications Module Processor) Functionality
- QLPS (Quad Link Packet Switch) functionality for Packet Switching of Message Pipes from the SM-2000 Message Handlers
- QLPS to AM or QLPS to Message Switch Interconnectivity Similar to the QGP (QLPS Gateway Processor) Function
- 32 Timeslot Pump Capability to the SM-2000s Similar to the PPC (Pump Peripheral Controller) Circuit on CM2

In addition, the GMS feature supports the following new functionality:

- 100 Mb/s dual Ethernet interface for connection to AM-2000 or ATM switch controllers
- Increased packet switch fabric (up to 1536 timeslots for SM-2000 message pipes and up to 512 timeslots for gateway links)
- Increased PPC (Pump Peripheral Controller) (up to 64 timeslot pump channels per even/odd fabric, as well as multiple pump streams)
- Increased termination capacity (up to at least 250K network timeslots)
- Increased message switch messaging capacity (up to at least 3 million BHCs (Busy Hour Calls),

contingent upon additional switch evolution work to support 3 million BHCs)

- Optional equipage of network clock oscillators
- ATM (Asynchronous Transfer Mode) center stage capability
- ATM DACS (Digital Access and Cross Connect System), ATM interworking, and ATM Switched Virtual Circuit call processing support

See Figure 1 for the GMS architecture.

1.1 Power PC Technology

The GMS is the first use of the Power PC processor in the 5ESS Switch. Current Power PC processors targeted for this project meet and exceed the projected processor real-time need of the GMS, and as the Power PC evolves, the GMS will be able to take advantage of real-time improvements of the processors' evolution. The Power PC processor also support hardware fault detection mechanisms.

1.2 Processor and Memory Growth

The GMS utilizes a single processor message switch. The decision to utilize a single processor message switch was made based on the real-time capacity of the PowerPC processor and its life-cycle stage, as well as hardware concerns such as COGS, real-estate, and power consumption.

Real-time and memory growth are provided by a redesign of the processor board.

2. FEATURE ASSIGNMENT

In order to provision the GMS feature:

EQCORE form (5701 Record)

- Set CM VINTAGE to 3 (for GMS).
- Set VCDX OFFICE to "N".
- Set MSGS CLI to 0.
- Set both LI CLI and MI CLI to 0.
- Set the NETWORK CLOCK UNIT CLI to 0.
- Set CLOCK TYPE to "NCLK3" or "SANC3".
- Set OSC TYPE to "CM3HI"
- Set AUTO SYNC to "Y".
- Set NC REF STAB to any valid value.

EQCM3 form (5867 Record)

- Set EQSTAT to "O".

NCLKREF form (5525 Record)

- Set CLOCK TYPE to "NCLK3" (when EQSTAT is set to "O").
- Set CLOCK TYPE to "SANC3" (when EQSTAT is set to "G" or "U").

EQTMS form (5866 Record)

- Set FABRIC TYPE to "DUAL" (for GMS).
- Set CLI to 500.
- Set EQSTAT for SHELF 0 (under SHELF EQUIPAGE - CM3) to "O".

EQTMLINK form (5851 Record)

- Set LINK to a number between 4 and 371 (for GMS).
- Set LINK TYPE to "NCT2" (when TRCU FIRST PATH HOST TYPE or TRCU NEXT PATH HOST TYPE on the EQTRCUPATH form (5814 Record) is "TRCU3").
- Set LINK TYPE to "NCT1" (when TRCU FIRST PATH HOST TYPE or TRCU NEXT PATH HOST TYPE on the EQTRCUPATH form (5814 Record) is not "TRCU3").
- Set QLI CLI to 0.
- Set EQSTAT to "O".

EQIM (5700 Record)

- Set UNIT TYPE to "SM2000" or "SM2005", or set SM USAGE to "RSM" (for GMS).

OFCOPT (5509 Record)

- Set COMMON CHAN SIG to "PSU".

EQQLPS (5854 Record)

► **NOTE:** Submit 4 EQQLPS forms, one per side, one per QLPS NETWORK.

- Set TMS CONFIGURATION to "DUAL".
- Set STARTING QTMSLINK network 0 to 372.
- Set STARTING QTMSLINK network 1 to 373.
- Set EQUIPMENT STATUS to "O".
- Set CLI to 0.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	N/A
EQCM3	5867	8	71	N/A
EQCORE	5701	8	3	17.16
EQIM	5700	8	2	18.1
EQPC	5703	8	5	17.2 17.14
EQPIPE	5544	8	78	17.20
EQQLPS	5854	8	56	17.19
EQNLI	5853	8	55	18.16
EQTMS	5866	8	69	17.11
EQTMSLINK	5851	8	53	17.12
NCLKREF	5525	3	5Y	17.4

ECDOPT form (5706 Record) - This form is applicable to (and required for) all offices. It is required to translate all options in the AM (Administration Module) for initial offices. Added data rules to the CM TYPE, QGWP, and RPCN000,320 fields.

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments. Added the MSGS CLI, MSGS IPDGN FILE, MSGS APDGN FILE, MSGS IP FILE, MSGS AP FILE, MSGS ROM FILE, NC REF STAB, IPDGN FILE, APDGN FILE, IP FILE, AP FILE, ROM FILE, S0OSC0TBO, S0OSC1TBO, S1OSC0TBO, S1OSC1TBO, NC SYNC, CORE fields and data rules to the VCDX OFFICE, CM2 COMPACT, CM VINTAGE, CLOCK TYPE, OSC TYPE, and AUTO SYNC fields.

EQCM3 form (5867 Record) - This form was created to assist in the population of GMS-dependent data on other forms. This is a new form to support the GMS feature.

EQIM form (5700 Record) - This form is used to define Switching Module Equipage Assignments. Added data rules to the SM, SM USAGE, NCT EVEN LINK, and UNIT TYPE fields.

EQNLI form (5853 Record) - This form is used to define the NLI (Network Link Interface) which terminates the NCT2 (Network Control and Timing Links 2) from the SM-2000 (Switching Module-2000) TSI (Time Slot Interchanger) to the TMSU (Time Multiplexed Switch Unit) of the CM2 and GMS. For the SM-2000, the NLI is an optical interface; for the EXM-2000, the NLI is an electrical interface. Added data rules to SM, and TMS LINK 0.

EQPC form (5703 Record) - This form is used to define Peripheral Controller Configuration Data. The population of this form will be handled/built in forward mapping. Added data rules to the QLPS NETWORK field.

EQPIPE form (5544 Record) - This form is used to assign QLPS (Quad-Link Packet Switch) MH (Message Handler) pipes in an SM-2000 office. The population of this form will be handled/built in forward mapping. Added data rules to the QLPS NETWORK field.

EQQLPS form (5854 Record) - This form is used to define a QLPS (Quad-Link Packet Switch) board. It is required for 24-channel exterior references for NCLK2 (clock type of "24CHAN2" on the EQCORE input form). Four of these forms are needed for GMS. Added data rules to the ONTC SIDE, and TMS CONFIGURATION fields.

EQTMS form (5866 Record) - This form is used to modify the data for this unit and to support the GSM. This form was introduced to separate all the TMS information from the Core equipment information that is found on

the EQCORE form. This is a new form for 5E15 and later.

EQTMSLINK form (5851 Record) - The Time Multiplexed Switch Link Equipage form replaces the EQORMLINK form (5813 Record) for 5E9(2) and later for assignment of the ORM (Optical Remote Module) and EXM-2000 TMS link interfaces and associated TRCUs. Added the LINK TYPE field and added data rules to the QLI CLI, LINK, and the LINK TYPE fields.

NCLKREF form (5525 Record) - This form is used to define the exterior references for the NCLK2 (Network Clock Model 2) or NCLK3 (Network Clock Model 2). Added the CLOCK TYPE field and added data rules for the fields REFERENCE and REFERENCE TYPE.

5ESS Switch Architecture

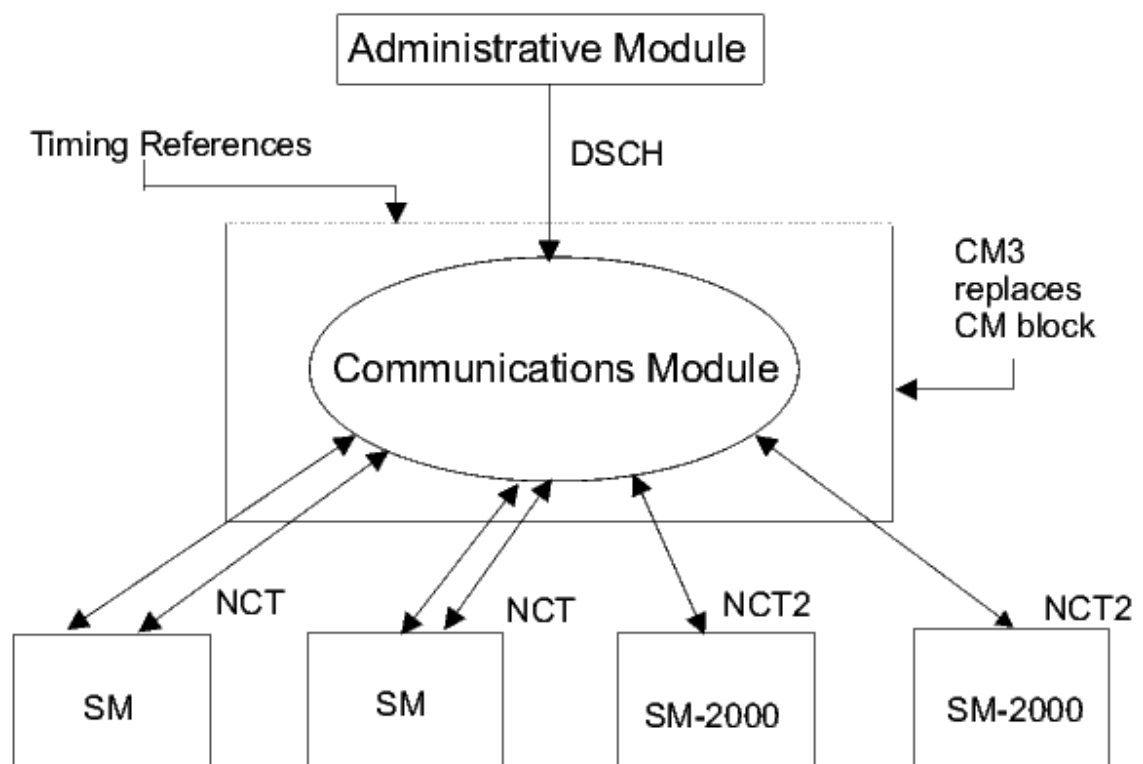


Figure 1 5ESS SWITCH ARCHITECTURE

Set fields on forms accordingly.

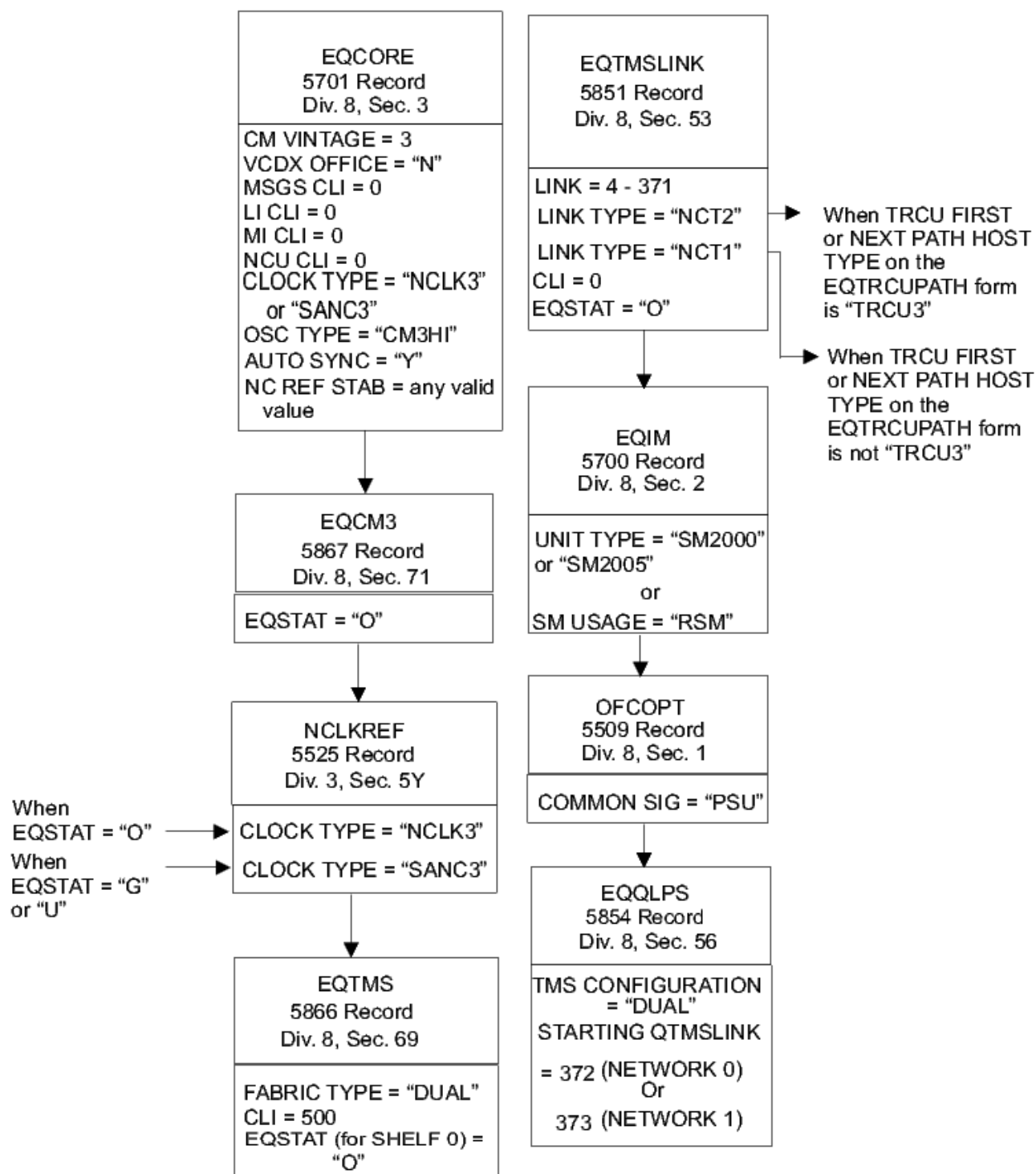


Figure 2 FORM FLOW FOR GLOBAL MESSAGING SERVER

SEC. 7AO: SS7 PSU ISUP SUPPORT

1. BACKGROUND

Prior to this feature, an SS7 (Signaling System No. 7) PSU (Packet Switch Unit) supported the signaling needs of ISUP (Integrated Services Digital Network User Part) trunks and certain TCAP (Transaction Capabilities Application Part) services local to the GSMs (Global Switching Modules). Examples of where this was beneficial include the VCDX (Very Compact Digital Exchange) Switch and remote switching modules. NGSMs (Non-Global Switching Modules) in the 5ESS Switch and the CDX (Compact Digital Exchange) Switch continued to rely on the CNI (Common Network Interface) signaling platform for CCS (Common Channel Signaling) message support. This feature lifts the ISUP trunk group restriction for limiting members to the GSM.

2. FEATURE DESCRIPTION

The SS7 PSU ISUP Support feature is being deployed in the BMI (Beginning Managed Introduction) of the 5E15 Software Release. The feature number is 97-CP-4246.M.

This feature enhances 5ESS ISUP call processing capabilities to support message transport between a host GSM which is equipped with a PSU, and a NGSM which needs the PSU to transport messages to the network. The SS7 PSU ISUP Support feature builds upon the base SS7 PSU Architectural Enhancements feature (97-CP-4246) that provides an internal CMT (CCS Message Transport) architecture allowing one GSM (i.e., host GSM) to support the signaling needs of NGSMs. (See Division 2, Section 7AG for more detailed information on the base feature upon which the SS7 PSU ISUP Support feature builds.) This feature provides the following enhancements to call processing software for functional parity between CNI and SS7 PSU signaling platforms:

- Switching Module (Global and Non-Global) selection of CMT to host GSM
- Handling of ISUP calls when CMT to/from a host GSM is unavailable
- Throttling of calls when CMT overload is detected

The enhancements provided by this feature are applicable to the 5ESS and CDX Switches.

3. FEATURE ASSIGNMENT

Trunks within the SS7 PSU trunk group can be provisioned on any SM (Switching Module) on the TRUNK form (5204 Record) as long as CMT connectivity is provisioned between the SM and the GSM using the CMTMH form (6021 Record) or the MDLNK form (6009 Record). For 5E15 and later, to provision this feature the following steps must be done:

- Define the GSM on the CCGSM form (6008 Record). (For more detailed information, see the base feature, SS7 PSU Architectural Enhancements, in Division 2, Section 7AG.)
- Create the CMT path between the SM and GSM using the CMTMH form (6021 Record).
- Insert the SS7 ISUP trunk member on an ISUP trunk group using the TRUNK form (5204 Record) on any SM.

■ **NOTE:** The insert is successful as long as there is a CMT path between the SM and the GSM.

- Create an ISUP local trunk group or global trunk group using the TKGRP form (5202 Record).
- Insert ISUP trunk members on the TRUNK form.

See provisioning form flow on Figure 1.

4. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
OFCOPT	5509	3	5I	8.15
TKGRP	5202	3	2A	5.1

OFCOPT form (5509 Record) - This form supplies various miscellaneous options and parameters. For 5E15 and later, added data rules for the COMMON CHAN SIG and OPC fields.

TKGRP form (5202 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. For 5E15 and later, added a data rule for the ORIG PT CODE field.

5. GLOSSARY

CCS	Common Channel Signaling
CDX	Compact Digital Exchange
CMT -	CCS Message Transport Connectivity
CNI	Common Network Interface
GSM	Global Switch Module
ISUP	Integrated Services Digital Network User Part
NGSM	Non-Global Switching Module
PSU	Packet Switching Unit
SM	Switching Module
SS7	Signaling System No. 7
TCAP	Transaction Capability Application Part

Define GSM.

CCGSM
6008 Record
Div. 9, Sec. 10H

Create CMT path
between the SM and
GSM.

CMTMH
6021 Record
Div. 9, Sec. 10U

Insert the SS7 ISUP
trunk member on an
ISUP trunk group on
any SM.

TRUNK
5204 Record
Div. 3, Sec. 2C

Create an ISUP local
trunk group or global
trunk group on module.

TKGRP
5202 Record
Div. 3, Sec. 2A

Insert ISUP trunk
members.

TRUNK
5204 Record
Div. 3, Sec. 2C

Figure 1 SS7 PSU ISUP SUPPORT FORM FLOW

SEC. 7AP: MSM on PLTU

1. FEATURE DESCRIPTION

The MSM (Multi Service Module) on PLTU (PCT (Peripheral Control and Timing) Line and Trunk (virtual)) feature is available with the 5E15 Software Release.

The MSM on PLTU feature allows customers, as of the 5E15 software release, to install a PCTFI (PCT Facility Interface), connecting the SM-2000 TSI (Time Slot Interchange) directly to a "loosely coupled" facility transport unit, termed the PCTFI-TE (PCTFI-7R/E PD).

- **NOTE:** Note that the feature name, "MSM on PLTU," is only significant in an historic sense. The terminology originally used to describe the 5ESS adjunct unit was "multi-service-module" (MSM) and was in use when this feature was named. The MSM name has since been dropped from the 5ESS vocabulary and has been supplanted by the 7R/E Packet-Driver. The PCTFI-TE is the multiplexing interface between a high bandwidth carrier and the PCTFI. Although the PCTFI itself is not specific to any one PCTFI-TE, this feature specifically provides connectivity between the SM-2000 TSI and a multiplexer board, the PCTMUX (PCT Multiplexer Board), installed in the PortMaster IV-portion of a 7R/E-PD.

The PCT links are equipped as active/standby pairs, with each side consisting of a PLI (Peripheral Link Interface) paddle-board on the backplane of the TSIU4 and two fibers terminated at the 7R/E-PD on a single PCTMUX. The PCT link hardware is provided with full switch maintenance software support, including MCC (Master Control Center) status displays and I/O messages; initialization, fault recovery, interrupt administration, and manual and automatic reconfiguration and diagnostics. The 7R/E-PD is "loosely coupled" in that the switch is responsible for maintenance only as far as the PCTMUXs terminating the links, and is not responsible for the internals of the 7R/E-PD. Hardware and software interfaces between the switch and the 7R/E-PD are intentionally kept to a minimum, via otherwise unused overhead bytes on the PCT links. The hardware architecture is depicted in Figure 1, "PCT Facility Interface Connecting a 7R/E-PD to the SM-2000".

The definition of PCT provides frames at 8KHz with 1024 total bytes carrying 960 payload bytes. Thus, along with full support for the PCT link, the customer is provided with the ability to "grow" up to 28 digital T1 trunk tributaries onto the links. These PCTFI tributaries and their associated ports and trunks are provided with terminal maintenance software support consistent with the architectural partitioning of responsibility between the 7R/E-PD and the switch. Included are a simple one-level, three-state approach to carrier alarms; TLWS (trunk and Line work Station) and I/O messages for PCTFI-based trunks and OEs; port status administration; and fast inhibit of trunk routing upon automatic determination of a tributary-affecting failure. Trunk ports on these tributaries are addressed via a new OE, the PLTEN (PCT Line and Trunk unit Equipment Number).

Finally, to support trunk calls carried over the PCT link interface, the customer will be provided with hundred-call-seconds and traffic measurement functionalities and a new call trace view showing the PCTFI hardware elements in the path.

2. FEATURE ASSIGNMENT

See Figure 2.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
EQPCTP	5870	8	74	20.17
EQPCTT	5871	8	75	20.27
EQPLTU	5869	8	73	19.24

OFCOPT	5509	3	5I	8.1, 8.15
TRUNK	5204	3	2C	5.5

EQPCTP form (5870 Record) - This form is used to provide PCT Link Pack information. This is a new form created to support this feature.

EQPCTT form (5871 Record) - This form is used to provide PCT Link Tributary information. This is a new form created to support this feature.

EQPLTU form (5869 Record) - This form is used to define equipment location information for the PCT line/trunk units. This is a new form created to support this feature.

OFCOPT form (5509 Record) - This form provides the office option global parameters to define equipment. The CGA BUNDLE field was added to support this feature.

TRUNK form (5204 Record) - This form is used to define characteristics of individual trunks. The letter "F" was added to the TRKOE field to support this feature.

4. GLOSSARY

MCC	Master Control Center
MSM	Multi Service Module
PCT	Peripheral Control and Timing
PCTFI	PCT Facility Interface
PCTFI-TE	PCTFI-7R/E PD
PCTMUX	PCT Multiplexer Board
PLI	Peripheral Link Interface
PLTEN	PCT Line and Trunk Unit Equipment Number
PLTU	PCT Line and Trunk Unit
TLWS	Trunk and Line Work Station
TSI	Time Slot Interchange

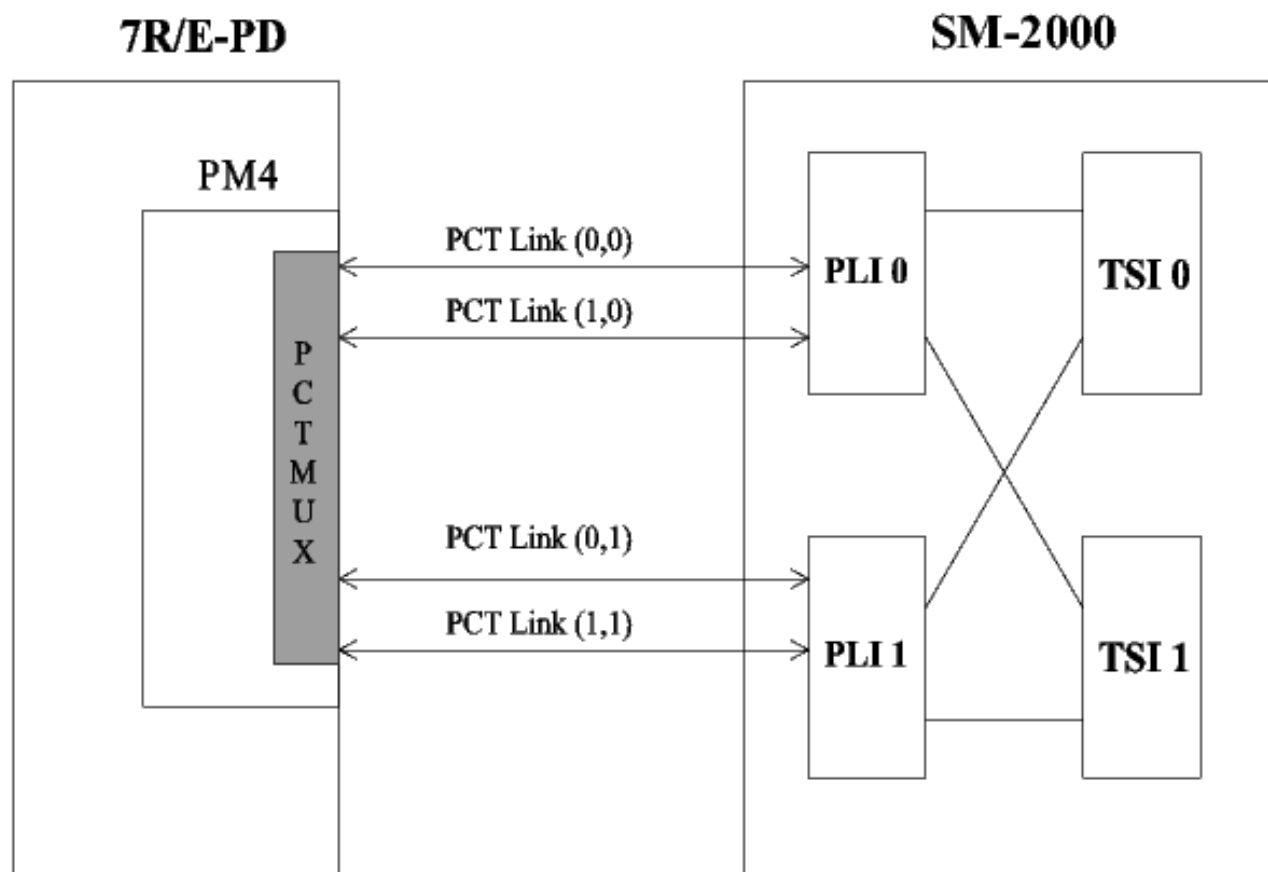


Figure 1 PCT FACILITY INTERFACE CONNECTING A 7R/E-PD TO THE SM-2000

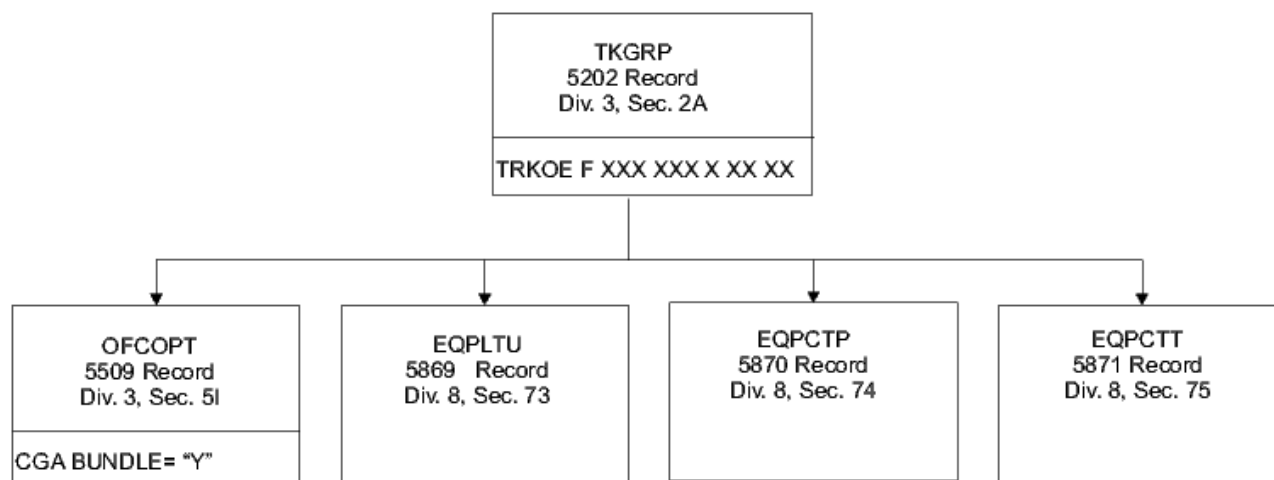


Figure 2 FORM FLOW FOR MSM ON PLTU

SEC. 7AS: SEMI-INTEGRATED NO TEST TRUNK

1. BACKGROUND

Prior to the introduction of this feature, the NTT (No Test Trunk) capability is provided via trunks equipped on the analog trunk unit using circuit pack SN107. The NTT is used to provide both a signaling interface to request test access to a 5ESS Switch subscriber line and provide the metallic connection between the Line Testing Operation System and the subscriber loop through the metallic test network of the 5ESS Switch MMSU (Modular Metallic Services Unit).

For related information, see the feature section for Local Test Desk in Division 2, Section 2E.

2. FEATURE DESCRIPTION

The Semi-Integrated No Test Trunk feature (99-5E-7303) is available with 5E15 and later Software Releases. This feature provides the capability to support the NTT without requiring the use of an analog trunk unit and its associated circuit pack (SN107). This is achieved by using an external signaling converter which is connected to the 5ESS Switch via a T1 digital facility interface. There is no operational differences between analog-based or T1 digital-based test trunks as a result of this feature. This feature provides the capability to assign a control channel to the appropriate DS0 (channel 1) and DS1 (channel 25) T1 digital facility, assign NTT test trunks to remaining DS0/DS1 channels on that T1, process the signals received from the test trunks, and control the test trunk's state. Note that if DS0 channel 1 is assigned, MTBs can only be assigned to Outgoing and Incoming Test channels 2 - 13 (14 - 26 cannot be assigned at all). Similarly, if the DS1 channel 25 is assigned, MTBs can only be assigned to channels 26 - 37 (38 - 48 cannot be assigned at all). More detailed data rules for digital test trunks are found on the TKGRP form for the TRKCLS of "TSTK".

To implement this feature, two new fields (MTB0 and MTB1) were added to the TRUNK form (5204-6 Record) and related data rules were added for the TKGRP form (5202 Record).

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
NTTU	5590	3	5BW	14.24
TKGRP	5202	3	2A	5.1
TRUNK	5204-6	3	2C	5.5

NTTU form (5590 Record) - This form is used to define an NTT unit and MTB (Metallic Test Bus) pairs reserved for each testing trunk connected to NTT unit. This is a new form that supports this feature.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Data rules for the TRKCLS of "TSTK" were updated to implement this feature.

TRUNK form (5204-6 Record) - This form is used to define each member of a Trunk Group. Two new Digital Test Trunk fields (MTB0 and MTB1) were added to define the Metallic Test Bus 0 and 1. These fields increased the record to six pages. When these fields are entered, the DEN (Digital Equipment) or the NEN (DNU-S) field must be entered. Note that MTB0 and MTB1 for analog trunks continue to be defined on the EQTUP form (5720 Record/20.2).

NOTE: Software Release: 5E15 and later. This feature creates output for the "NTTU" on the 5842/5842A Record for the CIRCUIT TYPE and CIRCUIT REFERENCE NUMBER entries. (See Division 8, Section 44.)

SEC. 7AT: SS7 PSU IMT

1. BACKGROUND

Prior to this feature, an ISUP (Integrated Services Digital Network User Part) call placed over an SS7 (Signaling System Number 7) loop around trunk, otherwise known as SS7 IMT (Intramodule ISUP Trunk), required the use of two switching modules and an active CNI (Common Network Interface) platform in order to complete the call. For an SS7 IMT, the OPC (Originating Point Code) was provisioned with the CNI point code while the DPC (Destination Point Code) was encoded with a special format "000XXXYYY" for conveying the originating SM (Switching Module) "XXX" and the terminating SM "YYY" of the trunk group.

The requirement of two distinct SMs, however, blocked the VCDX (Very Compact Digital Exchange) platform from deploying loop around trunks since the VCDX consisted of a single SM. The Single SM Loop Around Trunks feature (99-5E-4360) introduced changes to support SS7 intramodule trunks on the VCDX switch. For the SS7 intramodule trunk group, the OPC was provisioned with the Global SM point code while the DPC was encoded with another special format, "000SSS255" or "000255SSS", for conveying the SM "SSS" of the trunk group.

2. FEATURE DESCRIPTION

The SS7 PSU IMT feature is assigned feature number 97-CP-4246.N and is available with the 5E15 Software Release.

This feature allows the customer to provision SS7 Intramodule trunks on 5ESS Switches using an OPC, provisioned with a GSM (Global Switching Module) point code and the same DPC encoding format provided by the Single SM Loop Around Trunks feature (99-5E-4360).

In addition, this feature creates a new message flow for handling SS7 Intermodule trunks associated with a GSM. Instead of sending ISUP messages through the CNI platform between originating and terminating SMs, this new mechanism sends them directly (via OSDS (Operating System for Distributed Switching) messaging) between the originating and terminating SMs.

The trunk group's OPC is used to differentiate between the two SS7 Intermodule trunk mechanisms. When the OPC is provisioned with the CNI point code, an Intermodule trunk group is referred to as a CNI IMT and the CNI platform is a participant in the ISUP message flow. Similarly, when the OPC is provisioned with a GSM point code, the Intermodule trunk group is referred to as a SS7 PSU IMT, and the new direct message flow between SMs is used.

3. FEATURE ASSIGNMENT

When provisioning the PSU IMT trunk group on the TKGRP form (5202 Record), provisioning of the CMT path on the CMTMH form (6021 Record)/MDLNK form (6009 Record) is not required. On the TKGRP form, the first three digits of the DEST POINT CODE equal to "000" indicates an IMT trunk group.

4. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1, 8.15

OFCOPT (5509 Record) - This form provides the office option global parameters to define equipment. For 5E15 and later, data rules associated with the "PSU" valid entry were modified for the COMMON CHAN SIG field to support this feature.

5. GLOSSARY

CNI	Common Network Interface
DPC	Destination Point Code
GSM	Global Switching Module
IMT	Intramodule or Intermodule ISUP Trunk
ISUP	Integrated Services Digital Network User Part
OPC	Originating Point Code
OSDS	Operating System for Distributed Switching
PSU	Packet Switch Unit
SM	Switching Module
SS7	Signaling System Number 7
VCDX	Very Compact Digital Exchange

SEC. 7AU: SOFTWARE TRANSITIONS AND AFT

1. FEATURE DESCRIPTION

The Software Transitions and AFT (Apptext Forward Translator) feature is available with the 5E15 Software Release. The feature number for this feature is 99-5E-7356.

The 5E15 Retrofit Capability provides necessary functionality to transition the 5ESS Switch and the 5ESS VCDX (Very Compact Digital Exchange) Switch transparently across a Software Release Retrofit from 5E14 to 5E15. This is the case no matter which of the following retrofit method is used:

Traditional BREV (Base Relation Evolution), in which the ODD/ECD data is dumped to tape, evolved at Lucent and shipped to the office via tape.

NBR (Network Based Retrofit in which the ODD/ECD is dumped to the ASM, transmitted to Lucent across a network, evolved and transmitted back.

OSDE (On-Site Data Evolution) in which the evolution is done on the customer's own ASM.

5E15 SRU (Software Release Update)

5E15 LTG (Large Terminal Growth)

This feature also provides two procedures for the 5ESS VCDX Switch:

5E14 to 5E15 Software Release Retrofit

5E15 SRU (Software Release Update)

Neither Network Based Retrofit nor On-Site Data Evolution Retrofits will be supported on the VCDX. The standalone VCDX switches will continue to use the DBR (Disk-Based Retrofit) procedure developed for 5E14 retrofits. This will be expanded this year to include both the Sparc-5 and Netra-T platforms.

This effort includes testing and ensuring satisfactory procedural documentation for both platforms. The DRM (Distinct Reliable Module) feature is developed separately under its own feature number. While the retrofit of the DRM's 5ESS node (CP-Node 0) will be primarily the same as a stand-alone 5ESS OSDE retrofit, the VCDX node(s) will be updated using procedures different from that used in standalone VCDX offices. These nodes will be updated via a VCDX OSDE process, rather than a DBR method.

The 5E15(1) Retrofit feature will not be responsible for development of any of the DRM specific functionality required for 5E15 for either the 5ESS or VCDX nodes. Note however, that all development work will be designed to support the DRM, where possible, although it will not be tested for functionality in a DRM environment.

For the 5E14 to 5E15 Software Release Retrofit, the 5E15(1) Retrofit feature provides the following:

Operational Retrofit

ECD Evolution

ODD Verification

OFFRCR (Not applicable for VCDX offices or for OSDE)
OSPS Retrofit Data Evolution (Not provided for VCDX offices)
RC Evolution and POSTRCR
Memory Forecasting for Retrofit
Database Retrofit Preconditioning Check
On-Switch HW Checks and ECD Audit
PRL for BREV Critical Checks
RCOS Apptext Forward Translator
CORC Evolution/Reapplication

1.1 Operation Retrofit

The operational retrofit feature provides the overall software, procedures, and tools required to successfully transition an office from one release to the next release. It provides a software-driven sequence of steps to guide the office through a smooth transition, and includes mechanisms to update the ASM, and any generic-dependent ASM applications. For 5E15, the feature supports retrofits using a traditional tape-based procedure, NBR, OSDE, and DBR (for VCDX), as well as tape-based SRU and LTG transitions. Note that for VCDX DBR, both the SPARC-5 and Netra-T platforms will be included.

Note that for offices equipped with an ASM (whether performing traditional NBR, or OSDE retrofits), there will be a minimal, separate SU level to be tracked, akin to that used to track the minimum SU level for 3B-resident software. Offices equipped with an ASM, therefore, will be instructed (via retrofit notes or some other mechanism) to ensure that they are on both the minimum 5E SU and minimum ASM SU prior to attempting a retrofit.

1.2 ECD Evolution

For 5E14 to 5E15 Database Retrofit, this capability will provide the ability to evolve the retrofit office's ECD database from the format of Software Release 5E14 to a format that is functionally equivalent to the 5E14 software release and compatible with the 5E15 software.

1.3 ODD Verification

The BREV (Base Relation EVolution) process will be used to create the evolved ODDs for retrofit. The BREV process does the evolution of the ODD by mapping the base relations from one software release to another.

ODD Verification will verify the sanity of the ODDs produced by BREV's evolution of the retrofit office's ODD from the format of Software Release 5E14 to a format that is equivalent to the 5E14 software release and compatible with the 5E15 software. For all retrofits (other than OSDE), the ECD and ODD databases are evolved at the 5ODA (5ESS Office Data Administration) production site using the ODD and ECD evolution processes. For OSDE retrofits the evolution will be done at the customer site, with a trial run 14 days before and within 4 days before the retrofit.

1.4 OFFRCR (Not applicable for VCDX offices or for OSDE)

Since the evolved RCs must be reapplied as soon as possible to minimize customer impact, an office retrofitting using the traditional BREV retrofit or NBR has an option to reapply most of their RCs off-site at the 5ODA site before the retrofit to reduce the number of RCs to be processed on switch by POSTRCR. This off-site reapplication is done with the OFFRCR tool.

1.5 OSPS Retrofit Data Evolution (Not provided for VCDX offices)

There are nine OSPS supported class-21 RC Views which must be restored back to the switch right after the retrofit initialization on the new software release to prevent the OSPS offices from having serious service impacts on the OSPS serving team and interflow configurations. The OSPS Evolution process will evolve those class-21 RCs at the base relation level.

The OSPS Evolution process will evolve those class-21 RCs at the base relation level. During the off-line pump, the evolved SM logfile will be reapplied through logfile pump. The evolved AM and CMP logfiles will be reapplied through the Rollforward process.

The nine OSPS RCs are also logged separately at the view level, in the same manner as all other RCs are double-logged for RC Evolution. They will not be reapplied by POSTRCR or OFFRCR in the normal case, but are evolved by RC Evolution into a separate output file so that they can be reapplied by POSTRCR as a recovery procedure. These nine OSPS views are denoted by "OSPS" in the supported view lists in the 5E15 FSD.

1.6 RC Evolution and POSTRCR

While the ODD and ECD dumped databases are off the switch for evolution, the RCs and CORCs performed in the retrofitting office will be saved and evolved for use in updating the ODDs after the ODDs are evolved to the new software release.

The saved CORCs will be evolved into an intermediate format by the CORC evolution process which runs on the old (5E14) software release. The evolved CORCs will then be reapplied by the CORC reapplication process which runs on the new software release after the switch is initialized on the evolved ODD.

All of the RCs are saved, however, in general the RCs that change global parameters or change equipment are not supported for RC Evolution. A table of the Recent Change Views supported for evolution is presented in the Retrofit FSD.

The RC evolution process which runs on the old software release will evolve the supported RC views into the 5E15 ODIN string-wad format, which is an ASCII data string with fill characters. The evolved RCs will be converted to a binary format and reapplied via POSTRCR after the switch is initialized on the new software release.

1.7 Memory Forecasting for Retrofit

The Memory Forecasting tool predicts AM, CMP and SM memory usage for the retrofit. It can be run as a stand-alone tool or invoked indirectly by the command, "BKUP:ODD:ODDEVOL,TOGENERIC=151" which, in turn, calls the Retrofit Pre-conditioning check in the correct manner to kick off Memory forecasting.

1.8 Database Retrofit Preconditioning Check

The Retrofit Pre-conditioning check function will verify if the ECD Audit, Memory Forecasting, Hardware Checks, maintenance mode AM offline boot, and BREV Critical Checks have been run and that no errors are present. If errors are found by these audits, the database dump will fail. In the case of traditional retrofit,

this will prevent the ODD from being written to tape. In the case of NBR and OSDE, the ODD will not be transferred to the ASM.

1.9 On-Switch HW Checks and ECD Audit

The 5E15 On-Switch Hardware Checks and On-Switch ECD Audit provide software checks that identify new hardware required for 5E15 and identify any ECD errors which might jeopardize retrofit.

The On-Switch Hardware Check tool utilizes RLhwchks poprules that contains checks specific to a release. As part of the generic retrofit release criteria, DBretrochk will check for the existence of the On-Switch binary errlog file. If the errlog file does not exist, is out of date, or is NOT of zero length then the preconditioning retrofit process will abort.

1.10 PRL for BREV Critical Checks

The BREV Critical Check tool uses the SODD audit tools to verify selected retrofit critical data conditions for relations and global parameters to ensure the integrity of the ODD.

1.11 RCOS Apptext Forward Translator

The RCOS AFT feature provides a temporary RC/V text interface software translation mechanism that allows the service provider to continue sending RCs to the 5ESS Switch following retrofit, even though the supporting RCOS remains on the previous software release. This tool is in use until the applicable OS software is updated to the 5E15 software release.

1.12 CORC Evolution/Reapplication

Information for this section is included in the section on "RC Evolution and POSTRCR" above.

2. FEATURE ASSIGNMENT

No special provisioning required for this feature.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RETINFO	5845	8	47	NA

RETINFO Form (5845 Record) - This form provides an ordering mechanism for Disk Configurations and Optional Disk Layouts in a retrofitting office. For 5E15 and later, added a data rule to the HARDWARE PLATFORM field.

SEC. 7AV: SS7/PSU CALL PROCESSING SUPPORTING TCAP

1. BACKGROUND

The SS7 (Signaling System 7) PSU (Packet Switch Unit) Call Processing Supporting TCAP feature (97-CP-4246.G) is available with the 5E15 and later Software Releases. It is one of a set of features implemented to support the 5E15 SS7/PSU Architectural Enhancements (99-CP-4246) feature (see Division 2, Sec. 7AG). The purpose of the 97-CP-4246.G feature is to enhance TCAP (Transaction Capability Application Part) capabilities to support a Host GSM (Global SM).

Prior to 5E15, an SS7-PSU was able to support the signaling needs of ISUP trunks and certain TCAP services local to the GSM. Non-global switching modules in the 5ESS and CDX Switches continued to rely on the CNI signaling platform for CMT (CCS (Common Channel Signaling) Message Transport). The 5E15 base (99-CP-4246) architecture feature defines an internal CMT architecture allowing an SS7-PSU on a GSM to support the SS7 signaling needs of non-global SMs. In doing so, the GSM is now referred to as a Host GSM.

2. FEATURE DESCRIPTION

Building upon the base feature 99-CP-4246, the 97-CP-4246.G feature provides a number of call processing enhancements that are required in order for an SS7-PSU to support the signaling needs of other SMs in the office. For 5E15 and later, the 97-CP-4246.G feature allows TCAP communication between a NGSM (Non-GSM) and a GSM. The enhancements to the existing call processing software include:

1. ISUP Enhancements

- Handling of ISUP calls when CMT within GSM is unavailable

- Throttling of calls when CMT overload for GSM is detected

2. TCAP Enhancements

- Handling of TCAP queries when CMT is unavailable

- Throttling of TCAP queries when CMT overload is detected

- Handling of TCAP queries when Host GSM is unavailable

- Throttling of TCAP queries when Host GSM is experiencing overload

Prior to 5E15, TCAP services supported by the SS7 PSU signaling platform local to a GSM included:

- LASS (Local Area Signaling Services)

- NS800 (Number Service 800)

- ISVM (Inter-Switch Voice Messaging)

- CNAM (Analog Calling Name Display)

- ASP 0.0 and 0.1 (Advanced Services Platform)

This feature allows these same services to send/receive TCAP messages on non-global SMs to/from a Host GSM.

3. SCCP Enhancements

New command OP:CCS, TPC that reports the translation point codes for a specified derived translation type that has been provisioned in a GSM

TCAP support on a PSU was introduced to the VCDX switch in the 5E13 Software Release. The OP:TPC enhancement is a new enhancement applicable to the VCDX Switch. The enhancements listed above are applicable to the SM-2000 and CDX Switches. The OP:CCS, TPC input and output messages are also applicable to the VCDX Switch.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCSTCAP	5567	3	5BH	8.42
CMTMH	6021	9	10U	16.16
TKGRP	5202	3	2A	5.1

CCSTCAP form (5567 Record) - This form provides the capability to determine, on a per SM basis, whether a TCAP application will use CNI or a particular GSM for its SS7 signaling message transport.

The PLATFORM is used to indicate whether CNI (enter "0") or GSM (enter 1 - 192) is being used.

CMTMH form (6021 Record) - This is a new 5E15 form used to define the message handler used for CMT for communication between a GSM and a NGSM.

Prior to this feature, TCAP applications on all NGSMs were restricted to selecting CNI as the signaling platform. With this feature, for TCAP applications selecting a GSM platform (CCS Message Transport), connectivity must be provisioned between the SM and the GSM on this form (see Division 2, Section 7AG for details on creating the CMT path). Note that when the TCAP application is being used (i.e., APPLICATION field is entered), this form cannot be deleted.

When CM VINTAGE on the EQCORE form is 2, the MH SM 1 entered on the CMTMH form must be defined on EQPIPE forms for both QLPS NETWORK 0 and QLPS NETWORK 1.

TKGRP form (5202 Record) - This form is used to define trunk group parameters. The following data rule was added to support this feature:

The LOCAL SM entered, must have a matching GLOBAL SM and NON GLOBAL SM on the CMTMH form.

SEC. 7AW: SS7 PSU TERMINAL MAINTENANCE SUPPORT

1. BACKGROUND

Prior to 5E14, an SS7 PSU was able to support the signaling local to the Global SM GSM (Global Switching Module). Examples where this was beneficial include the VCDX Switch (5ESS Switch Very Compact Digital Exchange) and SM's (Switching Modules) EXM (Extended Switch Module) ORM (Optically Remote SM). SMs without PSUs (Packet Switching Modules) in the 5ESS Switches continued to rely on the CNI (Common Network Interface) signaling platform for CCS (Common Channel Signaling) message transport. In 5E14SU, feature 97-CP-4246 (SS7 PSU Architectural Enhancements) defines an internal CCS message transport CMT (CCS Message Transport) architecture allowing an SS7 PSU on a Global SM to support the SS7 signaling needs of non-global SMs. In doing so, the Global SM is now referred to as a Host GSM.

2. FEATURE DESCRIPTION

Terminal Maintenance Support for SS7/PSU (Packet Switch Unit) feature is available with the 5E15 Software Release. The feature number is 97-CP-4246.L.

This feature is one of several features that is responsible for achieving CNI (Common Network Interface) parity on the PSU based SS7 signaling platform.

Terminal Maintenance Support for SS7 PSU feature is responsible for the building upon feature 97-CP-4246, a number of enhancements are needed to the existing terminal maintenance software in order for an SS7 PSU to support the messages needed to and from other SMs in the office. We need to support ISUP (Integrated Services Digital Network User Part) trunks on NGSMs (Non-Global Switching Module), and send blocking (BLO) and unblocking (UBL) when NGSM transitions to/from SM/CMT isolation. The MCAH (CCS7 Message Consolidation Acknowledgement Handler) mechanism that is being restructured in International will be ported back to US as part of our feature. Included with this will be new data relations and trigger functions. We will also be porting CADN (Circuit Administration) audits.

This feature is planned for and is applicable to the 5ESS and VCDX switches. This feature has a high dependency on the International "Base ISUP National CCS Maintenance Scaling" feature.

3. FEATURE ASSIGNMENT

No Feature Assignment information at this time.

4. TRANSLATION REQUIREMENTS

No Translation Requirements at this time.

SEC. 7AX: LINK/MTP MEASUREMENTS FOR SS7 PSU ENHANCEMENT

1. FEATURE DESCRIPTION

The Link/MTP (Message Transfer Part) Measurements for SS7 PSU (Packet Switch Unit) Enhancements feature is available with the 5E15 Software Release. The feature number is 97-CP-4246.H.

This feature is one of several features that are responsible for achieving CNI (Common Network Interface) parity on the PSU based SS7 signaling platform.

The Link/MTP Measurements for SS7 PSU Enhancement feature is responsible for the modification and development of TRFC30 Reports for Service Providers with SM-based SS7 signaling on the PSU platform. These reports provide Service Providers with data regarding the performance of the signaling link sets and the network as a whole. The feature is targeted for the 5E15 BMI release and will include the following enhancements:

The modification of TRFC30 Section 193 - PSUCHAN (Packet Switch Unit Channel) Measurements. Modifications to this report allow for the actual QPH pipe number instead of the physical channel number.

The addition of the ERRS counter on TRFC30 Section 230 - MTP Signaling Link. This new count provides the number of seconds in which an error was received on the signaling link.

The creation of TRFC30 Section 203 - SLS (Signaling Link Set) Performance. This report contains data regarding the signaling link sets such as link set type, available links, unavailable links and the duration of signaling link set unavailability.

The creation of TRFC30 Section 204 - SNP (Signaling Network Performance). This report contains data regarding the signaling network performance such as APC isolations, link set failures, link set congestion, changeovers and alternate routing transitions.

2. FEATURE ASSIGNMENT

The modification of TRFC30 Section 193 - PSUCHAN. Modifications to this report allow for the actual QPH pipe number instead of the physical channel number.

The addition of the ERRS counter on TRFC30 Section 230 - MTP Signaling Link. This new count provides the number of seconds in which an error was received on the signaling link.

The creation of TRFC30 Section 203 - SLS performance. This report contains data regarding the signaling link sets such as link set type, available links, unavailable links and the duration of signaling link set unavailability.

The creation of TRFC30 Section 204 - SNP. This report contains data regarding the signaling network performance such as APC isolations, link set failures, link set congestion, changeovers and alternate routing transitions.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic

measurements reported on the "30-minute" measurement report.

SEC. 7AY: WIRELESS SUPPORT OF SS7/PSU

1. FEATURE DESCRIPTION

The Wireless Support of SS7/PSU (Signaling System No. 7/Packet Switch Unit) feature is available with the 5E15 Feature Release 1 and later Software Releases. The feature number is 97-CP-4246.I.

This feature supports wireless call processing using SS7/PSU signaling links to/from the ECP (Executive Cellular Processor) via a host GSM (Global Switching Module) in new start 5ESS Switch DCS (Digital Cellular Switch) offices only. Prior to this feature, the 5ESS Switch DCS communicated via a common channel signaling link to/from the ECP. Call processing, status, and error messages are sent between the 5ESS Switch and the ECP on this link. For North American Region offices, the link is composed of a Data Link Node on a CNI (Common Network Interface) ring. This feature allows for the ECP signaling link to be connected to a host GSM instead of the CNI ring. Communication between the 5ESS Switch DCS and the ECP is over SS7/PSU signaling links between the Switch Modules and the host GSM.

The Wireless Support of SS7/PSU feature modifies the wireless call processing code in the 5ESS Switch DCS to allow communication to/from the ECP when the office is configured with SS7/PSU signaling links via a GSM. This feature does not affect existing 5ESS Switch DCS (CNI) offices that retrofit to the 5E15 Software Release.

2. FEATURE ASSIGNMENT

For 5E15 and later, provision the Wireless Support of SS7/PSU feature according to the steps listed.

- At the 5ESS Switch DCS, provision SS7 data links to the ECP.
- Populate the LNKSET form to provision SS7 data links.
- Set the COMMON CHAN SIG field to "PSU" or "ALL" on the OFCOPT form (5509 Record) to provision the AMPS DCS global switching module for this feature.

➤ **NOTE:** The COMMON CHAN SIG field on the OFCOPT form cannot be set to "CNI" to provision this feature.

- For Wireless support of SS7/PSU for Compact Digital Exchange or the 5ESS Switch, populate the AMPS DCS GSM field on the APXPARM form with a valid GSM value defined on the CCGSM form (see Division 7, Section1A, for more detailed information).

See provisioning form flow on Figure 1.

3. TRANSLATION REQUIREMENTS

ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
APXPARM	5050	7	1A	8.28

APXPARM (5050 Record) - This form is used to administer global parameters that are required when a 5ESS Switch is functioning as a DCS in a cellular network. For 5E15 and later, added the AMPS DCS GSM field and related data rules.

4. GLOSSARY

AMPS Advanced Mobile Phone Service

CDX	Compact Digital Exchange
CNI	Common Network Interface
DCS	Digital Cellular Switch
ECP	Executive Cellular Processor
GSM	Global Switching Module
PSU	Packet Switch Unit
SS7	Signaling System No. 7

Provision the SS7 data links.

LNKSET
6003 Record
Div. 9, Sec. 10C

Provision the AMPS DCS
Global Switching Module for
this feature.

OFCOPT
5509 Record
Div. 3, Sec. 5I

COMMON CHAN
SIG = "PSU" or "ALL"

Populate the AMPS DCS GSM
field with a valid GSM value
defined on the CCGSM form
for wireless support of SS7/PSU
for CDX or the 5ESS Switch.

APXPARM
5050 Record
Div. 7, Sec. 1A

AMPS DCS GSM

CCGSM
6008 Record
Div. 9, Sec. 10H

GSM

Figure 1 WIRELESS SUPPORT OF SS7/PSU FORM FLOW

SEC. 7AZ: DLTU EXTERNAL ECHO CANCELLATION

1. FEATURE DESCRIPTION

The DLTU (Digital Line and Trunk Unit) External Echo Cancellation feature is available in the 5E14FR3 (Feature Release 3). The feature number is 99-5E-7296.

This feature provides the capability for each 5ESS Switch equipped with DLTU(2) units in the path of a call, to perform echo cancellation on a per call basis. In order for the external echo cancellers to provide per call control, the 5ESS Switch must send messages to the external echo canceller frame to tell it when to turn the echo cancellers on or off.

The STS I (Synchronous Transport Signal - 1) External Echo Cancellation (5E13) feature (99-5E-3487) is the base feature for the DLTU External Echo Cancellation feature. For information on the base feature, see Division 2, Section 9P.

2. FEATURE ASSIGNMENT

For 5E14 and later, to provision this feature:

Insert a DLTU on the EQDU form (5730-1 Records):

- TYPE must be set to "DLTU24" or "DLTU48".

Insert a DFI on the EQDUP form (5730-2 Record):

- TYPE FAC fields FAC 0 and FAC 1 must be set to "T1CHNL", and APPLFAC fields for FAC 0 and FAC 1 must be blank.

On the ENETPIPE form (5826 Record), set the fields as follows:

- ENET PIPE is defaulted to 0.
- Set MH to 2.
- Set EIB TYPE to "MHEIB".
- Set SERV TYPE to "EEC".
- Set DUPLEX HUB to "Y" (for duplex configuration).
- Set MANAGED HUB to "Y" (managed configuration) or "N" (unmanaged configuration).
- Set the EIB and HUB IP ADDRs according to the value of DUPLEX HUB (these fields may or may not be required based upon the value of DUPLEX HUB and MANAGED HUB).

On the ENETLINK form (5827 Record), set the fields as follows:

- ENET LINK is defaulted to 0.
- Set ENET LINK NBR to any valid value.

- Set MH to 2.
- Set SERV TYPE to "EEC".
- Set DUPLEX to "N".
- SND PORT and RCV PORT will automatically be set the same based upon the value of SERV TYPE.
- All IP ADDRs will be set based upon SERV TYPE and ENET LINK NBR.
- All HW ADDRs must be entered.

Insert a FAC2EEC form (5873 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FAC2EEC	5873	8	81	19.27

FAC2EEC form (5873 Record) - The Facility to External Echo Cancellation form is used to associate a 24 channel DFI (Digital Facility Interface) or DFI-2 on a DLTU or DLTU (2) with a DS1 (Digital Signal 1) port on a particular QECLI (Quad Echo Canceller Line Interface) pack on an EEC (External Echo Canceler). This is a new form that supports this feature.

SEC. 7BA: SS7 PSU CONVERSION

1. FEATURE DESCRIPTION

The SS7 (Signaling System 7) PSU (Packet Switching Unit) Conversion feature is available with the 5E15 FR2 (Feature Release 2) and the 5E16 BMI (Beginning of Managed Introduction) Software Releases. The feature number for this feature is 99-CP-4916.

The purpose of this feature is to provide the capability for converting an SS7 signaling platform from a CNI (Common Network Interface) to a Host GSM (Global Switching Module).

The conversion is broken down into four phases:

1. Host GSM Installation Phase

During this phase a Host GSM that is eventually used as the primary SS7 platform is provisioned in the office with MTP/SCCP (Message Transport Part/Signaling Connection Control Part) routing data obtained from the CNI. There are two CNI-to-PSU conversion options (with sub-options) that the customer must consider at this time:

The *Dual Links* method of conversion defines a new equal or lower priority route terminating to the Host GSM. If the links to the Host GSM are defined at the adjacent STP (Signal Transfer Point) as a lower priority route, the key concept with the conversion is that, when the higher priority routes to the CNI platform are removed from service, the adjacent STP re-routes the MSU (Message Signaling Unit) traffic over the lower priority route to the Host GSM platform.

Note that for this option to work successfully, the adjacent STP vendor must be able to support alternate routing for an APC (Adjacent Point Code), also referred to as higher/lower cost routing.

It may also be possible for the adjacent STP to define the links to the Host GSM as having an equal priority as that of the CNI links. This would define the Host GSM links as a component member of a CLS (Combined Linkset) and the STP would "loadshare" the inbound 5ESS MSU traffic on both platforms. Thus if this scenario is used, the Host GSM links could not be made available to the STP until the end of the Pre-Cutover phase to avoid having the adjacent STP send inbound traffic to the Host GSM platform. Additionally, for this scenario, the adjacent STP must be capable of defining two link sets to the same APC.

There are two sub-options which must also be considered with the Dual Links method:

- If the Host GSM is installed new to the office, it is provisioned with a new PC (Point Code) which is required to be different from the CNI OPC (Origination Point Code). New signaling links members, LS (Linkset) and/or CLS (Combined Linkset) routing are provisioned between the adjacent STP office and the Host GSM. The routing data at the adjacent STP office then defines this new PC as a lower priority alternate route for the CNI OPC and any of its alias OPCs. ISUP (ISDN (Integrated Services Digital Network) User Part) test trunks are also temporarily "grown in" prior to the cutover so that all CMT (CCS (Common Channel Signaling) Message Transport) path provisioning and MTP network routing can be correctly validated.
- If an existing Host GSM is to be used (if using an Island GSM, it must first be converted to a Host GSM), it either assumes the primary and alias OPCs of the CNI, or it assigns the primary and alias OPCs of the CNI as Host GSM alias OPCs.

Having an existing Host GSM assume the primary OPC of the CNI requires all of its applications (ISUP, TCAP (Transaction Capability Application Part)) to be first moved to the CNI platform for the conversion. If the Host GSM is assigned the CNI's primary and alias OPCs as alias OPCs, the alias OPC feature must be unsecured (the ACT field for that Secured Feature ID must be set to "N" on the SFSYS form (5712-1 Record)) at the time of the conversion. This option also requires the adjacent STP to provision the existing Host GSM OPC as a lower priority route for the CNI OPC.

The *Swing Links* method of conversion requires the use of a time slot cutover device, such as a DACS (Digital Access and Cross-Connect System) to "swing" existing SS7 links from the CNI platform over to the PSU platform. The key concept of this option is that the conversion is transparent to the adjacent STP office. Additionally, this method is the only option available for the wireless DCS office because the ECP (Executive Cellular Processor) supports the definition of only a single CLS to the MSC (Message Service Center). Again, there are two sub-options which must also be considered:

- If the Host GSM is installed new to the office, it is provisioned with a new PC (Point Code) which is required to be different from the CNI OPC. However, since the adjacent STP is not aware of this OPC, the Host GSM requires temporary signaling links to be provisioned either as F-Links to the CNI, or to test equipment such as the Tekelec MGTS (Message Generator And Traffic Simulator). This is needed to verify the MTP/SCCP routing and ISUP handling of the Host GSM before it enters the Pre-Cutover Phase.
- If an existing Host GSM is being used, most likely the only reason for using this method is that the adjacent STP vendor does not support alternate routing for the APC. The same issues apply as with the Dual Links method. The Host GSM either assumes the primary and alias OPCs of the CNI, or it assigns the primary and alias OPCs of the CNI as Host GSM alias OPCs.

2. Pre-Cutover Mode Phase

During this phase the office is conditioned for the actual cutover, which takes place in the next phase. The service provider performs a Recent Change update (view 8.15) to change the "CUTOVER MODE" parameter (Display Only field for ODA) to "PRECUT", the "HOST PLAT 1" parameter to the CNI platform (0), and the "HOST PLAT 2" parameter to the target Host GSM platform (GSM number). With this Recent Change update, call processing still transmits all CNI defined outbound ISUP and TCAP traffic over the CNI platform. Any application defined for an existing Island or Host GSM platform is unaffected.

ISUP trunk data currently defined to use the CNI platform is then populated from the AM to the Host GSM and the CCS PHs (Protocol Handlers). The other actions performed here depends on the GSM installation option that was previously chosen.

If the Host GSM was installed new to the office, it is now re-assigned the same primary and alias point codes as the CNI platform. Note that when this is done, any active SS7 signaling test links "grown in" as part of Host GSM installation will fail due to the periodic SLT (Signaling Link Test). A solution is to inhibit the SLT at both ends of each SS7 link. For the Dual Links method, coordinated DPC (Destination Point Code)/linkset changes must also be made at the STP to coincide with the new primary OPC and the Host GSM SS7 links removed from service to prevent

them from carrying inbound (from STP) traffic before the next phase (Cutover Mode) is started.

If an existing Host GSM is being used (or it was converted from an Island GSM) the customer must decide if the Host GSM's primary point code is retained or not.

- If the Host GSM's primary OPC is being retained, the CNI primary and alias point codes are assigned as alias point codes on the Host GSM. Note that the alias OPC feature must be unsecured (the ACT field for that Secured Feature ID must be set to "N" on the SFSYS form (5712-1 Record)) at this time.
- If the Host GSM's primary OPC is not being retained, then all ISUP trunks using the Host GSM's SS7 PSU must be moved to the CNI (that is, "degrown", then "grown" back with OPC equal to CNI point code) and all TCAP (Transaction Capabilities Application Part) applications on the Host GSM must have their platform set to CNI. This is done so that the GSM can change its primary OPC without experiencing a loss of ISUP/TCAP traffic.
- A third alternative is to re-assign the Host GSM's primary OPC as an alias OPC, and then assign the CNI's primary OPC as the Host GSM's primary OPC (likewise for any CNI alias OPC as Host GSM alias OPC). There is significant potential for service interruption with this alternative and coordination with adjacent signaling points to reconfigure links/linksets is required.

3. Cutover Phase

The actual flash cutover of signaling traffic from the CNI platform to the Host GSM platform takes place during this phase. The action performed here also depends on the conversion option that was previously chosen.

If the Dual Links method is being used, then all of the SS7 signaling links to both platforms are affirmed to be in service. The service provider performs a Recent Change update (view 8.15) to change the "CUTOVER MODE" parameter (Display Only field for ODA) to "POSTCUT". With this Recent Change update, call processing begins transmitting all CNI defined outbound ISUP and TCAP traffic over the Host GSM (as specified in the "HOST PLAT 2" parameter of RCV view 8.15). All CNI defined inbound ISUP and TCAP traffic will still be received solely over the CNI platform because of the primary routing condition at the adjacent STP. Next, all of the SS7 signaling links terminating to the CNI platform are then removed from service. Alternate routing at the adjacent STP will then reroute the CNI defined inbound ISUP and TCAP traffic to the Host GSM SS7 signaling links.

If the Swing Links method is being used, the time slot cutover device is used at this time to "swing" the links from the CNI platform to the Host GSM platform. First, approximately half of the signaling links terminating on the CNI platform are "moved" to the Host GSM. As soon as these links come in service on the Host GSM, all CNI defined inbound ISUP and TCAP traffic is "load shared" over both the CNI and the Host GSM platforms by the adjacent STP. Each platform sends the SS7 traffic to the appropriate SM (Switching Module) for processing. The service provider then performs a Recent Change update (view 8.15) to change the "CUTOVER MODE" parameter (Display Only field for ODA) to "POSTCUT". With this Recent Change update, call processing begins transmitting all CNI defined ISUP and TCAP outbound traffic over the Host GSM (as specified in the "HOST PLAT 2" parameter of RCV view 8.15). Inbound ISUP and TCAP traffic is still "load shared" over both the

CNI and the Host GSM platforms. At this point, the remaining signaling links on the CNI platform are "moved" to the Host GSM. All inbound/outbound SS7 traffic is now being supported by the Host GSM platform.

4. Post-Cutover Phase

Executing this phase commits the office to use the Host GSM instead of CNI.

Once a service-provider determined "soak interval" of the new GSM platform is completed, the internal ISUP and TCAP data is modified to indicate the Host GSM as the primary platform.

A SODD (Static Office Dependent Data) audit is then requested to validate the data population that was made in the previous phases. The office is removed from cutover mode by performing a Recent Change update (view 8.15) to change the "CUTOVER MODE" parameter (Display Only field for ODA) to "NONE". With this Recent Change update, call processing goes back to transmitting all ISUP and TCAP traffic using the platform specified in the internal data.

The service provider can then "degrow" the CNI software and hardware. If cutover was facilitated by each platform having its own links, the adjacent STP needs to update its routing tables to make the Host GSM links the primary (first choice) route for the OPC. Note that once the Post-Cutover phase has been completed and the office is removed from cutover mode, re-activation of CNI as the primary signaling platform is not desirable, but can still be done by reversing the steps of the cutover procedure. However, there are service-provider issues that must be considered when using the procedures to unwind the conversion. These issues relate to interval of time between the conversion and the backout and the amount of new RCV (Recent Change and Verify) activity that has taken place during this interval. Examples are new and deleted trunk members, MTP routing data, etc., which would have been done in relation to the Host GSM platform.

2. FEATURE ASSIGNMENT

For 5E15 FR2 and later, to activate this feature, the ACT field for SFID 563 on the SFSYS form (5713-1 Record) must be set to "Y". Also, the ACT field for the OFID 973 on the FOSYS form (5713-2 Record) must be set to "Y".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CCLNK	6004	9	10D	16.6
OFCOPT	5509	3	5I	8.1
TKGRP	5202	3	2A	5.1

CCLNK form (6004 Record) - This feature provides the capability to satisfy Bellcore generic requirements for provisioning of DNU-S VT facilities (DS1). Modified a data rule for the GSM field.

OFCOPT form (5509 Record) - This form must be completed for a 5ESS Switch and is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. Added the Display Only fields CUTOVER MODE, HOST PLAT 1, and HOST PLAT 2.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk

information for an individual member is entered on a TRUNK form (5204 Record). Added the Display Only field, PLATFORM.

SEC. 7BB: SAAL SS7 HIGH SPEED SIGNALING LINKS

This section has been moved to Division 2, Section 4A670.

SEC. 7BC: HIGH AVAILABILTY ASM

1. FEATURE DESCRIPTION

The High Availability ASM (Administrative Switching Module) feature is available with the 5E15 and later Software Releases. The feature number is 99-5E-7564.

This feature is the ASM Base functionality to introduce and take advantage of new hardware configurations. A newer Sun processor than the existing ASM along with increased storage and external terminal servers are used in a duplex configuration to provide greater availability than a single processor by using application failover, shared/mirrored disk space, redundant hardware and other high availability techniques. This work implements the operation, administration, maintenance and provisioning of the dual-processor configuration as well as a single processor configuration. Also supported is the existing configuration and an enhanced version of the existing configuration.

No ODA forms are changed or modified to support this feature.

SEC. 7BD: EDGE TO EDGE ROUTING

1. FEATURE DESCRIPTION

The feature number for the Edge to Edge Routing feature is 99-5E-7683. This feature is being deployed in the 5E15 FR2 (Feature Release 2) Software Release.

This feature provides network capabilities and operations support to route calls from the OES (Originating Edge Switch) to a TES (Terminating Edge Switch). Currently, edge-to-edge routing is accomplished by routing calls through the 4ESS network.

The new capabilities that are being added for the Edge-To-Edge Routing feature include the following:

1. The TES now has the ability to identify and process APN (Action Point Numbers) calls that are identified as being in a "private" numbering plan, either coming on an IC (Incoming) trunk from a 4ESS Switch, or from a 5ESS OES Switch.
2. The TES also now has the ability to identify and process calls with a Pseudo or LEC (Local Exchange Carrier) type, and process them using a local EON (End Office Nodal) DAS (Digit Analysis Selector).
3. The 5ESS OES/TES Switch combination has the ability to perform a Reroute-on-Release from the TES to the OES, and add a "TTA Avoidance" feature code to an existing SAP (Service Access Point) parameter in the subsequent IAM (Initial Address Message) sent to the 4ESS Switch, or create a SAP parameter with a "TTA Avoidance" feature code, if one does not exist. This "TTA Avoidance" feature code tells the 4ESS network to complete the call using the 4ESS network, and avoid trying to complete the call through the 5ESS edge network. When the "TTA Avoidance" feature code is added to an existing SAP parameter, it must be added at the end of the SAP parameter.
4. This feature populates a carrier ID in all calls egressing the 5ESS OES, whether the call is to be upchained/routed to the 4ESS or the 5ESS TES. The precedence of carrier determination is as follows:
 - Carrier is Returned in an Analyze Route reply for a SA (Service Activation) OHD (Off-Hook Delay) or ADL V (AT&T Digital Link V) OHD trigger.
 - Carrier is Received in incoming IAM signaling
 - Carrier is taken from carrier ID on RC/V (Recent Change and Verify) 5.1
 - Carrier is taken from global office default on RC/V 8.1
5. This feature controls the usage of EON Suppression when leaving the AT&T network. The EON Suppression field is a bit on RC/V 10.2 that controls the sending of AT&T proprietary parameters. There are 2 cases as follows:
 - For ADL V calls, if EON Suppression equals "Y", the Charge Number parameter in the ISUP IAM is populated from the originating TG (Trunk Group) BN (Billing Number) instead of just being dropped when EON CN (Charge Number) Suppression is active. If the TG BN is not populated, the ISUP (ISDN (Integrated Services Digital Network) User Part) Charge Number parameter should be populated with zeros with Nature of Address indicator set to "ANI not available or not provided". When EON CN Suppression is not active, the Charge Number in the ISUP IAM contains the Charge Number returned in the Analyze_Route message.

- For Traffic Transition Phase I Switched Access Calls, and for TES switch calls, the following parameters are not sent in the IAM:
 - OLI,
 - Charge,
 - APP with AT&T proprietary context,
 - GAP (Generic Address Parameter) with a type address of dialed number,
 - GAP with an address of "LANI",
 - AP with AT&T proprietary parameters, and
 - CICIP (Carrier Identification Code Parameter).

2. FEATURE ASSIGNMENT

There are no new forms or new fields added for this feature.

SEC. 7BE: DISK RECONFIGURATION AND GROWTH-STANDING

1. FEATURE DESCRIPTION

The Disk Reconfiguration and Growth-Standing feature is being deployed for the Beginning Managed Introduction of the 5E16 Software Release. The feature number is 99-5E-7721.

This feature provides the ability to replace the current optional disk configuration with a disk configuration that has more system storage capacity and to modify the AMA (Automatic Message Accounting) storage ratio on optional disk pairs.

Moving Head Disks are reconfigured to provide greater system storage capacity. Each disk configuration requires a minimum number of disk pairs. In some cases, additional disk pairs can be added (i.e., disk growth) to increase the AMA data storage capacity of the office. Disk growth is limited by the maximum number of disk pairs that the disk configuration supports.

2. FEATURE ASSIGNMENT

There is no special provisioning required for this feature.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	N/A
OFCOPT	5509	3	5I	8.15

ECDOPT form (5706 Record) - This form is used to define Administration Module options for all offices. For 5E16 and later, the valid entry "21 (non-entry)" was modified for the DISK CONFIG field to change the applicability of the Software Release and the valid entry "22 (non-entry)" was added for the DISK CONFIG field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. For 5E16 and later, a data rule was modified for the ODD DISK SIZE field to change the applicability of the Software Release.

SEC. 7BF: SS7 PSU SIGNALING MONITOR

1. FEATURE DESCRIPTION

The SS7 (Signaling System 7) PSU (Packet Switch Unit) Signaling Monitor feature is available with the 5E16 and later Software Releases. The feature number is 97-CP-7525.

This feature defines a new SS7 PSU link monitoring tool that can be used to report SS7 MTP (Message Transport Part) signaling messages being received over GSM (Global Switching Module) link(s). The tool also reports informative indicators regarding GSM link failure/restoration.

Also, this feature is a CNI (Common Network Interface) parity feature that defines a new input command (OP:CCS,MON), and two new output reports. The input command can be used to request that the link monitor be turned on or off. It may also be used to determine the status of the monitor for specific link(s). When the monitor is on, events associated with signaling links, triggers reports that are not normally output. Turning the monitor off inhibits new events from generating output. The status reports whether the monitor is currently on or off.

2. TRANSLATION REQUIREMENT

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LNKSET	6003	9	10C	16.5

LNKSET form (6003 Record) - This form is used to define CCS7 (Common Channel Signaling 7) signaling link sets. Modified the valid entry for the LINK SET NAME field.

SEC. 7BG: RECENT CHANGE CRITICAL INDICATORS FOR SS7 PSU

1. FEATURE DESCRIPTION

The Recent Change Critical Indicator for SS7 (Signaling System 7) PSU (Packet Switch Unit) feature is available with the 5E15 Feature Release 1 and 5E16 BMI (Beginning Managed Introduction) Software Releases. The feature number is 97-CP-7828.

This feature is intended for additional protection of data available on the Recent Change and Verify views related to signaling associated with the GSM (Global Switching Module) and the SS7 PSU (Signaling System 7 Packet Switching Unit PSU) in a 5ESS Switch.

The new protection mechanism used on the specified forms are based on a new critical data indicator field that is being added to each form/view involved. This critical data indicator field allows the customer to mark a form/view as critical for SS7 PSU functionality usage. This protects the form/view from human errors which can result when deleting or updating the data accidentally.

When there is a need to update (or delete) any data on the form/view marked as critical, then the critical data indicator field must be changed to "N" first before any update (or delete) operation can be completed.

2. FEATURE ASSIGNMENT

For 5E15 and later, to provision this feature:

Set the CRIT IND field to "Y" on any of the forms/views listed in the table below.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCGSM	6008	9	10H	16.1
CCLNK	6004	9	10D	16.6
CCNET	6010	9	10K	16.20
CCPBD	6012	9	10M	16.22
CCSGT	6015	9	10N	16.25
CCSPR	6011	9	10L	16.21
CCTGM	6013	9	10P	16.23
CCTT	6014	9	10O	16.24
CLKSET	6005	9	10E	16.7
CLU	6020	9	10T	16.9
CMTMH	6021	9	10U	16.16
LNKSET	6003	9	10c	16.5
MDLNK	6009	9	10J	16.17
NID	6019	9	10S	16.8
PC	6006	9	10F	16.10
SAALHSL	6016	9	10V	16.26
SAALPRM	6017	9	10W	16.27

CCGSM form (6008 Record) - This form is used to specify data used for the global switching module. One CCGSM is entered for each office, up to a maximum of 16 per SM. Added the CRIT IND field.

CCLNK form (6004 Record) - The external link set member form, is used to define the CCS7 (Common Channel Signaling System No. 7) link sets and members. Added the CRIT IND field.

CCNET form (6010 Record) - The SCCP (Signalling Connection Control Part) network definition form was added to support the VCDX SS7 on the PSU feature. For more information concerning this feature, see

Division 2, Section 7L. Added the CRIT IND field.

CCPBD form (6012 Record) - The SCCP (Signaling Connection Control Part) Primary/Backup Destination Record is used to define the primary and backup destinations for SCCP signaling. Added the CRIT IND field.

CCSGT form (6015 Record) - The SCCP (Signaling Connection Control Part) Single Global Translation form is used to maintain the single fixed or primary plus secondary digit string for Global Translations. Added the CRIT IND field.

CCSPR form (6011 Record) - The SCCP (Signalling Connection Control Part) parameter definition form is used to define individual parameters for a SCCP GSM (Global Switching Module). Added the CRIT IND field.

CCTGM form (6013 Record) - The SCCP (Signalling Connection Control Part) Translation Group Mask form defines the SCCP GTT (Signaling Connection Control Part Global Title Translation) mask for a translation group. Added the CRIT IND field.

CCTT form (6014) - The SCCP (Signalling Connection Control Part) Translation Table form is used to define whether the global title data in the called party address will receive Global Title Translation or Point Code Extraction treatment. Added the CRIT IND field.

CLKSET form (6005) - This form is used to define the link sets that comprise the combined link set. Added the CRIT IND field.

CLU form (6020 Record) - This form is used to define the MTP (Message Transport Part) cluster route sets that supports the SS7 (Signaling System 7) PSU (Packet Switch Unit) MTP Routing Enhancements feature. Added the CRIT IND field.

CMTMH form (6021 Record) - This form defines which message handler will be used for CCS (Common Channel signaling) message transport for communication between a GSM (Global Switching Module) and a NGSM (Non-GSM). Added the CRIT IND field.

LNKSET form (6003 Record) - This form is used to define CCS7 signaling link sets. Added the CRIT IND field.

MDLNK form (6009 Record) - This form is used to specify and update the message delivery link and the "bunny-hop" PH (a link internal to the SM where SS7 messages originate or terminate). Added the CRIT IND field.

NID form (6019 Record) - This form is used to define the MTP (Message Transport Part) network route sets that supports the SS7 (Signaling System 7) PSU (Packet Switch Unit) MTP Routing Enhancements feature. Added the CRIT IND field.

PC form (6006 Record) - This form is used to specify the point code and alternate link set routing for PSUs (Packet Switching Units). Added the CRIT IND field.

SAALHSL form (6016 Record) - This form defines the OXU (Optical Extended Control and Data Unit) hardware on an SM (Switching Module). Added the CRIT IND field.

SAALPRM form (6017 Record) - This form is used to define values of a High Speed Signaling Link Parameter Set. Added the CRIT IND field.

SEC. 7BH: PSU CA EXPANSION

1. FEATURE DESCRIPTION

The PSU (Packet Switch Unit) CA (Community Address) Expansion (99-5E-8012) feature is available with 5E14 FR4 and 5E16 and later Software Releases. This feature allows more than 255 PSU community addresses in a wireless network to support soft handoff. This feature introduces a new sub-network concept where up to 254 PSU community addresses are logically grouped together (community address 0 and 255 are reserved. Frames that are destined for a different sub-network will be sent to a Gateway PHA (Protocol Handler ATM (Asynchronous Transfer Mode)) and the Gateway PHA routes the frames to the appropriate PSU in the destination sub-network. Each Gateway PHA can be assigned to only a unique sub-network combination (i.e., 0/1). Also, the community address of the Gateway PHA should not be reused in any PSU sub-network. As a result, the total number of PSUs in an entire wireless network is (number of sub-networks x (254 - total number of Gateways)). This feature cannot be activated until the PSUs are connected in an ATM (Asynchronous Transfer Mode) multipoint environment.

2. FEATURE ASSIGNMENT

Before populating the PSUGW form, gateway PHA (PHA1) must be defined on the EQPSUPH form (5742 Record). Then, Gateway PHA must be provisioned on the PSULNK form (5057 Record) as follows:

1. enter the NEAR COM ADDR/NEAR SM/NEAR PSU fields; NEAR COM ADDR must not be equal to the COM ADDR on the PSULNK form.
2. FAR COM ADDR/FAR SM/FAR PSU must be blank, and
3. the CON TYPE field must be "ATMGW".

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSUPH	5742	8	23	22.2
PSUGW	5991	5	3Q	22.26
PSULNK	5057	7	2A	22.22

EQPSUPH form (5742 Record) - This form is used to define PSU Protocol Handler units. To support this feature, the existing CLI value of 10 hex, used for the PHA1 CDMA (TN1845) pack, must be defined. For 5E16 and later, the PSU field and related data rules were added to support the Double PSU Packet Bus feature (see Division 2, Section 4A607).

PSUGW form (5991 Record) - This is a new form to support the PSU CA Expansion feature. It is used to assign a gateway community address to a PSU. To activate this feature, the FEATURE ACTIVE field must be set to "Y". For 5E16 and later, the valid entries for the PSU field were added to support this feature.

PSULNK form (5057 Record) - This form is used to define links between PSUs using PHA1s for either intra-switch or inter-switch links. A new valid entry of "ATMGW" was added for the CON TYPE field. For 5E16 and later, the valid entries for the NEAR PSU and FAR PSU fields were added to support the Double PSU Packet Bus feature (see Division 2, Section 4A607).

SEC. 7BJ: MCC LOGIN PROTECTION

1. BACKGROUND

Prior to this feature (5E15 and earlier), the MTTY did not require a password to login, and the only authentication available was authority checking based on terminal restrictions.

2. FEATURE DESCRIPTION

The MCC (Maintenance Control Console) Login Protection feature is available with the 5E15 Feature Release 4. The feature number for this feature is 99-5E-7895.

This feature provides login/password on the MTTY (Maintenance Teletypewriter) during normal system operations. The MTTY is used as the MCC and EAI (Emergency Action Interface). Users must first login on the MTTY with a login and password before they can enter any commands or perform any operations on the MTTY. Once a user successfully logs in, the user has the same capabilities on the MTTY as they currently have.

This feature supports a maximum of 1,023 user logins and passwords to allow different users to have their own unique login and password. The user login and password for the MTTY are administered via the Command Restriction feature's administrative commands as is done for the other terminals.

Login administration can be handled remotely from the SCCS (Switching Control Center System). This administration includes resetting or changing passwords, modifying password aging duration, and turning the terminal timeout on and off. This feature allows for a timeout screen lock.

3. FEATURE ASSIGNMENT

3.1 Overview

Once the feature is activated, the existing login and password data associated with the Command Restrictions capability is downloaded to the MTTYC (MTTY Controller (UN597)). The downloaded data is an indicator to the MTTYC that the 5ESS Switch is configured with the MTTY lock capability. The MTTYC honors a request to manually lock the MTTY via a new poke from the EAI page or take action to automatically lock the MTTY following an ECD (Equipment Configuration Database) defined period of keyboard inactivity. Once in a locked state, access to the MTTY is blocked until a user successfully logs in. With a successful login, the MTTY is returned to a state of normal operation with access to DAP (Display Administration Process) display pages, EAI, and craft commands.

3.2 Feature Activation

Feature activation begins by enabling the feature in the ECD. The next step is to populate the Command Restrictions Authority file with user records. Feature activation only indicates if the office is capable of using the feature; it does not solely indicate whether the feature is on. With an activated feature, user records in the Authority file are used to determine if the feature is on or off. For example:

Feature activated in the ECD:

No Authority file - the feature is off.

Authority file has terminal records only - the feature is off.

Authority file has one or more user records - the feature is on.

When the feature is not activated in the ECD, the feature is off and the Authority file is not considered.

When the feature is activated and the feature is off, the MTTY does not have the locking capability. Conversely, when the feature is activated and the feature is on, the MTTY does have the locking capability.

3.3 MTTY Lock

Once the feature is activated and on, there are only two ways the MTTY can be locked. The MTTY can be locked by manually executing the Lock MTTY poke on the EAI page. This causes the MTTY to lock immediately. Enabling the keyboard inactivity timeout can also be used to automatically lock the MTTY. The automatic lock capability would cause the MTTY to lock automatically after a set period of time of keyboard inactivity. If the feature is activated and on, and the keyboard inactivity timeout is disabled, then the MTTY would never lock automatically. The only way the MTTY could be locked in this case would be via the manual Lock MTTY poke on the EAI page.

Assuming the feature is activated and on, and the MTTY is locked, the only way the MTTY can be unlocked is by a user with a login and password in the Authority file or with a level 52 or higher boot. In the case of a boot, the MTTY remains unlocked during the switch initialization interval. At the conclusion of the switch initialization interval, the keyboard inactivity timeout value takes effect. If there is no keyboard inactivity value, then the MTTY does not lock without manual intervention. If there is a keyboard inactivity timeout value, then the MTTY locks after that timeout interval expires assuming no one has touched the MTTY keyboard.

The following conditions do not affect the lock state of the MTTY:

- level 51 system-initializations
- port-switches
- craft-initializations
- offline-boot.

In any of these cases, if the MTTY is locked before the condition, it remains locked afterward. Likewise, if the MTTY is unlocked prior to the condition, the MTTY remains unlocked afterward.

During new installations, conversions, retrofits, or any other time where intermittent access to the MTTY is necessary, it is recommended that if the feature is activated and on, that the MTTY terminal inactivity timeout value be set to zero, thereby preventing the MTTY from locking automatically. The user still has the flexibility to lock the MTTY by using the poke on the EAI when necessary.

This feature provides the capability to lock the MTTY on an office basis and not for an individual user. For example, if user "A" is currently accessing the MTTY and then the keyboard inactivity timeout kicks in, or even if the user used the quick lock poke to lock the MTTY, any user with a login/password may now log on the MTTY. The MTTY is not reserved for a particular user (for example, user "A") after the MTTY is locked.

4. TRANSLATION REQUIREMENTS

There are no new or modified forms for this feature.

SEC. 7BK: DOUBLE PSU PACKET BUS

1. FEATURE DESCRIPTION

The Double PSU (Packet Switching Unit) Packet Bus feature for CDMA (Code Division Multiple Access) or TDMA (Time Division Multiple Access) is made available with the 5E16 FR 2 (Feature Release 2) Software Release. The feature number is 99-5E-7797. The following list includes separate SFIDs (Secured Feature IDs) for the number of SMs (Switching Modules 2000) that are required:

- SFID 636 — Dual PSU RTU feature for 1 SM
- SFID 637 — Dual PSU RTU feature for 2 SMs
- SFID 638 — Dual PSU RTU feature for 3 SMs
- SFID 639 — Dual PSU RTU feature for 4 SMs
- SFID 640 — Dual PSU RTU feature for 5 SMs
- SFID 641 — Dual PSU RTU feature for 6 SMs
- SFID 642 — Dual PSU RTU feature for 7 SMs
- SFID 643 — Dual PSU RTU feature for 8 SMs
- SFID 644 — Dual PSU RTU feature for 9 SMs
- SFID 645 — Dual PSU RTU feature for 10 SMs
- SFID 646 — Dual PSU RTU feature for 11 SMs
- SFID 647 — Dual PSU RTU feature for 12 SMs
- SFID 648 — Dual PSU RTU feature for 13 SMs
- SFID 649 — Dual PSU RTU feature for 14 SMs
- SFID 650 — Dual PSU RTU feature for 15 SMs
- SFID 651 — Dual PSU RTU feature for 16 SMs
- SFID 652 — Dual PSU RTU feature for 17 SMs
- SFID 653 — Dual PSU RTU feature for 18 SMs
- SFID 654 — Dual PSU RTU feature for 19 SMs
- SFID 655 — Dual PSU RTU feature for 20 SMs
- SFID 656 — Dual PSU RTU feature for 21 SMs
- SFID 657 — Dual PSU RTU feature for 22 SMs
- SFID 658 — Dual PSU RTU feature for 23 SMs

SFID 659 — Dual PSU RTU feature for 24 SMs

SFID 660 — Dual PSU RTU feature for 25 SMs

Before the Double PSU Packet Bus feature can be turned on for up to 25 SMs via RC/V (Recent Change/View) 8.22, the SFID must be turned on. RC blocks the Double PSU Packet Bus feature from being turned on if the SFID is off. CDMA or TDMA must be turned on before the Double PSU Packet Bus feature is used.

To add Double PSU to additional SMs after the first SFID has been used, another SFID will be needed for the new total number of SMs.

1.1 Traffic Measurements (TRFM)

The TRFM part of this feature enables maintenance of CDMA and TDMA reports on the second PSU in the case when two PSUs are on one Switching Module. The proper handling of these reports on the second PSU involves the following:

- PSU number must appear on the layout of the report.

- MML commands should have a parameter to indicate PSU number.

- Proper interface with Recent Change views must be ensured.

- Key for sections must handle two PSUs.

- Additional handling should be provided for collecting and processing data from both PSUs.

The following sections of the TRFC30 (Traffic Measurements Report 30) is impacted by this feature.

- ECPSRVT (Executive Cellular Processor Service Type), Section Number 247.

- PSUCHAN (Packet Switch Unit Channel Measurements), Section Number 193.

2. FEATURE ASSIGNMENT

For 5E16(2) and later, to provision this feature:

- Grow the second PSU by setting the PSU field to "1" on Recent Change (RC) View 22.2 (or EQPSU Form, 5741 Record).

- Grow in shelves for the second PSU on RC View 22.3 (or EQPSUPH Form, 5742 Record).

- Grow in PH's for the second PSU on RC View 22.4 (or EQPSUPH Form, 5742 Record).

- Assign channel groups for the second PSU on RC View 22.16 (or PSUGP Form, 5949 Record).

- If a trunk member is desired, insert the trunk member on RC View 5.5 (TRUNK Form, 5204 Record).

- If a PSU link is desired, insert the link on RC View 22.22 (PSULNK Form, 5057 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741	8	22	22.2
EQPSUPH	5742	8	23	22.3, 22.4
MEASSUM	5563	3	5BG	13.9
PSUGP	5949	5	3J	22.16
PSULNK	5057	7	2A	22.22

EQPSU form (5741 Record) - This form is used to define the PSUs equipped on a 5ESS Switch. The PSU field and related data rules were added to support this feature.

EQPSUPH form, (5742 Record) - This form defines the Packet Switching Unit Protocol Handlers equipped on the 5ESS Switch. The PSU field and related data rules were added to support this feature.

MEASSUM (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Components are defined as the entity to be measured; components can be at the end product level (AIU, DNU-S, SS7 PSU, etc.) or subassemblies (i.e., packs, lines, DPIDB, etc.). For 5E16 and later, added data rules to the SECTION NAME field.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU. Valid entries were modified and a data rule was added for the PSU field to support this feature.

PSULNK form (5057 Record) - This form is used to define links between packet switching units using protocol handlers for the Asynchronous Transfer Mode. Valid entries were modified for the NEAR PSU and FAR PSU fields to support this feature.

4. GLOSSARY

CDMA	Code Division Multiple Access
PSU	Packet Switching Unit
SM-2000	Switching Module 2000
TDMA	Time Division Multiple Access

SEC. 7BL: INCREASE AM PAS MEMORY BY 6MB**1. FEATURE DESCRIPTION**

The Increase AM (Administrative Module) PAS (Protected Application Segment) Memory by 6MB feature is being deployed for the Beginning Managed Introduction of the 5E16 Software Release. The feature number is 99-5E-8021. This feature increases memory size of the AM PAS memory to 6MB.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ECDOPT	5706	8	8	Not Applicable
OFCOPT	5509	3	5I	8.1, 8.15

ECDOPT form (5706 Record) - This form is used to define Administration Module options for all offices. For 5E16 and later, the Valid AM ODD MEMORY SIZE Entries table was updated, and data rules were added for the AM ODD MEMORY SIZE field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. For 5E16 and later, the Valid AM ODD MEMORY SIZE Entries table was updated.

SEC. 7BM: PSU PACKET BUS DELAY CHARACTERIZATION

The PSU Packet Bus Delay Characterization feature (99-5E-7678.A) is no longer supported by Lucent Technologies. It was determined that the most effective occupancy measurement could be provided by a direct measurement to the packet bus as provided by the Packet Bus Occupancy feature (99-5E-8275). Please see your Lucent representative for details.

SEC. 7BN: SS7-PSU REMOVE ROUTING DATA FROM DEDICATED HOST GSM

1. FEATURE DESCRIPTION

The SS7-PSU (Signaling System 7-Packet Switching Unit) Remove Routing Data from Dedicated Host GSM (Global Switching Module) feature is being made available with the 5E15 FR 5 (Feature Release 5) Software Release. The feature number is 97-CP-8002.

Although offices usually only have one Host GSM per office, this feature allows multiple Host GSMs to be marked as dedicated, in each office.

It should be noted that any routing data that was populated on a Host GSM before it was marked as dedicated, remains there until the end customer either:

- Manually moves all the routing data (using RC/V (Recent Change View) 4.14 to change the routing SM for all hundreds groups that route on a dedicated GSM) or

- Request that the data be moved (using the LDM (Large Data Migration) tool).

Preventing routing data from being populated or moving Routing Data from a dedicated Host GSM does not mean that no call processing will take place on that GSM. It means that no hundreds group routing will take place on a dedicated GSM. Data used for other features, such as Line and Trunk Queuing or data populated on CIC (Carrier Identification Code) modules can still exist on a dedicated Host GSM, and can be used for call processing.

2. FEATURE ASSIGNMENT

To activate this feature:

Insert a GSM with the DEDICATED field set to "Y" on the CCSGM form (6008 Record) when the following conditions are met:

- There is no hundreds group routing data on this HOST GSM (on HGRPAS form (5115 Record); RC/V (Recent Change View) 4.14.

- LDIT is not populated on this HOST GSM (on the SMLDIT form (5315 Record); RC/V 9.25.

- CIC is not distributed on this HOST GSM (on the CICDIST form (5217 Record); RC/V 5.70.

Define GSM as a Host GSM by inserting a form on the CMTMH (6021 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCGSM	6008	9	10h	16.1

CCGSM form (6008 Record) - This form is used to specify data used for the global switching module. Added the DEDICATED field.

SEC. 7BO: CM3 TMS FABRIC EXPANSION

1. FEATURE DESCRIPTION

The CM3 (Communication Module Model 3) TMS (Time Multiplexed Switch) (also known as "NxTMS where "N" equals the number of TMS fabric pairs) Fabric Expansion is a secured feature (SFIDs 662, 663, and 664 and is being deployed in the 5E16(2) Software Release. The feature number for this feature is 99-5E-4104.

The CM3 TMS Fabric Expansion feature provides greater TMS fabric capacity by adding TMSFPs (TMS fabric pairs) to the CM3 configuration. This also increases internal connectivity among multiple SM2000s in an office .

The CM3 TMS Fabric Expansion feature enables a large tandem 5ESS Switch by increasing the number of trunk terminations in a switch. The MCTU-based SM is limited to NxTMS capacity where "N" equals 1. The SM-2000 may be configured to NxTMS, where "N" is greater than 1. The CM3 is configured to use additional TMS shelf units (CMU2s and TMSU4s) located in growth cabinets, for connecting SM-2000s to more fabric pairs through the SM's NCT2 links. Beginning with the 5E16(2) software release, the CM3 accommodates up to 4 TMS fabric pairs (TMSFP). Each TMSFP is duplex (exists on each ONTC side) and consists of one even and one odd TMS fabric. The CM3 TMS may be expanded either by growing TMSFPs (including a CMU2 and optional TMSU4 shelves) or by growing TMSU4 shelves on existing TMSFPs.

Conversion from CM2 to CM3 is already supported and will continue to be supported; however, growth from 1xTMS to NxTMS is specified in this feature as part of the conversion.

This feature is dependent on the GSM (Global Messaging Server) feature (99-5E-3228) (previously named CM3 (Communication Module Model 3)) which was deployed in the 5E15 Software Release. This feature also supports SMs but only on TMSFP0 (Time Multiplexed Switch Fabric Pair 0).

The maintenance and diagnostic differences between the base CM3 and the 1xTMS product offerings from a capacity and size point of view are very little. Specifically, the CM3 base feature did not require the use of fabric subgroups for reliability and diagnostics, whereas the CM3 TMS Fabric Expansion feature (including 1xTMS) requires these capabilities. Since the deployment of the CM3 TMS Fabric Expansion feature, the 1xTMS configuration will subsequently be used for all future smaller offices, and the CM3 base product offering will no longer be available.

To increase the termination capacity of the CM3, additional dual fabric frames can be added and the system can have up to four (with values of N being 1, 2, 3, or 4) dual fabrics. The resulting architecture is referred to as the NxTMS architecture. The Message Switch, NCC (Network Communication Controller), and Oscillator hardware is available only in the base frame. Therefore, the Control Time Slots from each SM must be routed to the base frame.

The functionalities of QLPS (Quad Link Packet Switch) and CPI (Central Processor Intervention) are provided in each fabric, but only the QLPS in the base frame is physically connected to the Message Switch. The QLPS hardware exists in each frame; however, the CM3 TMS Fabric Expansion feature only uses the QLPS in the base frame. There is also a test function available to each fabric.

In the NxTMS configurations, only SM2000s are allowed connectivity via NCT2 (Network Control and Timing Link 2) links. Up to 23 SM2000s (all of which) may be connected as host or local SM2000s to the several TMSs within the office.

This feature does not provide any increase in call capacity or messaging capacity for the 5ESS Switch. It does provide an increase in termination capacity based on the number of additional TMS fabrics that are equipped. This equates to an increase in NCT ports, an increase in trunk capacity or line capacity, and an increase in

erlang capacity of the switch. The TMS fabric is a 193x192 space switch, with 193 input ports and 192 output ports.

Each port supports 256 timeslots. An NCT2 link uses 2 adjacent ports. However, not all 193 ports can be used for NCT2 links. The CM3 reserves 9 ports for its foundation functions. Port 0 is used for idle code generation. Port 1 is used for the DMI (Desktop Management Interface) interface with the message switch and carries the CTS (Control Time Slot) and pump timeslots. Six ports are reserved for QTMSLNKs to the QLPS, of which only four are used in the CM3 TMS Fabric Expansion feature. Finally, Port 192 is used for a test/diagnostic function. The remaining 184 physical ports on each TMS fabric are available for NCT links carrying user traffic.

The full base CM3 or 1xTMS consists of an odd and an even TMS fabric each supporting 184 NCT links or equivalently, 94208 ($2 \times 184 \times 256$) network timeslots. To compute Erlang capacity, two paths through the TMS are required for each call. This assumes the link facilities have a nominal average loading of 70% to account for headroom and peaking effects, and a full base CM3 or 1xTMS.

Feature Operations

NxTMS connectivity is described at a high level. Please refer to *Hardware Description*, 235-100-200, for more information.

NxTMS connectivity (with N equal to 1):

This configuration is the base configuration of a CM3. NxTMS connectivity, with N equal to 1, supports up to 23 SM-2000s, with each SM-2000 having 4 NCT2 link pairs.

23 SM-2000s

8 NCT2 links per SM-2000, where 4 links go to each fabric

2 TMS links per NCT2

1 TMS link per port

$23 * (8/2) * 2 = 184$ ports

NxTMS connectivity, with N equal to 1, services ~98K trunk terminations. Assuming a square TSI, this maps into the number of trunk terminations supported on the switch.

2 fabrics

184 ports per fabric

256 timeslots per port

$256 \times 184 \times 2 = 98,042$

Note that if there are fewer SM-2000s, each SM-2000 can have more NCT2 link pairs. SMs (non-SM-2000s) are supported in NxTMS offices and, unlike SM-2000s, can only be connected to TMSFP 0. SMs and SM-2000s remoted via TRCU2s use NCT1 links. All other SM-2000s use NCT2 links.

NxTMS connectivity (with N greater than 1):

3 TMSFPs

2 fabrics per TMSFP

184 ports per fabric

256 timeslots per port

$3 \times 256 \times 184 \times 2 = >282\text{Kports}$

Switch personnel are responsible for repair of a TMS fabric. These procedures are documented in: *Corrective Maintenance*, 235-105-220, *Hardware Change Procedures-Growth*, 235-105-231, and *Hardware Change Procedures-Degrowth*, 235-105-331.

2. FEATURE ASSIGNMENT

In order to provision the CM3 TMS Fabric Expansion feature:

This is a secured feature (SFIDs 662, 663, and 664) and a right-to-use (RTU) fee must be paid to Lucent Technologies before enabling information is provided. Once this feature is available on the switch, the TMS SHELF (RC/V view 17.11) insert, TMS LINK (RC/V view 17.12) eqstat update, G->S, S->O, and NLI LINK (RC/V view 18.16) insert will be blocked for $N > 1$ if the SFIDs are not activated.

The SFIDs are 662 for $N=2$, 663 for $N=3$, and 664 for $N=4$. To activate the secured feature IDs (SFIDs), the service provider unlocks the security lock by populating RC/V view 8.22 SECURED FEATURE UPGRADE. A password from the Lucent Technologies Secured Feature Administrator is required. For more information, refer to *Routine Operations and Maintenance Procedures*, 235-105-210.

The EQTMS form (5866 Record), RC (Recent Change) view 17.11, has been modified to allow provisioning TMS 1-3. Previously, TMS NBR (currently, renamed TMSFP NUM) had to be 0, now it is open up for the user to enter from 0-3 in a CM3 office. When provisioning a new TMS, SHELF 0 has to be added first. When degrowing a TMS, SHELF 0 has to be the last one to be remove. TMS 0, SHELF 0 cannot be degrown, it has to be operational.

The provisioning for the EQTMSLINK form (5851 Record) (RC view 17.12), and the EQNLI form (5853 Record) (RC view 18.16), mostly remains the same as it was for the CM3 feature. When provisioning these two forms, users need to enter the TMS NBR (currently, renamed TMSFP NUM) which has the range from 0-3 and it must exist on the EQTMS form.

On the EQNLI form, secondary NLI (Network Link Interface) growth/degrowth for CM3 office no longer needs to be sequential.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
EQCORE	5701	8	3	17.1
EQNLI	5853	8	55	18.16
EQTMS	5866	8	69	17.11
EQTMSLINK	5851	8	53	17.12
EQIM	5700	8	2	18.1
OFCOPT	5509	3	5I	8.1
SFSYS	5713-1	3	5AR	8.22

EQCORE form (5701 Record) - This form is used as an Office Record for those 5ESS Switch offices that are not utilizing an Operational Support System (e.g., RMAS) for generation of Office Records. Added a data rule to the CM VINTAGE field.

EQNLI form (5853 Record) - This form is used to define the NLI (Network Link Interface) which terminates the NCT2 (Network Control and Timing Links 2) from the SM2000 (Switching Module 2000) TSI (Time Slot Interchanger) to the TMSU (Time Multiplexed Switch Unit) of the CM2 and GMS. For the SM-2000, the NLI is an optical interface; for the EXM-2000, the NLI is an electrical interface. Added the TMSFP NUM field and 2 data rules, 2 data rules to the EVEN NLI field, and modified 2 data rules for the TMS LINK 0 field.

EQTMS form (5866 Record) - This form is used to modify the data for this unit and to support the GSM. This form was introduced to separate all the TMS information from the Core equipment information that is found on the EQCORE form. Changed the key field name from TMS NBR to TMSFP NUM. Added a data rule to the BAY field and modified a data rule for the TMSFP NUM field.

EQTMSLINK form (5851 Record) - The Time Multiplexed Switch Link Equipage form replaces the EQORMLINK form (5813 Record) for 5E9(2) and later for assignment of the ORM (Optical Remote Module) and EXM-2000 TMS link interfaces and associated TRCUs. Added the TMSFP NUM field and related data rules. Also modified 4 data rules for the LINK field.

OFCOPT form (5509 Record) - This form is provided as a reproducible form that may optionally be used. However, if this record is requested in the ODA data base using "records" command, the screen image of the input form will be printed instead of the tabularized record. Added the TMS HUNT field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. To activate SFID 663, 664, or 665, the ACT field for the particular SFID is set to "Y".

SEC. 7BP: CLASSIC SM ON CM3

1. FEATURE DESCRIPTION

The Classic SM (Switching Module) on CM3 (Communication Module Model 3) feature is being deployed in the 5E15 FR 5 (Feature Release 5) Software Release. The feature number for this feature is 99-5E-8079.

This feature is an extension of the original CM3 Base feature that uses SM2000s. For more information on the base CM3 feature, see Division 2, Section 7AN.

The Classic SM on CM3 feature allows SMs to be equipped in a NAR (North American Region) or INTL (International) CM3 office. The CM2 to CM3 conversion procedures provide CM2 offices with SMs that can be converted to CM3 hardware, allowing the SMs to remain intact.

This feature further provides the following:

procedures for SMs to be grown/degrown into/from a CM3 office,

the ability to evolve the ODD (Office Dependent Data) database from CM2 containing SMs and CM3s, and

a new paddle board for terminating NTC1 (Network Control and Timing) interfaces (SMs) to a CM3. Inherited with the support of SMs is the support of TRCU1 (Transmission Rate Converter Unit 1), TRCU2 (for ORMs (Optically Remote Modules)), EXMs (Extended Switching Modules) with TRCU2, DLTU (Digital Line and Trunk Unit) and DLTU2 (for RSMs (Remote Switching Modules)) on CM3.

2. FEATURE ASSIGNMENT

There is no specific provisioning needed for this feature. See the provisioning for the base CM3 feature found in Division 2, Section 7AN.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQIM	5700	8	2	18.1
EQTRCUPTH	5814	8	38	17.23

EQIM form (5700 Record) - This form is used to define Switching Module Equipage Assignments. Modified the generic for a data rule for UNIT TYPE from 5E15 to 5E16(2).

EQTRCUPTH form (5814 Record) - This form is used to define the path between the host and remote TRCU for a TRCU model 1, TRCU model 2, or TRCU model 3, in the SM, SM2000 or SM2005 unit types. Removed a data rule for the HOST TYPE field.

SEC. 7BQ: OIU (OPTICAL INTERFACE UNIT) OC-3 - NAR

1. FEATURE DESCRIPTION

The OIU (Optical Interface Unit) OC-3 (Optical Carrier Level 3) NAR (North American Region) feature is being deployed in the 5E16(2) Software Release. The feature number for this feature is 99-5E-7140.

The purpose of the OIU feature is to provide a high speed/capacity SONET (Synchronous Optical Network) facility interface for the 5ESS 2000. It supports an optical interface whereas the current DNU-S (Digital Network Unit-SONET) product only supports an electrical interface. It also supports the high speed interface PCT (Peripheral, Control and Timing) Link to the 5ESS 2000 TSI (Time Slot Interchange). Therefore, the OIU will only be supported by SM-2000.

2. FEATURE ASSIGNMENT

Feature Provisioning:

When provisioning an OIU on the EQOIU form (5760 Record); RC/V (Recent Change View) 19.28:

the AIP (Any Media Interface Platform) specified must exist on the EQAIP form (5765 Record); RC/V 19.27.

When provisioning an OFI (Optical Facility Interface) , also referred to as the PG (Protection Group), on the EQOIUP form (5761 Record); RC/V 20.28:

the OIU specified must exist on the EQOIU form; RC/V 19.28. The first PCT (Peripheral, Control and Timing) Link for the OFI is required on insert and must be in growth state.

When provisioning an STE (SONET Terminating Equipment) on the EQOSTE form (5762 Record); RC/V 20.29:

the PG specified must exist on the EQOIUP form (RC/V 20.28), and the EQSTATs of the STE cannot be higher than the EQSTATs of the first PCT link for the PG. This view cannot be deleted while HVCs (High-Level Virtual Containers) are assigned on the EQHVC form (5763 Record); RC/V 20.30.

When provisioning an HVC on the EQHVC form; RC/V 20.30:

the STE specified must exist on EQOSTE form; RC/V 20.29, and the EQSTAT of the HVC cannot be higher than the EQSTATs of the STE. This view cannot be deleted while LVCs (Low-Level Virtual Containers) are assigned on the EQLVC form; RC/V 20.31.

When provisioning an LVC on the EQLVC form (5764 Record); RC/V 20.31:

the HVC specified must exist on the EQHVC form; RC/V 20.30, and the EQSTAT of the LVC cannot be higher than the EQSTAT of the HVC. This view cannot be deleted while channels on the container are in use.

The OIUPM (RC/V 20.32) and CGATIME forms (RC/V 20.33) are used to define PM (Performance Monitoring)

groups and CGA (Carrier Group Alarm) groups respectively for OIU facilities used on the EQOSTE, EQHVC, and EQLVC forms. These forms/views do not have to be provisioned. Office defaults have been defined that will be used if no PM group or CGA group is explicitly assigned to an OIU facility. If a PM group is defined it can only be used for the facility type specified by the field CKT TYPE. Currently, all OIU SONET CGA groups can be used for all OIU SONET facilities, and all non-SONET CGA groups can be used for all OIU CNTRS (Containers).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCLNK	6004	9	10D	16.6
CGATIME	5766	3	5CB	20.33
EQAIP	5765	8	90	19.27
EQHVC	5763	8	88	20.30
EQLVC	5764	8	89	20.31
EQOIU	5760	8	85	19.28
EQOIUP	5761	8	86	20.28
EQOSTE	5762	8	87	20.29
MEASSUM	5563	3	5BG	13.9
NAILUP	5207	3	2F	7.11
OFCOPT	5509	3	5I	8.1
OIUPM	5767	3	5CC	20.32
PRIGRP	5211	3	2M	5.2
TRUNK	5204	3	2C	5.5

CCLNK form (6004 Record) - This form is used to define the CCS7 (Common Channel Signaling System No. 7) link sets and members. Modified the OE type table to add the OIU value ("O"). Also added data rules to the OE field.

CGATIME form (5766 Record) - This form is used to define alarm ON/OFF conditions of Alarm Indication Signals, Local Alarms, and Remote Alarms on all OIU (Optical Interface Unit) facilities. New form to support this feature.

EQAIP form (5765 Record) - This form is used to define assignments and location for AIP (Any Media Interface Platform) units. New form to support this feature.

EQHVC form (5763 Record) - This form is used to insert, review, update, and delete HVCs (High Level Virtual Containers). New form to support this feature.

EQLVC form (5764 Record) - This form is used to insert, review, update, and delete LVCs (Low Level Virtual Containers). New form to support this feature.

EQOIU form (5760 Record) - The OIU (Optical Interface Unit) form is used to define assignments and location of an OIU. New form to support this feature.

EQOIUP form (5761 Record) - The Optical Facility Interface Pack form is used to insert, review, update, and delete OFI (Optical Facility Interface) packs and PCT Links. New form to support this feature.

EQOSTE form (5762 Record) - This form is used to insert, review, update, and delete OIU STE (SONET (Synchronous Optical Network) Terminating Equipment) facilities. New form to support this feature.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the OIU value to the SECTION NAME field. Also removed all occurrences of the PBRTT value.

NAILUP form (5207 Record) - This form contains data to directly link ("nailup") two ports. Modified the C OE to add the OIU value ("O").

OFCOPT form (5509 Record) This form is used to supply various miscellaneous office options and parameters. Added the OFC SWITCH INT field.

OIUPM form (5767 Record) - The OIU Performance Monitoring form is used to insert, review, update, and delete PM (Performance Monitoring) groups which define performance monitoring thresholds for OIU transport facilities. New form to support this feature.

PRIGRP form (5211 Record) - This form is used to assign calls to channels on the DS1 facility containing that D-channel. Added the new unit type (OIU) to the equipment type table. Also added data rules to the SM and EQUIPMENT fields.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. Added data rules to the TRKOE, for type "F" and "O", and to the ICHN DESG fields.

SEC. 7BR: ADDITIONAL TIME SLOT MEASUREMENTS

1. FEATURE DESCRIPTION

The Additional Time Slot Measurements feature is being deployed in the 5E16(2) Software Release. The feature number for this feature is 99-5E-7855.

This feature introduces a new TSM (Time Slot Measurements) section of TRFC30 (30 Minute Traffic Report) report to monitor the efficiency of current TSI (Time Slot Interchanger) engineering. Section TSM (150) has six measurements (three new and three existing), that are collected on a per SM (Switching Module) or CMP (Communication Module Processor) basis, and reported on a per SM basis.

The following fields are provided in the new TSM (150) section:

SM - Switching Module Number

NTSATT - Number of network time slot attempts. This is the number of times attempts are made, by a given SM, to use network time slots to originate calls, regardless whether or not the attempt is successful.. The wide-band call attempts are counted as one attempt, regardless of the number of network time slots requested.

NTSOVL - Number of network time slot overflows. This is a number of times attempts are made, by a given SM, to use network time slots to originate calls, and these attempts are not successful, due to lack of free network time slots. The wide-band call overflows are counted as one overflow, regardless of number of network time slots requested.

BNTSMTU - Network Time Slots Maintenance Usage. This measurement provides the usage generated when network time slots are busy for any other reason than the call traffic.

BNTSMSM - Number of Network Time Slot Mismatches. This is the number of times we are unable to acquire two corresponding network timeslots. Timeslot mismatch is pegged both on the originating and terminating SM. If the path is intra-SM, the single SM is pegged twice. This is consistent between CM2 (Communication Module 2) and CM3 (Communication Module 3). Since calls on an intra-SM path do not require matching timeslots, mismatch in this situation means that less than two timeslots are idle. This counter is an TRFC30 report counter (section 4 (SAD (Software Administration and Distribution))), and it is added to this new TRFC30 report section 150 (TSM) to keep all the network time slot related measurements in one place.

BNTSUSG - Network Time Slots Usage. This measurement provides the usage generated when network time slots are busy for any reason. The count includes CTS (Control Time Slot) usage, both traffic and maintenance usage of NCT time slots, and usage from all nailed-up time slots associated with a given SM. This counter is an existing TRFC30 report counter (section 7 (TD), counter NTSUSG), and it is added to this new TRFC30 report section 150 (TSM) to keep all the network time slot related measurements in one place.

BNTSOCC - Network Time Slots Occupancy. This is the number, in percent, of peak network time slots occupancy of all 100 second periods during the TRFC30 interval. This counter is an existing TRFC30 report counter (section 83 (MOD1), counter NTSOCC), and it is added to this new TRFC30 report section 150 (TSM) to keep all the network time slot related measurements in one place.

2. FEATURE ASSIGNMENT

To provisioning this feature for ODA, on the MEASSUM form (5563 Record), set the following fields accordingly:

SECTION NAME = TSM

START1COMP = SM number

ROP may be set to enable or disable components for ROP reporting purposes when SECTION NAME is "TMS".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the new value "TSM" to support this feature. And also added a form check to the DEST SM field.

SEC. 7BU: INDICATOR FOR SS7-PSU SIGNALING LINK

1. FEATURE DESCRIPTION

The Indicator for SS7-PSU (Signaling System #7-Packet Switching Unit) Signaling Link feature is being deployed in the 5E16(2) Software Release. The feature number for this feature is 97-CP-8058.

This feature provides an indication on the DNU-S (Digital Network Unit-Sonet) and DLTU MCC (Master Control Center) pages when a facility contains at least one channel with an SS7 link. The MCC pages affected are the 1512 page for DNU-S and the 1120 - 1122 pages for the DLTU. The indication is a "\$" (i.e., SS7) next to the facility indicator. There is a new relation created on a per facility basis to indicate the presence of this link.

Several MCC pages are modified to display the text "\$=SS7" in the following circumstances:

When an SS7 link is assigned to a T1 facility terminating on a DFI, the corresponding MCC page 1120 - 1122 pre-pends in real time, the "\$" character to the "FAC" field to convey that the facility supports an SS7 signaling link.

When the last SS7 link is removed from the T1 facility terminating on a DFI, the corresponding MCC page removes in real time, the "\$" from the "FAC" field to convey that the facility no longer supports an SS7 signaling link.

The DNU-S DS1 (Digital Signal Level 1) facilities' MCC page 1512 also displays the text "\$=SS7" to convey that a DNU-S DS1 facility marked with a "\$" indication supports at least one SS7 signaling link.

When the first SS7 link is assigned to a DS1 facility terminating on a DNU-S, the corresponding MCC page 1512 pre-pends in real time, the "\$" character to the "FAC" field to convey that the facility supports an SS7 signaling link.

When the last SS7 link is removed from a DS1 facility terminating on a DNU-S, the corresponding MCC page 1512 removes in real time, the "\$" character from the "FAC" field to convey that the facility no longer supports an SS7 signaling link.

2. FEATURE ASSIGNMENT

This feature has no ODA impact, and therefore no provisioning is needed.

SEC. 7BV: 128 MB MEMORY CIRCUIT PACK FOR SM-2000

1. FEATURE DESCRIPTION

The 128 MB (Megabyte) Memory Circuit Pack for SM-2000 feature (99-5E-7932) is made available with the 5E16(2) and later Software Releases.

The 128 Mbytes Memory Board feature (99-5E-7932) provides additional DRAM (Dynamic Random Access Memory) for SM-2000. With this feature, both SM-2000 (SMPU4 and SMPU5) units dynamic memory spectrum is extended to support larger field generics.

The SM-2000 SMPU4 unit that has four memory slots per side can now be configured with maximum 384 Mbytes of addressable memory. This is achieved on the SMPU4 by having 64 Mbytes on a core processor board (UN560, UN593, and UN594), two 128 Mbytes (TN1816) memory boards, and one 64 Mbyte (TN1806) memory board.

The SM-2000 SMPU5 unit that has two memory slots per side can be configured with maximum of 384 Mbytes of addressable memory. This is achieved on the SMPU5 by having 128 Mbytes on the core processor board (UN588), and two 128 Mbytes (TN1816) Memory boards.

The 128 Mbyte memory boards may be freely mixed with the existing 32 and 64 Mbyte memory boards in the same SM-2000.

For all SMPU4 and SMPU5 configurations see tables below. The UN593 core board is an INTL only pack. The UN540(B) pack has no memory. The UN560, UN593, and UN594 have 64MB of memory. The UN588 has 128MB of memory but can only be used in an SMPU5 unit.

SM-2000 SMPU4 MEMORY CONFIGURATIONS WITH UN540(B) CORE BOARD

5E16(2)/5EE16(1) SM-2000 SMPU4 MEMORY EQUIPAGE				
MEMORY	MEMORY	MEMORY	MEMORY	TOTAL
SLOT 0	SLOT 1	SLOT 2	SLOT 3	MEGABYTES
TN1816	EMPTY	EMPTY	EMPTY	128
TN1685	TN1816	EMPTY	EMPTY	160
TN1806	TN1816	EMPTY	EMPTY	192
TN1685	TN1685	TN1685	TN1816	224
TN1685	TN1806	TN1816	EMPTY	224
TN1685	TN1685	TN1806	TN1816	256
TN1806	TN1806	TN1816	EMPTY	256
TN1816	TN1816	EMPTY	EMPTY	256
TN1685	TN1685	TN1816	TN1816	320
TN1685	TN1806	TN1816	TN1816	352
TN1806	TN1806	TN1816	TN1816	384
TN1816	TN1816	TN1816	EMPTY	384

SM-2000 SMPU4 MEMORY CONFIGURATIONS WITH UN560/UN593/UN594 CORE BOARD

5E16(2)/5EE16(1) SM-2000 SMPU4 MEMORY EQUIPAGE				
MEMORY	MEMORY	MEMORY	MEMORY	TOTAL
SLOT 0	SLOT 1	SLOT 2	SLOT 3	MEGABYTES
TN1816	EMPTY	EMPTY	EMPTY	192
TN1685	TN1685	EMPTY	EMPTY	224
TN1685	TN1685	TN1685	EMPTY	256
TN1806	TN1816	EMPTY	EMPTY	256
TN1685	TN1806	TN1816	EMPTY	288
TN1685	TN1685	TN1685	TN1816	320
TN1685	TN1685	TN1806	TN1816	320
TN1806	TN1806	TN1816	EMPTY	320
TN1816	TN1816	EMPTY	EMPTY	320
TN1685	TN1806	TN1806	TN1816	352

TN1685	TN1685	TN1816	TN1816	384
TN1806	TN1816	TN1816	EMPTY	384

SM-2000 SMPU5 MEMORY CONFIGURATIONS WITH UN560/UN593/UN594 CORE BOARD

5E16(2)/5EE16(1) SM-2000 SMPU5 MEMORY EQUIPAGE				
MEMORY	MEMORY			TOTAL
SLOT 0	SLOT 1			MEGABYTES
TN1816	EMPTY			192
TN1685	TN1816			224
TN1806	TN1816			256
TN1816	TN1816			320

SM-2000 SMPU5 MEMORY CONFIGURATIONS WITH UN588 CORE BOARD

5E16(2)/5EE16(1) SM-2000 SMPU5 MEMORY EQUIPAGE				
MEMORY	MEMORY			TOTAL
SLOT 0	SLOT 1			MEGABYTES
TN1816	EMPTY			256
TN1685	TN1816			288
TN1806	TN1816			320
TN1816	TN1816			384

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
VDCHN	5918	5	3W	22.32

EQIM form (5700 Record) - This form is used to define Switching Module Equipage Assignments. Added a data rule to the UNIT TYPE field.

SEC. 7BW: GLOBAL DIGITAL SERVICES FUNCTION MODEL 2

1. FEATURE DESCRIPTION

The (GDSF2) Global Digital Services Function Model 2 feature (99-5E-8024) is made available with the 5E16(2) FR 1 (Feature Release 1) and later Software Releases.

This feature is being implemented on the UN590 pack for NAR (Northern American Region). The GDSF provides 3 and 6 port conferencing (CONF), digital line and trunk test capability (ISTF (Integrated Services Test Facility)), analog line and trunk test capability (TTF (Transmission Test Function) and TTF2 (Transmission Test Facility 2)), and C5 (CCITT (International Telegraph and Telephone Consultative Committee) No. 5 Signaling Circuit) signaling. The GDSF can be equipped in either a DSU3 (Digital Service Unit 3) unit in an SM-2000 or a CSU (Combined Services Unit) in an SM.

This feature builds upon the GDSF base feature. For more information on GDSF, see Division 2, Section 7G.

2. FEATURE ASSIGNMENT

There is no provisioning specific to this feature.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
EQGDSC3	5860	8	63	19.19

EQGDSC3 form (5860 Record) - This form is used to define the GDSF (Global Digital Service Function) on the DSU3 for the SM and the SM-2000 class processor. Added data rules to the CLI field.

SEC. 7BX: OIU - IP (OPTICAL INTERFACE UNIT - INTERNET PROTOCOL)

1. FEATURE DESCRIPTION

The OIU- IP (Optical Interface Unit - Internet Protocol) feature is being deployed in 5E16(2) Feature Release 3. The feature number for this feature is 99-5E-8308.

The OIU - IP feature introduces a new architecture for the packet trunking IP application for the 5ESS Switch. This feature enables customers to position the 5ESS Switch as a gateway to the NGN (Next Generation Network).

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ALRMLVLS	5769	3	5CD	8.29
BEARERNET	5935	5	3AM	33.15
CGATIME	5766	3	5CB	20.33
ENETPIPE	5826	8	66	19.20
EQAIP	5765	8	90	19.27
EQHVC	5763	8	88	20.30
EQOIU	5760	8	85	19.28
EQOIUP	5761	8	86	20.28
EQOSTE	5762	8	87	20.29
FIXRT	5301-1	3	3G	10.1
IPPROC	5987	5	3N	33.1
LTGCADN	5222	3	2Z	5.76
LTGPCI	5221	3	2Y	5.75
MCRTIDX	5304	3	3Q	10.4
MEASSUM	5563	3	5BG	13.9
OFCOPT	5509	3	5I	8.1
OIUPM	5767	3	5CC	20.32
RTIDX	5303	3	3P	10.2
RTLST	5574	3	5BO	10.40
TKGRP	5202	3	2A	5.1

ALRMLVLS form (5769 Record) - This form is used to review and update alarm threshold levels. New form to support this feature.

BEARERNET form (5935 Record) - This form is used to insert, review, update and delete bearer networks. New form to support this feature.

CGATIME form (5766 Record) - This form is used to define alarm ON/OFF conditions of Alarm Indication Signals, Local Alarms, and Remote Alarms on all OIU (Optical Interface Unit) facilities. For 5E16(2) and later, modified the GENERAL section.

ENETPIPE form (5826 Record) - This form is used to enable the craft to review and update the ethernet links connected to an MH (Message Handler). For 5E16(2) and later, a data rule was added to the SERV TYPE field.

EQAIP form (5765 Record) - This form is used to define assignments and location for AIP (Any Media Interface Platform) units. For 5E16(2) and later, modified the GENERAL section.

EQHVC form (5763 Record) - This form is used to insert, review, update, and delete HVCs (High Level Virtual Containers). For 5E16(2) and later, modified the GENERAL section.

EQOIU form (5760 Record) - The OIU (Optical Interface Unit) form is used to define assignments and location

of an OIU. For 5E16(2) and later, modified the GENERAL section.

EQOIUP form (5761 Record) - The Optical Facility Interface Pack form is used to insert, review, update, and delete OFI (Optical Facility Interface) packs and PCT Links. For 5E16(2) and later, modified the GENERAL Section to include information on the OIU-IP feature, added the BNID, MAX ENG TS, and CP INHIBIT fields and related data rules, added a data rule to the SERVICE TYPE field, and added data rules and modified valid entries for the PACK TYPE field.

EQOSTE form (5762 Record) - This form is used to insert, review, update, and delete OIU STE (SONET (Synchronous Optical Network) Terminating Equipment) facilities. For 5E16(2) and later, modified the GENERAL section.

FIXRT form (5301-1 Record) - This form is used to define Routing and Charging treatment of Fixed Route Types. For 5E16(2) and later, added the "OGTGDSF" valid value for the FIXED ROUTE TYPE field.

IPPROC form (5987 Record) - This form provides the capability to provision up to five IP addresses and subnet masks, and associated IP, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) parameters to a processor (SM or PH). For 5E16(2) and later, added valid entries to include OIU and feature entries, a warning, and data rules for the PROCESSOR TYPE field, added the OVLD TRIG and PM GROUP fields and related data rules, added valid entries for the QUALIFIER 2 and QUALIFIER 3 fields, and added valid entries to the UDP START PORT field.

LTGCADN form (5222 Record) - This form is used for the Large Terminal Growth for IVTOA (Integrated Voice and Telephony Over ATM (Asynchronous Transfer Mode)) feature. For 5E16(2) and later, added the PKT GRP field to replace the BICC GRP field.

LTGPCI form (5221 Record) - This form is used for the Large Terminal Growth for IVTOA (Integrated Voice and Telephony Over ATM (Asynchronous Transfer Mode)) feature. For 5E16(2) and later, added the PKT GRP field to replace the BICC GRP field.

MCRTIDX form (5304 Record) - This form allows additional information that is required for ARS (Automatic Route Selection) and sometimes used for PFA (Private Facility Access). For 5E16(2) and later, updated the valid entries for the TRUNK GROUP NUMBER field.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. For 5E16(2) and later, added "BEARERNET", "IPOIU", and "PKTZ" valid entries and data rules for the SECTION NAME field, and updated the valid entries table for the START1COMP, START2COMP, and START3COMP fields.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. For 5E16(2) and later, added the following fields:

COMFORT NOISE GEN

OPS APM TIMER

TPS APM TIMER

INTG IDENTIFIER

OIU TDM CHBLK CNT

OIU TDM CHBLK LMT

OIU IP CHBLK CNT

OIU IP CHBLK LMT

OIUPM form (5767 Record) - The OIU Performance Monitoring form is used to insert, review, update, and delete PM (Performance Monitoring) groups which define performance monitoring thresholds for OIU transport facilities. For 5E16(2) and later, modified the GENERAL section.

RTIDX form (5303 Record) - This form is used to define each Route Index in a 5ESS Switch. For 5E16(2) and later, updated valid entries for the TRUNK GROUP NUMBER field.

RTLST form (5574 Record) - This form allows for a list of route indices to be linked or chained together for the purposes of searching for a non-busy route. For 5E16(2) and later, updated valid entries for the TGN field.

TKGRP (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. For 5E16(2) and later:

- added the PKT GRP field and related data rules

- added the "OGTGDSF" valid entry and a data rule for the TRKCLS field

- added the DIFF SERV field and associated valid entries.

- added valid entries for the TGN field (5202-1 Record) and modified the TGN field for the 5202-1 Record.

SEC. 7BY: PHA2 PSU TO PSU CONNECTIVITY

1. FEATURE DESCRIPTION

The PHA2 (Protocol Handler for ATM (Asynchronous Transfer Mode) 2) PSU (Packet Switching Unit) to PSU Connectivity feature (99-5E-8048) is made available with the 5E17(1) FR 1 (Feature Release 1) and later Software Releases.

This feature provides transport of CDMA (Code Division Multiple Access) traffic between PSUs as it is provided by the existing PHA. It also provides additional OA&M (Operations, Administration & Maintenance) capabilities, and the ability to directly connect more than 254 PSUs. The details of the capabilities supported by this feature are presented in the following:

The transport protocol stack supported by this feature is identical to the protocol stack supported on PHA1.

PHA2 does not support point-to-point connections (i.e connecting two PHA2 or a PHA2 and PHA1 directly with optical fiber). The PHA2 must always be connected to an ATM Switch.

The PHA2 for this feature supports all the PHA1 OA&M capabilities and additional capabilities such as performance monitoring of the ATM connections between PSUs with PHA2s. Both VP (Virtual Path) and VC (Virtual Connection) performance monitoring is supported. The performance monitoring is not supported between a PSU with PHA2 and another PSU with PHA1. This feature also supports both standard and enhanced loopback tests for both VPC (Virtual Path Connection) and VCC Virtual Channel Connection).

Ability to interconnect two PSUs with Virtual Channel Connections as opposed to the VP connections between two PSUs with PHA1, or two PSUs one with PHA2 and another with PHA1.

This feature allows PSUs in two different subnets to be connected directly using VCC when deployed either with the PHA1 GW (Gateway) (PSU Community Address Expansion feature - 99-5E-8012) or DLCI (Data Link Connection Identifier) Expansion feature (PSU Connectivity Enhancements feature - 99-5E-8048.A).

This feature supports the following ATM connection types

Intra-Subnet Connections

VPC between a PSU with PHA2 and another PSU with PHA1

VPC or VCC between any two PSUs with PHA2

Inter-Subnet Connections

VP connection to a GW (only allowed if PHA1 GW feature is activated)

VCC between PSU with PHA2 (only allowed if PHA1 GW or DLCI Expansion feature is activated)

This feature provides provisioning capabilities to choose the type of connection to be used per intra-subnet basis, inter-subnet basis, and also for an individual intra or inter-subnet connection

The PHA2 for this feature sets the VPI and VCI values as specified in the following table

Type of PSU Connection	ATM Connection Type	VPI and VCI Values
Intra-subnet	High Priority Virtual Path	VPI = 2 * Far PSU CA
PSU Connections	Low Priority Virtual Path	VPI = 2 * Far PSU CA + 1
	High Priority Virtual Channel	VPI = Provisioned VPI for High Priority VCC
		VCI = Far PSU CA + 64
	Low Priority Virtual Channel	VPI = Provisioned VPI for Low Priority VCC
		VCI = Far PSU CA + 64
Inter-subnet	Virtual Path	VPI = 2 * GW CA
PSU Connections	to Gateway PHA	
	Virtual Channel	VPI = Provisioned VPI for the Subnet
		VCI = Far PSU CA + 64

2. FEATURE ASSIGNMENT

Provisioning information is as follows:

Set the ACT field for SFID 221 (CDMA) to "Y" on the SFSYS form (5713-1 Record).

Insert a PSU Common Controller and SHELF 0 on the EQPSU form (5741 Record). COM ADDR must be inserted to be used later.

Define an ATM link on the ATMLNK form (5592 Record).

On the EQPSUPH form (5742 Record), insert a PHA2 on the designated SM/PSU/PSUSHELF/POSITION with CLI set to 1000 and the EQSTAT set to "G". SWITCHING MODULE and PSU must be the same values used when inserting a PSU on the EQPSU form.

On the CDMAOPT form (5599 Record), set the SUBNET ID as a default Near Subnet ID for an office.

Activate this feature on the PSUGW form (5991 Record).

➤ **NOTE:** The insertion of the CDMAOPT and PSUGW forms are only necessary if connecting to PSUs in different subnetworks.

Insert the INTERPSU form (5993 Record) using the SM, PSU, and LINK values from the ATMLNK form (5592 Record).

Insert the INTRAPSU form (5992 Record) using the SM, PSU, and LINK values from the ATMLNK form (5592 Record).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
ATMLNK	5592	5	5P	22.27
CDMAOPT	5599	8	80	8.75
INTERPSU	5993	5	3X	22.30
INTRAPSU	5992	5	3W	22.29
MEASSUM	5563	3	5BG	13.9
PSUGW	5991	5	3Q	22.26
PSUPM	5998	5	3AA	22.31

ATMLNK form (5592 Record) - This form allows a user to define and specify parameters for an ATM link.

This is a new form that supports this feature.

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. Added the SEND VC RDI and SUBNET ID fields. Also added data rules to these fields.

INTERPSU form (5993 Record) - This form allows users to define and specify parameters needed for inter-network PSU connectivity. This is a new form that supports this feature.

INTRAPSU form (5992 Record) - This form allows users to define and specify parameters needed for intra-network PSU connectivity. This is a new form that supports this feature.

MEASSUM form (5563 Record) - This form is used to display the components that have been selected for measurements for some sections of the 30 minute measurements report. Added the ATMLNK and ATMQOSPS values to the SECTION NAME table and associated data rule.

PSUGW form (5991 Record) - This form allows a user to assign a gateway community address to each PSU. This is a new form that supports this feature.

PSUPM form (5998 Record) - This form is used to define the parameters used in a session in order to monitor the performance of the ATM connection for this feature. This is a new form that supports this feature.

SEC. 7BZ: CNI/PSU SUPPORT FOR 128K ISUP TRUNKS

This feature has been moved to Division 2, Section 4A622.

SEC. 7CA: GROWABLE CMP MEMORY

1. FEATURE DESCRIPTION

The Growable CMP Memory feature is made available with the 5E16(2) FR1 (Feature Release 1) and later Software Releases. The feature number for this feature is 99-5E-8351.

This feature provides an engineerable-sized CMP ODD (Communications Module Processor Office Dependent Data) with commands to grow the amount of available ODD on the required first and second auxiliary boards as well as an optional third memory board.

The Growable CMP Memory feature creates variable-sized ODDs for the CM2 (Communications Module 2) and CM3 CMPs, in order to reduce the average (CM2) CMP ODD allocation so that 5E16(2) offices normally fit into the 51MB (TN1800 core plus two TN1369 memory boards), which is required for 5E15. Rather than a smaller fixed-size ODD, this feature produces ODDs engineered as required by the input, as is done currently for the SMs (Switching Modules). Growth of the CMP ODDs must therefore be supported to allow offices the ability to increase beyond their initial spare allocation.

In order to cover all possibilities, installation and diagnostics of the third memory board must be possible in 5E14 and 5E15 to provide for any offices, which require the third memory board in order to retrofit to 5E16(2). This means the ODD evolution must be able to recognize this situation and adjust the relevant ODD values (e.g. physical memory size) accordingly.

Because of the extent of porting from the SM procedures, and the CM2/CM3 commonality (i.e., to reduce the development complexity), two aspects, which are not required by the external needs are implemented. They are Dynamic ODD growth and CM3-CMP ODD growth (static and dynamic). In addition to implementing the ODD growths, the OP:ODD command needs to be enhanced to indicate the unallocated memory available for use.

Growth of the third memory board as an optional entity for use in the current generic seems to require a new procedure, as well as some new administration of switch variables. It must be determined if two or three memory boards are required in an office. The growth of the third memory board via RC must indicate that the additional memory is available for ODD growth to use. All this must of course be done through Global Parameters; CMP Critical Information cannot be used for this purpose, nor can subsystem .data, as these cannot be altered by an ODD backup. Similarly, all Critical Information data relating to ODDs and memory boards must be scrubbed to be sure that it remains accurate, is deleted, is moved to control ODD, or is derived at runtime from [CMP] ODD.

2. FEATURE ASSIGNMENT

This feature has no ODA impact, and therefore no provisioning is required.

SEC. 7CB: LARGE CAPACITY SWITCH CLASS 4/5

1. FEATURE DESCRIPTION

The Large Capacity Switch Class 4/5 feature is made available with the 5E16(2) FR1 (Feature Release 1) and later Software Releases. The feature number for this feature is 99-5E-8336.

This feature depends on the CM3(Communication Module Model 3) TMS (Time Multiplexed Switch) (also known as "NxTMS" where "N" equals the number of TMS fabric pairs) Fabric Expansion feature, 99-5E-4104. This involves SFIDs (Secured Feature IDs) 662, 663, and 664 which are required to grow the additional CM3 growth cabinets. (For more information on the CM3 TMS Fabric Expansion feature, see Division 2, Section 7BO.)

This feature supports two distinct offerings of a Class 4/5 Switch. They are Line Intensive and Trunk Intensive using CM3/PSU-SS7 based, available in 5E16(2) FR1 release. There are two options:

Option 1: SM-2000 (Switching Module-2000) Only - New Start and Conversion (3 TMSFPs)

Trunk Intensive: 20K-40K Lines + 170K-190K Tandem Trunks

Line Intensive: 180K Lines + 75K-100K Tandem Trunks

Option 2: SM and SM-2000 Mixed - Conversion (2 TMSFPs)

This configuration supports up to 90 SMs. New tandem trunks placed on SM-2000.

Trunk Intensive: 20K-40K Lines + < 160K Tandem Trunks

Line Intensive: 180K Lines + 75K-100K Tandem Trunks

The LCS solution uses existing 5ESS components and builds upon the Large Capacity Tandem capability. The LCS solution makes use of the CM3 NxTMS which allows the number of line/trunk terminations and the Busy Hour Call Attempts (BHCA) to be scaled to a higher level than previously possible.

The LCS solution includes existing line and trunk features (including tandem features provided with LCT) and the 5ESS Long Distance Platform (LDP) features.

2. FEATURE ASSIGNMENT

This feature has no ODA impact, and therefore no provisioning is required.

SEC. 7CC: AUTOPLEX WIRELESS TRUNKS ON OIU

1. FEATURE DESCRIPTION

The AUTOPLEX (Lucent Registered Trademark for its Cellular Switching Systems) Wireless Trunks on OIU (Optical Interface Unit) feature is being deployed in the 5E17(1) FR 2 (Feature Release 2) and later Software Releases. The feature number for this feature is 99-5E-8117. This feature is built upon the base OIU- OC-3 (Optical Carrier Level 3) NAR (North American Region) feature. For more information on the base feature see Division 2, Section 7BQ.

The AUTOPLEX Wireless Trunks on OIU feature provides the OIU with an OC3 interface to the AMPS (Advanced Mobile Phone System) customers, and was developed with the following configuration in mind:

OIU (SONET (Synchronous Optical Network), OC-3, 24 channel) for CDMA (Code Division Multiple Access) only. This feature uses unidirectional APS (Automatic Protection Switching) , double-board double fiber, and has no need for more than 4500 AFAC (AUTOPLEX Facility) IDs (Identifications). Only PHV4 (Protocol Handler for Voice Version 4) and later is supported. OIU does not have internal echo cancellers. The recommended configuration for OIU Wireless is to use PHVs with internal echo cancellers, such as PHV4 and PHV5. NOTE: This does not preclude the use of external echo cancellers or the use of PHV1, PHV2, or PHV3. However, these configurations were not specifically verified.

The feature supplies optical OC-3 connection from DCS (Digital Cellular Switch) to a SONET ADM (Add/Drop Multiplexer).

generally, this will be SM (Switching Module)-OIU-ADM-SONET ring

anything beyond SM is optical interface

Anything external to the OIU that wants to connect optically must do so via SONET ring.

This feature does not provide any additional message control mechanisms between the 5ESS and the ECP if an OIU status change (e.g., remove/restore links) causes excessive message generation. Present overload control is used.

2. FEATURE ASSIGNMENT

The only provisioning specific to ODA is to set the new field, AFAC ID, (if needed) on the EQLVC (5764 Record) to a valid value.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDSC3	5852	8	54	19.18
EQLVC	5764	8	89	20.31
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

EQDSC3 form (5752 Record) - This form is used to define the DSC3 unit to provide the LDSUF (Local Digital Services Unit Function) to expand tone generators and decoders required for the expanded capacity of the SM-2000. Added a data rule to the EQSTAT field.

EQLVC form (5764 Record) - This form is used to insert, review, update, and delete LVCs (Low Level Virtual Containers). Added the AFAC ID field and associated data rules.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added data rules to the TRKCLS field of type "BCM", "DSC", and "PPMEM". Also added a data rule to the DCS TRK field.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. Added data rules to the TRKOE field the the "O" type.

SEC. 7CD: PHV6 (PROTOCOL HANDLER FOR VOICE - 6)

1. FEATURE DESCRIPTION

The PHV6 (Protocol Handler for Voice - 6) feature is being deployed in the 5E18(1) and later Software Releases. The feature number for this feature is 99-5E-8434.

PHV6 is a new downloadable vocoder board that reduces COGS (Cost of Goods Sold) and increases the capacity of the CDMA (Code Division Multiple Access) 5ESS DCS (Digital Cellular Switch) for NAR (North American Region) and INTL.(International) PHV6s which supports 128 voice only calls. No low/high speed data calls are supported.

This feature introduces a new PHV hardware - PHV6, which has a new DSP (Digital Signal Processor) microprocessor that is based on an Agere DSP 16411. The Agere DSP 16411 provides larger SRAM (Static Random Access Memory) 160Kwords/DSP core) than DSP 16410. One of the most important reasons for the DSP upgrade is to enable the PHV6 to have a combined DSP image which supports QCELP13K and EVRC (Enhanced Variable Rate Codecs). The PHV6 also supports new Enhanced PSU2 (i.e., PSU2E) platforms. However, PHV6 does not support any high or low speed circuit/packet switch data application that PHV5 currently support, nor will ISLP (Inter System Link Protocol)/A5 functionality be supported.

New hardware is added:

The PHV6 adds an VISA128 external SRAM for future feature use. The VISA128 external SRAM is configured solely for VISA FPGA (Functional Programmable Gate Array) to use.

2. FEATURE ASSIGNMENT

Provisioning for this feature is as follows:

On the EQPSUPH form (RC (Recent Change) view 22.4), insert a new physical PHV6 and update EQSTAT to "O".

On the PSUGP form (RC view 22.16), assign a logical channel group 0 to be a Speech Handler Channel Group. The GRP TYPE field is NULL because no applications exist for this channel group yet.

On the TKGRP form (RC view 5.1), create a Speech Handler trunk group (no members exist yet so no tuple will be put into RLpsu_trkg) with SERV TYPE equal to "13K".

On the TRUNK form (RC view 5.5), create a Speech Handler trunk group member using an OE (Office Equipment) number which designates logical channel group 0, channel member 0.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741	8	22	22.2
EQPSUPH	5742	8	23	22.4
PSISM	5920	5	3A	22.13
PSUGP	5949	5	3J	22.16
TKGRP	5502	3	2A	5.1

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. Modified a

data rule under the PSU TYPE field.

EQSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. Added the PHV6 MIN SPARE field and associated data rule. Also added the PHV6 value to the table for PH CLI.

PSISM form (5920 Record) - This form is used to define a dedicated path from an ISCN (Integrated Services Channel Number) in one SM (Switching Module) to an ISCN in another SM. Modified 1 data rule under the ISCN field.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Added the AVAILABLE PHV6 field and a new value to the PH TYPE field. Also added data rules to the PH TYPE field.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added a new value and data rule to the SERV TYPE field.

SEC. 7CE: PSU2E PF3/CF3

1. FEATURE DESCRIPTION

The PSU2E (Packet Switch Unit version 2 Enhanced) PF3/CF3 (Packet Fanout Version 3/Control Fanout Version 3) feature (99-5E-8013) is made available with the 5E18(1) and later Software Releases.

In the current PSU2 architecture, the Protocol Handlers have access to only a half duplex 100 Mb/s PB (Packet Bus). The PB limitation imposes a restriction on the number of PHs (PHVs (Protocol Handlers for Voice), Data PHs, FRPHs (Frame Relay Packet Handlers), and PHAs (Protocol Handler for Asynchronous Transfer Mode) handling voice and data. This packet bus constraint puts a limitation on the capacity (number of voice and data calls) that the SM2K can handle.

The current PSU2 can handle about 1000 erlangs of voice traffic (which translates to about 36000 Busy hour call of CDMA (Code Division Multiple Access) calls (mobile to mobile and land to mobile calls at 100 second holding time) irrespective of the PHV and DSP (Digital Signal Processor) technology or density. In other words, the current PSU2 will not be able to fully take advantage of the PHV advances beyond PHV4 or PHV5 (i.e., only 15 PHV5 can reside on a PSU2 due to the PB limitation).

Moreover, the current PSU2 bus can not handle adequate number of 3G_1X HSPD (High Speed Packet Data) calls. Because the PSU2 is limited by its PB capacity, the engineering of the PSU2 with both HSPD and voice service can be very cumbersome since data burst may adversely impact the quality of the voice calls that is taken place in the same PSU2 bus.

Given the above limitations, the present PSU2 has been upgraded.

The PSU2E (Enhanced PSU2 with PF3/CF3) was developed as a base for all SM/PSU capacity increase present and future needs. The PSU2E is introduced as replacement of PSU2 to increase the SM2K call capacity when deployed with the CORE700 processor(1). The PSU2e feature increases the packet bus capacity up to 8 Gb/sec (assuming the PHs have the capability to transmit and receive at this rate) from the exiting 100 Mb/sec half duplex. This is accomplished with new packet and control fanout circuit boards, PF3 and CF3.

The PSU2E PF3/CF3 feature increases the overall capacity of the Packet Bus that forms the backbone of the PSU (Packet Switch Unit). The capacity improvement is accomplished by shifting the architectural paradigm of the PSU from that of a hub-based interconnect (only one element of the PSU can utilize the bus at any given point in time) to one that is switch-based (all elements of the PSU are simultaneously able to communicate with other elements). Hence, increasing the capacity of the PSU.

The new PF3 (Packet Fanout) and CF3 (Control Fanout) circuit boards increases the Packet Bus throughput from the existing 100 Mb/s half duplex to a maximum of 8 Gb/s (assuming the PH can transmit/receive at 100 Mb/s.) Each shelf has the capacity to handle a load of 1.6 Gb/s.

2. FEATURE ASSIGNMENTS

In order to provision this feature, below is an example of how the fields would be populated:

EQPSU form (5741 Record), insert a new tuple

SWITCHING MODULE = 001

PSU = 0

SG 0 TYPE = PSU2E

SG 1 TYPE = PSU2E

INTF TYPE = PICB

EQPSUPH form (5742 Record), insert a new tuple

SWITCHING MODULE = 001 (SWITCHING MODULE on EQPSU form)

PSU = 0 (PSU on EQPSU form)

PSU SHELF = 0

EQST = 0

PH CLI = 10000

PSUGP form (5949 Record), insert a new tuple

SM = 001 (SWITCHING MODULE on EQPSU form)

PSU = 0 (PSU on EQPSUPH form)

PSU SHELF = 0 (PSU SHELF on EQPSUPH form)

GRP = 0

PH TYPE = PHA2

ATMLNK form (5592 Record), insert a new tuple

SM = 001 (SWITCHING MODULE on EQPSU form)

PSU = 0 (PSU on EQPSUPH form)

LINK = 01

SHELF of CHAN 1 = 0 (PSU SHELF on EQPSUPH form)

POSITION of CHAN 1 = 0 (PH on EQPSUPH form)

CHL GRP of CHAN 1 = 0 (GRP on PSUGP form)

CON TYPE of CHAN 1 = ATMNET

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741	8	22	22.2

PSUGP	5949	5	3J	22.16

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. Added the INTF TYPE field and change the PSU field to be represented in two fields (SG 0 TYPE, and the SG 1 TYPE). Added data rules to the PSU, SG 0 TYPE, SG 1 TYPE, and SHLF SIDE 0 CLI fields.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Added data rules to the SM field.

SEC. 7CF: PSU/SS7 LOOPBACK CAPABILITY

1. FEATURE DESCRIPTION

The PSU (Packet Switch Unit) SS7 (Signaling System 7) Loopback Capability feature (99-5E-8402) is made available with the 5E16(2) FR 4 and later Software Releases.

For the CNI (Calling Number Identification)-based SS7 signaling links, the STP (Signal Transfer Point) is able to send SS7 messages to a manually applied DS0 (Digital Signal Level 0) loopback within the D4 channel bank. This allows problems to be isolated to the network.

For PSU-based SS7 signaling links, there is no D4 to provide the DS0 loopback. This feature provides this capability.

SEC. 7CG: MULTIPLE PHA2 FOR PSU TO PSU CONNECTIVITY

1. FEATURE DESCRIPTION

The MPHA2 (Multiple PHA2 (Protocol Handler for ATM (Asynchronous Transfer Mode) 2) for PSU (Packet Switching Unit) to PSU Connectivity feature (99-5E-8478) is made available with the 5E18(1) and later Software Releases.

This feature provides the following capabilities:

Supports up to 10 PHA2 PSU links (simplex or duplex) on a PSU2e (Packet Switch Unit Model 2 Ethernet) only and inter-works with a PSU2 with PHA2 or PHA1 for ATM point-to-multipoint connections only. Gateways are not included since they have been discontinued.

Supports up to 4 subnets in NAR (North American Region) and INTL (International). High and low application type CA assignments are for intra-subnet, and only high application types are for inter-subnet.

Allows the SP (Service Provider) to assign a set of intra and inter-subnet high and low "application type" CA assignments to the same or different PHA2 PSU link via the PSUNWK form (5992 Record), or RC/V (Recent Change/View) 22.29.

The SP is responsible for setting up the ATM PVC (Permanent Virtual Circuit) so that traffic is correctly routed between the PSU links.

Populates initial PHA2 PSU link assignments (also termed first or existing link) according to the rules in the table below.

Subnet Type	DCS Type	Connection Type	Application Type
Intra Subnet	Intra-DCS PSU	VPC or VCC	Both
	Inter-DCS PSU	VPC or VCC	High
Inter Subnet		VCC	High

Traffic destined to a far CA is routed to its assigned PHA2 PSU link. Existing PHA2 PSU links per PSU are assigned automatically as the initial link.

Measurements have been updated:

A new service measurement report (ATMPVC) to help in determining how to distribute the traffic per PVC (VPC and VCC) measurements (New TRFC30 Section 43). The NP (Network Process) has been updated to support this measurement. This report has 8 new counts including average and peak transmit and receive cell counts. Additionally, it also provides the NEARCA, VPI (Virtual Path Identifier), VCI (Virtual Circuit Identifier), and VALID DATA. The new ATMPVC report will run on both the PSU2 and PSU2e. The ATMPVC report is not valid on PSAU2 if the PSU link uses PHA1 hardware.

Supports all Performance Monitoring (PM) capabilities. ATMQOSPS section 239 is the PM (Performance Monitoring) report number.

Supports new commands to test end-to-end connectivity. This test is between source PI/PH to destination, to verify routing, and communication.

Enhanced TST:PHPATH to report CA to PHA2 PSU link assignment mismatches.

Updated OP:ATMALM command to print mismatch report for all the PSU links:

a link declares user traffic from a CA as a "mismatch" when the CA and AT is not assigned to the link
The traffic is still forwarded to PF3.

an alarm is raised on MCC 1187 upon receiving mismatched user cells.

Will allow each far CA-application type combination to be assigned to a single unique link via RC/V (Recent Change/View).

There will be OMP(Operations and Management Platform)/Watchmark support.

2. FEATURE ASSIGNMENTS

In order to provision this feature, set the various fields as follows:

Networking Provisioning

Provisioning PHA2s on EQPSUPH form (5742 Record), insert the following:

SM = 1 - 192

PSU = 0 - 1

PSU SHELF = 0 - 4

PROTOCOL HANDLERS (PH) is a list:

ROW = 0 - 16

PH = 1 - 15

EQST = 0

PH CLI = 10000

Provisioning the ATM LINK on the ATMLNK form (5592 Record):

insert the CON TYPE as "ATMNET"

add the same SM/PSU/LINK/SHELF and PH channel group (defined on the EQPSUPH form).

Provisioning the PSU network routing data on the PSUNWK form (5992 Record):

Use the same SM/PSU/LINK that was assigned on the ATMLNK form.

For the FAR SUBNET ID field, if this is a intrapsu, the value is the same as the CDMAOPT form's SUBNET ID, or interpsu enter a different value.

For the NETWORK CON TYPE, if this field is set to "VPC", and CON TYPE is "VCC" for CA2, this means the connection type between SM/PSU and other SMs/PSUs within the office is "VPC" except

CA2 in the intra network.

The application type (APP TYPE) is needed to route to a community address.

Reviewing Measurement Selectivity is used because you can't provision the measurements on the MEASSUM form, you can only review them.

Review MEASUREMENT COLLECTION SUMMARY on the MEASSUM form (5563). Enter the following:

SECTION NAME = ATMPVC

START1COMP = PSU number = 0 - 1

START2COMP = link number = 1 - 10

START3COMP = FAR SUBNET (0-3)-FAR COMMUNITY ADDRESS (1-254)-APP TYPE (H or L).

FAR COMMUNITY ADDRESS = 1 - 254

APP TYPE = H or L

DEST SM = SM

The ROP field indicates whether the summary report is printed for the components indicated by fields START1COMP, START2COMP, and START3COMP.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
ATMLNK	5592	5	5P	22.27
CDMAOPT	5599	8	80	8.75
MEASSUM	5563	3	5BG	13.9
PSUGW	5991	5	3Q	22.26
PSULNK	5057	7	2A	22.22
PSUNWK(INTRAPSU prior to 5E18(1) FR1)	5992	5	3X	22.29
PSUPM	5998	5	3AA	22.31

ATMLNK form (5592 Record) - This form allows a user to define and specify parameters for an ATM link. Added the DEFAULT LINK field with associated data rules.

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. Removed a data rule from the SUBNET ID field.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the ATMPVC value and associated data rule to the SECTION NAME field.

PSUGW form (5991 Record) - This form allows a user to assign a gateway community address to each PSU. Removed data rules from the NETWORK 0 field and GATEWAY ADDRESSES header section.

PSULNK form (5057 Record) - This form is used to define links between packet switch units using PHA1s (Protocol Handlers for Asynchronous Transfer Mode). Added data rules to the CON TYPE and FAR COM ADDR fields.

PSUNWK form (previously called INTRAPSU) (5992 Record) - This form allows a user to define and specify parameters needed for PSU (Packet Switching Unit) connectivity. Changed the form name from "INTRA Network Connectivity (INTRAPSU)" to "PSU Network Connectivity (PSUNWK)". Also added the FAR SUBNET ID, DEFAULT LINK and the APP TYPE fields with data rules.

PSUPM form (5998 Record) - This form is used to define the parameters used in a session in order to monitor the performance of the ATM connection for this feature. Also modified data rules for the NEAR COM ADDR field.

SEC. 7CH: SIP PACKET TRUNKING SUPPORT FOR INTER-CARRIER CALLS

1. FEATURE DESCRIPTION

The SIP Packet Trunking Support for Inter-Carrier Calls feature (99-5E-8586) is made available with the 5E16(2) FR 6 (Feature Release 6) and later Software Releases.

Prior to this feature, a SIP packet group could not be associated with an IXC (Inter-Exchange Carrier) or LATA (Local Access and Transport Area) trunk class. This feature is an enhancement to the base SIP for Packet Trunking feature (see Division 2, Section 4A684) and is therefore dependent upon the base feature. This feature works with either the SCTP (Stream Control Transport Protocol) Transport Layer or UDP (User Datagram Protocol) Transport Layer feature. If UDP is used, this feature is also dependent upon the UDP Transport Layer for SIP feature (99-5E-8581). For information on the UDP feature see Division 2, Section 4A700

The purpose of this feature (99-5E-8586) is to expand the availability of SIP-T signaling to other trunk classes and applications on the 5ESS Switch.

This feature provides the following:

- SIP-T packet trunk connectivity between different carriers.

- Supports SIP-T on LDP (Long Distance Platform) switches.

Furthermore, this feature allows SIP-T packet trunks to be provisioned with a trunk class of IC or LATA.. This means that calls between an EO or AT switch and a Toll (e.g. LDP) switch can use SIP-T signalling.

The LDP 5ESS Switch also supports calls to other IXC switches using TTOLL trunks. Some of these IXC trunks are MINT (Multi-vendor Intra-Network Trunks) and some of them are regular TTOLL trunks (i.e. not LDP or MINT trunks). This feature allows MINT and regular TTOLL trunks to use SIP-T signaling.

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NOTE: For more information on this feature please refer to the Lucent Technology document number 235-190-400 *Feature Description Document*.

2. FEATURE ASSIGNMENTS

This feature impacts the following RCVs (Recent Change Views)/ODA (Office Data Administration) forms:

With the introduction of this feature, the following fields on TKGRP form (5202 Record) or RCV view 5.1 can now be set to non-default values for the associated trunk class.

RC View 5.1 Field	Trunk Classed		
	IC	LATA	TTOLL_ CONN
ACCT PROMPT	X	X	X
ANI PROCESS		X	
API CODE	X	X	X
ASP TOLL			X
ATP IC RSTRCT	X	X	
BLK NO ANI		X	
CARRIER TRIG		X	X
CFN RSTRCT	X		X

CHG RSTRCT		X	
CPN RSTRCT		X	
CT FOR DT	X	X	X
CUT THRU TRIG		X	
LDP	X	X	X
MAI	X	X	
MBG ID		X	
MBG TRANSPORT		X	
MINT SIG TYPE			X
NETWORK IND	X	X	X
NI ANNC	X		
NI IW REL	X		
PREF NPA		X	
REL LINK INIT		X	X
RTCD REQ	X	X	X
SEND LD CIC			X
TERM BILL	X	X	
UUI IC RSTRCT	X	X	
VPN ACCESS		X	

RTIDX form (5303 Record) or RCV 10.2 can be populated with non-default values on trunks that use SIP-T signalling:

- RTE SEARCH LMT
- TERM NSC
- REL LINK TYPE
- FINAL RTE TRIG or FNL RT TRIG NBR (ODA)
- RT DES TYP or DESTINATION PSN (ODA)

With the introduction of this feature, the following fields on the MCRTIDX form (5304 Record) or RC/V view 10.4 can be populated with non-default values on trunks that use SIP-T signalling:

- RTE SEARCH LMT
- TERM NSC
- RT DESC (RCV only)

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MCRTIDX	5304	3	3Q	10.4
RTIDX	5303	3	3P	10.2
TRUNK	5202	3	2A	5.1

MCRTIDX form (5304 Record) - The MCRTIDX (Modular Customization Route Index) form is similar to the Route Index defined on the RTIDX form (5303 Record). The MCRTIDX form, however, allows additional information that is required for ARS (Automatic Route Selection) and sometimes used for PFA (Private Facility Access). Added data rules to the TRUNK GROUP NUMBER field.

RTIDX form (5303 Record) - This form is used to define each Route Index in a 5ESS Switch. The 5303

record is intended to be used as an office record and as a source document for data entry into the RTIDX form. Added data rules to the TRUNK GROUP NUMBER.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added data rules to the PKT GRP field.

SEC. 7CI: SM-XC

1. FEATURE DESCRIPTION

The SM-XC feature is being deployed in the 5E16(2) FR 6 Software Release. The feature number for this feature is 99-5E-8469.

The SM-XC feature builds on the original SM2K Lite platform cost/floor/power-reduction feature. The SM-XC provides the same 2-shelf high single SM unit concept but is architected to support all SM-2000 applications instead of the small-mid size applications the SM2K Lite provided.

The development of this feature focused on three new hardware architecture/design concepts conceived by the HW(Hardware)/SW (Software) development and Architecture team, along with the supporting SW to ensure transparency in ALL areas with existing SM-2000 and allow for all SM-types (SM, SM-2000, and SM-XC) to co-exist in a single 5E office. SM-XC builds upon the work already being done for CORE700 [CORE700_HLD] and MHPPC [MHPPC_HLD], and fully re-uses those platform developments and packs without modifications.

The four key hardware concepts to be introduced in this platform feature are:

1. Two new SM unit backplanes - Metral backplane, high speed, larger bandwidth, to support the new TSI (Time Slot Interchange) design. Fastech backplane - allows re-use of existing SM-2000 SMP (Switch Module Processor) core circuit packs.
2. The new shelf is double high, to house all necessary SM pack types in full redundancy (both core/processor, peripheral interface, power, and 2 new TSI/fabric pack types).
3. A new TSISCOM circuit pack to support both core communications and a single TSI slice.
4. New TSIS3X Slice circuit pack to support three times the capacity of the existing SM-2000 TSIS pack.

SM-XC was developed to support TRCU3 so an EXM (Extended Switching Module 2000) may be supported. The EXM is the last "remote" mode supported in NAR (North America Region) by an SM-2000.

Besides the data hooks for the separate remoting feature, this repackaging platform feature also includes password protection in RC (Recent Change). This supports TSI slice growth where the total number of SM-XC slices is accounted for on a per office basis.

To update the TSI maximum count global parameter; for NAR, an off-line password program was created to provide a password to be entered on RC view 8.1. For INTL, the existing process of using RC view FETVL to update the maximum count will be used. RC view 18.17 (NAR) and EMTSI (INTL) will be used to grow TSI slices. It was modified to check the TSI count against the maximum count when it is on an SM-XC and keep the current count. The growth of the slices remain the same, that is per module controller (MC), per slice.

2. FEATURE ASSIGNMENT

The feature has no ODA impact, therefore no provisioning is needed.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC Viewm
CICDIST	5217	3	2T	5.70

EQCMTRCU	5812	8	32	17.5
				17.18
EQCORE	5701	8	3	17.16
EQDNUS	5855	8	57	19.14
EQIM	5700-1/2	8	2	18.1
EQPSU	5741	8	22	22.2
MEASSUM	5563	3	5BG	13.9
OFCOPT	5509	3	5I	8.1
QPHPIPE	5828	8	70	17.24
SIPGSM	5880	5	3AB	5.80
SIPTSMS	5881	5	3AC	5.81

CICDIST form (5217 Record) - This form is used for the ATM Global Routing and Signaling secured feature which is available with 5E15 Feature Release 1. Modified a data rule under the (CICDIST) SM2K MODULE field.

EQCMTRCU form (5812 Record) - This form is used to define the physical location of the TRCU (Transmission Rate Converter Unit), TRCU2 (TRCU Version 2) or the TRCU3 (TRCU Version 3) for up to two ORMs (Optically Remote Switching Modules). Modified data rules under the TRCU NUMBER and TRCU TYPE fields.

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments in a 5ESS Switch office. Added data rules to the VCDX OFFICE, DRM, and CM VINTAGE fields.

EQDNUS form (5855 Record) - This form is used to define the equipage information for the DNU-S (Digital Networking Unit-SONET) in an SM-2000. Added a data rule to the SM field.

EQIM form (5700-1/2 Record) - This form is used to define Switching Module Equipage Assignments. Added data rules to the UNIT TYPE, SM USAGE, IMPU, EQSTATUS and PI SG 0 EQSTATUS fields.

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. Added data rule to the General Section.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added data rule to the SECTION NAME field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the TSI CNT and TSI LIMIT fields.

QPHPIPE form (5828 Record) - This form provides the basic description of the SM (Switching Module) side of the QLPS (Quad-Link Packet Switch) pipe connecting the QPH (QLPS Protocol Handler) to the QLPS network. Modified data rules under the GLOBAL SM field.

SIPGSM form (5880 Record) - This form is used to insert, review, update, or delete the SIP GSM (Global Switching Module). It supports the SIP (Session Initiation Protocol) for Packet Trunking SIP-T (Session Initiation Protocol for Telephones) feature (99-5E-8382). For more information, see Division 2, Section 4A684. Added a data rule to the GSM field.

SIPTSMS form (5881 Record) - This form used to specify SM-2000 modules in an office for SIP-T call processing. Added a data rule to the SM2K MODULE field.

SEC. 7CJ: IRAP (AIU Integrated Loop Testing POTS Cards)

1. FEATURE DESCRIPTION

The IRAP (AIU (Access Interface Unit) Integrated Loop Testing POTS (Plain Old Telephone Service) Cards) feature is being deployed in the 5E16(2) FR 6 Software Release. The feature number is 99-5E-8460.

This feature provides a new AIU LPZ200 line pack that includes the ability to provide IMT (Integrated Metallic Testing) of loops (both analog and ISDN) without the need for external test equipment such as SLIM2 and ALIT (Automatic Line Insulation Testing).. In addition, the pack will consolidate support for the existing functionality of the current AIU LPZ100 POTS and LPP100 PPM packs within a single pack that supports 32 lines.

This new line pack is mostly transparent to existing customer operations, while eliminating the need for external ALIT, SLIM and TAP100 circuit packs currently providing these loop test functions. The TLWS (Trunk Line Work Station) use of the DCTU (Digital Line and Trunk Unit) is being replaced by the LPZ200 IMT functionality, but IMLT(Integrated Mechanized Loop Testing)/LoopCare will continue to use the DCTU to test LPZ200 lines.

The LPZ200 pack is also known as IRAP, due to the fact it is an IMT with Relay Application Pack.

Included in the feature is software development to support LPZ200 circuits/lines in the following areas:

Pack Initialization and Configuration provides the following:

- The ability to initialize the pack hardware and bring the pack and associated line circuits into service during a SM initialization.

- The ability to remove and restore the pack (RMV/RST:AIULP) and/or associated line circuits (RMV/RST:AIULC) both manually and automatically.

- The ability (for lines which have subscribers assigned) to remove and restore line ports (RMV/RST:LINE,AIUEN) both manually and automatically.

- With the LPZ200 firmware providing backward compatibility with call processing software, the ability to make and receive calls.

With the LPZ200 firmware providing backward compatibility with call processing software, the ability to make and receive calls.

Metallic Line Testing provides the following:

- The ability to use the TLWS interface (INTL and NAR) or SLIM operator mode interface (INTL only) to manually perform tests equivalent to those tests previously performed using a SLIM2 test device.

- The ability to use SLIM routine mode to perform scheduled line testing, and support for ALIT/DLIT line testing using a new SM based LIT process (which is not driven by MMSU ALIT hardware and MTB equipage).

- The ability to perform (in INTL only) SLIM linesman testing of lines.

- The ability to use a defined set of (up to two) LPZ200 line circuits as test heads used to connect to and metallically test non-LPZ200 lines on the same AIU shelf. A dedicated relay allows line 31 (and

only line 31) to connect directly to the AIU metallic backplane bus when it is equipped as a test head. Line 15 can be equipped as a second test head on the same pack, but must use the existing line pack buses to connect to the backplane bus.

When two test heads are assigned in the same AIU, both test heads to be from the same LPZ200 pack will be restricted.

Pack Growth, Degrowth, and Conversion provides the following:

The ability of ODA to support the new pack and circuit types during creation of an office ODD.

The ability of RC/V to grow in (insert) or degrow (delete) the new pack and circuit types.

The ability of RC/V to convert an existing LPZ100 pack with 32 lines (INTL and NAR) or an LPP100 pack with 24 lines (INTL only) to an LPZ200 pack with 32 lines will be supported to simplify upgrading an existing pack to the new pack without having to degrow and then re-grow subscriber data for the existing pack's lines.

The ability to convert the other direction (from new pack type to old pack type) will not be conveniently supported, and would require the complete degrowth of the new pack, regrowth of the old pack, and regrowth of all subscriber data onto the old pack (a significant amount of work).

In addition, ODA (Office Data Administration) and RC/V (Recent Change/View) supports the growth and degrowth of IMT Test Heads on AIUs equipped with an LPZ200 pack.

2. FEATURE ASSIGNMENT

In order to provision this feature:

Using Recent Change View 8.1 (OFCOPT form, for ODA), update an OFFICE PARAMETERS (MISCELLANEOUS) and set the IMT INHIBIT and IMT RESIST fields.

Using Recent Change View 8.27 (IMINFO form, for ODA), update a SWITCHING MODULE PARAMETERS and set ALIT IMT RESIST field.

Using Recent Change View 19.16 (EQAIU form, for ODA), create an AIU.

Using Recent Change View 20.16 (EQAIUP form, for ODA), create an AIU PACK with AIGLP as TYPE.

Using Recent Change View 20.18, create an AIU TEST HEAD.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC Viewm
EQAIUP	5746	8	65	20.16
IMINFO	5510	3	5J	8.27
LINE	5109	3	11	1.6
MLHLN	5111	3	1K	1.6
OFCOPT	5509	3	51	8.1
TSTHD	5747	8	93	20.18
EQPSU	5741	8	22	22.2

EQAIUP form (5746 Record) - This form is used to define the AIU (Access Interface Unit) packs. New value for the TYPE field.

IMINFO form (5510 Record) - This form is used to gathers and builds miscellaneous customer data related to a given SM (Switching Module). Added the ALIT IMT RESIST field.

LINE form (5109 Record) - This form is used to define the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch. Modified or added data rules to the LNEQ, TYPE, and TN fields.

MLHLN form (5111 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG. Modified a data rule under the ASSOC OE TYPE field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the IMT INHIBIT and IMT RESIST fields.

TSTHD form (5747 Record) - This form is used to define AIU test heads for the AIU Global pack type. This is a new form that supports this feature.

SEC. 7CK: IPS

1. FEATURE DESCRIPTION

The IPS feature is being deployed in the 5E20(1) and later Software Releases. The feature number is 99-5E-8647.

iPS (Intelligent Packet Switch) or PSU2h (Packet Switching Unit - Model 2 (Highspeed)) is a PSU2e (PSU2 Ethernet) where one of the shelves is replaced with a PSU shelf having a high speed backplane, CF4 (Control Fanout 4), and PF4 (packet Fanout 4). The high speed shelf allows PHs (Protocol Handlers) to connect to packet bus fabric using 1Gb/s Packet Bus connections. The PF4 interconnects up to 16 PHs at 1 Gb/s per PH, interfaces with CF4 using 4-Gb/s PIB (Packet Interface Bus) links, and supports one PCT (Peripheral Control and Timing) link to provide 8KHz timing source.

The IPS supports CDMA (Code Division Multiple Access) applications only (e.g., Voice, Circuit Mode data, 2G Data, and 3G Data).

2. FEATURE ASSIGNMENT

The following steps must be followed to provision this feature:

EQPSU form (5741 Record); RC/V 22.40 (5875):

Insert EQUIPMENT VERTICAL as 7.

Insert SG 0 TYPE as "IPS".

Insert SG 1 TYPE as "IPS".

Insert SHLF SIDE 0 CLI as 10000 and PF as "PF4" (on PSU SHELF = 4).

Insert SHLF SIDE 1 CLI as 10000 and PF as "PF4" (on PSU SHELF = 4).

- **NOTE:** A medium speed shelf (PF = "PF3") should already be provisioned before the high speed shelf can be provisioned.
- **NOTE:** EQPSU has always been used by ODA to grow in a PSU unit and the shelves that go on that unit. It is keyed by SM and PSU and has a list for the 5 shelves that can be grown. iPS-h shelves are distinguished from iPS-2e shelves by the PF TYPE (PF3=iPS-2e, PF4=ips-h) field in the shelf list. A new Recent Change View 22.40 is used to grow in iPS PSUs. It is keyed by SM and PSU. There is no shelf information on this Recent Change View.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741	8	22	22.40 (5875)

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. Added the SG 0 CF TYPE, SG 1 CF TYPE, SG 0 CF SHELF, SG 1 CF SHELF and SHLF SIDE 0/1 PF fields. Added or modified data rules to the EQUIPMENT VERTICAL, SHLF SIDE 0/1 CLI, SG 0/1 TYPE, PSU SHELF, PF and SG 0 COMMON CONTROL CLI fields. Added a new enumeration value (IPS) to the SG 0 and 1 TYPE fields.

SEC. 7CL: PROTOCOL HANDLER FOR VOICE —VERSION 7

1. FEATURE DESCRIPTION

The PHV7 (Protocol Handler for Voice - Version 7) feature is being deployed in the 5E20(1) and later Software Releases. The feature number is 99-5E-8744.

The PHV7 feature introduces the next generation PHV, supporting up to 768 voice channels and additional 768 PFS (Packet Frame Selector) channels per card on the iPS (Intelligent PacketSwitch) high-speed shelf.

PHV7 is the first PH50 family circuit pack. The PHV7 feature development will take full advantage of functionalities that have already been previously developed, most recently by the IP SHO on the PHE4 feature (See division 2, Section 8AS). The PHV7 feature will also package and produce compiled object files that will be directly re-usable by any subsequent member of the PH50 family. This strategy is thus patterned after the one taken by the PH30 family, which produced object files that are being re-used many times over.

The PHV7 architecture takes advantage of the latest DSP (Data Server Processor), and FPGA (Functional Programmable Gate Array) technologies and provides reusability and scalability for other high-speed iPS PH applications. Most of the bearer traffic processing functionalities are moved from the host processor to FS (Frame Selector) FPGA. The new DSP device can support EVRC (Enhanced Variable Rate Coder), EVRC-B (Enhanced Variable Rate Coder - Version B), as well as TrFO (Transcoder Free Operation/Remote Transcoder Operation), CV (Circuit Vocoder), PV (packet Vocoder), and PFS (packet Frame Selector) with a single image. With the elimination of DF (Data Fanout) in iPS, a direct PCT link is used to provide an interface from PHV7 to the MCTSI (Module Controller/Time Slot Interchange).

The introduction of "Superset Voice" trunk concept enables the support of mixed voice call types in one trunk group, allowing a PHV7 pack/channel group be used as vocoder for CDMA (Code Division Multiplex Access), EVRC, EVRC-B, TrFO/RTO CV, PV, and PFS simultaneously.

PHV7 will support the concept of "superset voice" (SV) trunk class - each trunk member can be used for any combination of a voice encoding algorithm (CODEC) and a protocol message header on per channel/trunk member/call basis:

Voice encoding algorithm: EVRC, 4GV, G711-A, G711-M

Protocol message header: CE-FS, IP RTP

The set of CODEC and protocol message header combination supports CDMA EVRC, TrFO/RTO CV/PV/PFS and EVRC-B calls. PHV7 won't support Voice Transparency feature and QCELP13K CODEC algorithm.

In Phase 1 of this feature, only one channel group type (SVOC) is supported on PHV7. The channel group can be provisioned with up to 768 SV trunk members with SERV TYPE of "EVRC", serving EVRC calls only.

2. FEATURE ASSIGNMENT

The following steps must be followed to provision this feature:

EQPSUPH form (5742 Record); RC/V 22.4 (5744):

Grow PHV7A or PHV7AT

CLI = 400000

PCT LNK should be entered.

PSUGP form (5949 Record); RC/V 22.16 provision PHV7 channel group.

TKGRP form (5202-1 Record); RC/V 5.1 provision new trunk group:

TRK CLASS = "SV".

SERV TYPE = "EVRC".

TRUNK form (5204 Record);RC/V 5.5 provision SV trunks with PHV7A/AT channel group.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741	8	22	22.2
EQPSUPH	5742	8	23	22.3
PSUGP	5949	5	3J	22.16
TRKGRP	5202-1/2	2	2a	5.1
TRUNK	5204	2	2C	5.5

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. For 5E20(1) and later, the EQPSU form is associated with Recent Change View 22.40 (5875) which is a new Recent Change View to grow in iPS PSUs. The following fields were added for CF4 PIDB: SG 0 DI, SG 0 PIDB, SG 0 PIDB EQSTAT, SG 1, SG 1 PIDB, SG 1 PIDB EQSTAT. New data rules were also added.

EQPSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. For 5E20(1) and later, the EQPSU form is associated with Recent Change View 22.401 (5876) which is a new Recent Change View to grow in an iPS-h shelf. The fields PCTLINK(1-4), LNK(1-4)TSIS, LNK(1-4)SLOT, and LNK(1-4)EQST were added and modified data rules.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. No Change fields AVAILABLE PHV7A and AVAILABLE PHV7AT were added. New PH TYPES "PHV7A" and "PHV7AT" were added. New GRP TYPE "SV" added.

TKGRP form (5202 Record) - This form defines information common to a trunk group in a 5ESS Switch. TRK CLASS was modified to allow new trunk class "SV" to support the PHV7 feature. The SERV TYPE field was modified to allow the service type "EVRC".

TRUNK form (5204 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Data rules were modified or added for the PHV7 feature.

SEC. 7CM: GIGABIT IP BACKHAUL

1. FEATURE DESCRIPTION

The Gigabit IP (Internet Protocol) Backhaul feature is being deployed in the 5E21(1) and later Software Releases. The feature number is 99-5E-8648.

The Gigabit IP Backhaul feature provides a protocol handler that has the ability to terminate bearer traffic from wireless base stations over IP and transfer them to target functional units in the PSU (packet Switching Unit). The BHS (Backhaul Server) is a protocol handler that has a 1 Gbps ethernet interface and supports traffic packet bundling and DLCI (Default signaling Hunting Logical Channel) compression using a bundling layer called UDPMux (User Datagram Protocol Mux).

2. FEATURE ASSIGNMENTS

The following steps must be followed in order to provision this feature:

EQPSUPH form (5742 Record); RC/V 22.4:

Insert PH CLI to 80000.

PHGRP form (5892 Record); RC/V 22.32:

Create a PH GRP and assign the PH information.

IPPROC form (5987 Record); RC/V 33.1:

Assign IP processor addresses to PHs on PHGRP.

ETHIP form (5995 Record); RC/V 33.4:

Create PHE LINK and INTERFACE NAME for PHs from the PHGRP form.

IPROUT form (5989 Record); RC/V 33.3:

Add routing data for the INTERFACE NAME from the ETHIP form.

PHGRP form (5892 Record); RC/V 22.32:

Assign PHE3 POSITION in PH LIST.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ETHIP	5599	8	80	8.75
MEASSUM	5741	8	22	22.2
PSUGP	5742	8	23	22.3
PHGRP	5987	5	3N	33.1

ETHIP form (5995 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. The No Display fields MINOR THRESHOLD, MAJOR THRESHOLD, and CRITICAL THRESHOLD were added. The new fields PHV CAMPON TIMER, PHV7 CAMPON TIMER, STABLE CALLS THRESHOLD, and STABLE CALLS PRINTMODE ENABLE were added to support PHV REX.

MEASSUM form (5563 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. For 5E20(1) and later, the EQPSU form is associated with Recent Change View 22.40 (5875) which is a new Recent Change View to grow in iPS PSUs. The following fields were added for CF4 PIDB: SG 0 DI, SG 0 PIDB, SG 0 PIDB EQSTAT, SG 1, SG 1 PIDB, SG 1 PIDB EQSTAT. New data rules were also added.

PSUGP form (5949 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. For 5E20(1) and later, the EQPSU form is associated with Recent Change View 22.401 (5876) which is a new Recent Change View to grow in an iPS-h shelf. The fields PCTLINK(1-4), LNK(1-4)TSIS, LNK(1-4)SLOT, and LNK(1-4)EQST were added and modified data rules.

PHGRP form (5892 Record) - This form is used to assign Internet Protocol (IP), Transmission Control Protocol (TCP) and Unreliable Datagram Protocol (UDP) parameters to a processor. Modified data rules to assign IP address for PHV7 and all PHEs..

SEC. 7CN: IP BACKHAUL

1. FEATURE DESCRIPTION

The feature number for the IP (Internet Protocol) Backhaul feature is 99-5E-8530. This feature is being deployed in CDMA (Code Division Multiple Access) offices in the 5E19(1) FR 1 and later Software Releases.

The IP Backhaul feature provides a PH (Protocol Handler) that has the ability to terminate bearer traffic from CDMA Flexent base stations over IP and transfer them to target PHs in the PSU (Packet Switching Unit). The IP BPH (Backhaul PH) is a TN113 pack that has a 100Mbps Ethernet interface. The BPH has software and a NP FPGA (Network Processor Field Programmable Gate Array) that supports traffic packet bundling and DLCI (Data Link Connection Identifier) compression using a proprietary bundling layer called "UDPMux".

The base station to PSU backhaul functionality is currently being provided by the FRPH (Frame Relay Protocol Handler). This feature development is intended to reduce the need for FRPHs. However, BPHs and FRPHs will be allowed to coexist on the same PSU.

The BPH provides increased cell backhaul termination density at the 5ESS DCS (Digital Cellular Switch), and increases the BHCA (Backhaul Call Attempts) on the PSU2E.

2. FEATURE ASSIGNMENTS

The following steps must be followed in order to provision this feature:

EQPSUPH form (5742 Record); RC/V 22.4:

Insert PH CLI to 80000.

PHGRP form (5892 Record); RC/V 22.32:

Create a PH GRP and assign the PH information.

IPPROC form (5987 Record); RC/V 33.1:

Assign IP procesor addresses to PHs on PHGRP.

ETHIP form (5995 Record); RC/V 33.4:

Create PHE LINK and INTERFACE NAME for PHs from the PHGRP form.

IPROUT form (5989 Record); RC/V 33.3:

Add routing data for the INTERFACE NAME from the ETHIP form.

PHGRP form (5892 Record); RC/V 22.32:

Assign PHE3 POSITION in PH LIST.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741	8	22	22.2 and 22.40
EQPSUPH	5742	8	23	22.3 and 22.4 and 22.41
ETHIP	5995	5	3S	33.4
IPPROC	5987	5	3N	33.1
IPROUT	5989	5	3P	33.3
MEASSUM	5563	3	5BG	13.9
PCFPDSN	5996-2	5	3U	34.2
PHGRP	5892	5	3AO	22.32
PSUGP	5949	5	3J	22.16

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. Modified data rules under the EQUIPMENT BAY and SG 0 TYPE fields.

EQPSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. Added new enumeration value and a data rule to the PH CLI field.

ETHIP form (55995 Record) - This form provides the capability to provision IP addresses, subnet masks, and associated IP parameters to an ethernet interface. Modified data rules to the SM, PHE LINK, GATEWAY IP ADDR 2, MTU SIZE, and RATE fields.

IPPROC form (5987 Record) - This form provides the capability to provision up to five IP addresses and subnet masks, and associated default values for IP, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) parameters to a processor (SM or PH). Modified a data rule under the PROCESSOR TYPE field and added a data rule to the PROCESSOR ID field.

IPROUT form (5989 Record) - This form provides the capability to provision an IP gateway between an external IP destination and a local IP interface. Added data rules to the DEST IP ADDRESS field.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the IPBH and IPBHSUP values to the SECTION NAME, START1COMP, and START2COMP fields.

PCFPDSN form (5996-2 Record) - This form provides the capability to provision a PDSN (Packet Data Serving Node) IP address to PCF. Added a data rule to the IP ADDRESS field.

PHGRP form (5892 Record) - This form allows the user to define and specify parameters for a group containing two PH (Protocol Handler). This is a new form that supports this feature. INHIBIT CALL PROC, DEBUG FLAG and the UDPMUX fields are No Display fields.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Added the AVAILABLE PHE3 field and new values to the PH TYPE table field.

SEC. 7CO: DRM IP TRUNKING

1. FEATURE DESCRIPTION

The DRM (Distinctive Remote Module) IP (Internet Protocol) Trunking feature is being deployed in the 5E16(2) FR 9 and later Software Releases. The feature number for this feature is 99-5E-8645.

The feature provides two major capabilities:

- it allows IP bearer facilities to be provisioned on a DRM, and

- it allows the SIP-T protocol (SIP with Encapsulated ISUP (Integrated Service Digital Network User Part)) to be used for setting up calls between the DRM and 5ESS Access Tandem switches.

2. FEATURE ASSIGNMENTS

The DRM IP Trunking feature impacts existing provisioning that is described in "SIP for Packet Trunking" feature found in Division 2, Section 4A684. For example, the GQPH (Global Quad Packet Handler) SM (Switching Module) connectivity provisioning described as necessary in this section, is neither required nor possible when provisioning SIP for Packet Trunking on DRM.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQCORE	5701	8	3	17.1 17.14
EQOIUP	5761	8	86	20.28
SIPTSMS	5881	5	3AC	5.81

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments in a 5ESS Switch office. Added a data rule to the VCDX OFFICE field.

EQOIUP form (5761 Record) - This form is used to insert, review, update, and delete OFI (Optical Facility Interface) packs. Added a data rule to the PACK TYPE field.

SIPTSMS form (5881 Record) - This form is used to specify SM-2000 modules in an office for SIP-T call processing. Modified a data rule under the SM2K MODULE field.

SEC. 7CP: HIGH CAPACITY DRM

1. FEATURE DESCRIPTION

The High Capacity DRM (Distinctive Remote Module) feature is being deployed in the 5E16(2) FR 9 and later Software Releases. The feature number for this feature is 99-5E-8673.

This feature increases the number of lines supported by the DRM up to 55K analog lines, and 10K trunks, with a maximum 65K total circuits per DRM. XAIUs (Multiplex Access Interface Units) are the vehicles to terminate analog lines directly on the DRM. The connection from the DRM to other network switches (e.g. 5E Access Tandems) will be done via SS7 trunks and IP (Internet Protocol) bearer facilities. The IP capabilities are provided by the DRM IP Trunking feature (99-5E-8645). For more information on this feature, see Division 2, Section 7CO.

2. FEATURE ASSIGNMENTS

For High Capacity DRM, the configuration should be an SM2K (SMPU4 or SMPU5) or SM-XC (SMU6) that is equipped with a Netra 240 AWS (AT&T Wireless Service), a Core 700 Processor, and a MHPPC (Message Handler Power PC). The analog lines will be terminated on XAIUs. PSU2's (Packets Switching Units) will be used for SS7 (Signaling System 7) Also, for high capacity DRMs, it is better to have at least one LPZ200 per XAIU shelf.

3. TRANSLATION REQUIREMENTS

There are no new forms or new fields added for this feature.

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQAIU	5745	8	64	19.16
EQAIUP	5746	8	65	20.8
EXPDXU	5868	8	72	19.23

EQAIU form (5745 Record) - This form is used to define the AIU (Access Interface Unit) (see Division 2, Section 7K). Changed the valid entry for the COMDAC CLI field. Also added data rules to the AIU TYPE field for the "AIU", "EAIU", and "XAIU" values.

EQAIUP form (5746 Record) - This form is used to define the AIU (Access Interface Unit) packs. Changed valid entries for the CLI and added data rules to TYPE field..

EQPDXU form (5868 Record) - This form is used to define the PDXU (PCT (Peripheral Control and Timing) Data Exchanger Unit). Changed the valid entries for the PCTDX0 and the PCTDX1 CLI values.

SEC. 8: WIRELESS

SEC. 8A: DCS (DIGITAL CELLULAR SWITCH)

1. FEATURE DESCRIPTION

For 5E9(1) and later, a wireless service provider can use a 5ESS Switch as a DCS (Digital Cellular Switch) in a cellular network. It replaces or coexists with Definity G2 DCSs in the APX-1000 system, offering higher call capacity with improved performance and better reliability. Configured with a CNI (Common Network Interface) ring, the 5ESS Switch communicates with the ECP (Executive Cellular Processor) through CCS7 messaging.

The initial application of the feature is only for wireless networks; it does not offer combined wireless and wireline operations.

For a diagram of a 5ESS Switch in the APX-1000 network see Figure Figure 1 .

The 5ESS Switch provides a trunk interface to Radio Cell sites, PSTN (Public Switched Telephone Network), DCSs in the same MTSO (Mobile Telephone Switching Office), and other MTSOs.

The wireless call processing decisions are made by the ECP complex, the overall processor in the Autoplex-1000 system. The ECP CDN (Call Processing Database Node) acts as the central controller for each mobile call and provides instructions to all the Autoplex entities (e.g., DCS, Cell Site, additional DCSs) involved in the call.

Incoming signals on PSTN or inter-DCS trunks are translated to ECP-5E data link messages and transmitted via CCS7 signaling to the ECP complex. Conversely, the ECP complex provides instructions for connecting trunks, outputting digits, testing trunks, handling port status inquiries, removing and restoring trunks, etc., to the 5ESS Switch over the same data link. Message acknowledgements, message failures, status changes, additional requests, etc., are exchanged throughout the course of the call. The 5ESS Switch also can perform the maintenance functions like trunk testing, trunk removal and restoral, from the TLWS (Trunk Line Work Station). In all cases, the ECP will be informed about the status of the trunks.

The 5ESS Switch is not required to maintain subscriber information. The subscriber data is kept in the ECP and will be provisioned via the ECP administrative interface. The 5ESS Switch is required to support the administration of the following:

- Cell Site I trunks
- Cell Site II trunks
- Inter-DCS trunks
- Special routing loop around trunks
- Mobile to mobile loop around trunks
- ICOS (Increased Court Ordered Surveillance) loop around trunks
- Inter-vendor trunks
- Dedicated Switch Connections
- PSTN trunks
- VMS (Voice Message System) trunks

- PBX trunks
- PSTN trunks
- CCS7 signaling links between the ECP and the DCS
- Trunk Test definition and scheduling

2. FEATURE ASSIGNMENT

Trunks assigned to a DCS trunk group (DCS TRK is "Y" on the TKGRP form) must be provisioned beginning with member number 1. Member number 0 cannot be assigned in a DCS trunk group.

For every digital trunk (DEN entered on the TRUNK form) within a DCS trunk group, an AFAC ID must be entered on the EQDUP form.

2.1 Secured Feature ID

The DCS feature is secured. Before the feature can be provisioned, the ACT field for SFID 130 must be set to "Y" on the SFSYS form.

2.2 Cell Site 1 Trunk Group

A Cell Site 1 trunk group is defined on a TKGRP form as shown in Figure Figure 2 .

2.3 Cell Site 2 Trunk Group

A Cell Site 2 trunk group is defined on a TKGRP form as shown in Figure Figure 3 .

The difference between Cell Site 1 and Cell Site 2 trunk groups is the optional continuity test. The continuity test is available for Cell Site 1 trunks only.

2.4 Inter-DCS or Looparound Trunk Group

An Inter-DCS or looparound trunk group must be defined on a TKGRP form as shown in Figure 4 .

VMS trunks are treated as Inter-DCS trunks.

2.5 Inter-Vendor Trunk Group

An Inter-Vendor trunk group is defined on a TKGRP form as shown in Figure 5 .

2.6 Dedicated Switch Connection Trunk Group

A DSC (Dedicated Switch Connection) trunk group is defined as a nailup trunk group on a TKGRP form as shown in Figure 6 .

The DSC carries the signaling links between the Cell Sites and the ECP Complex. The DSC NUM on the NAILUP form marks the nailup as a DSC.

2.7 Digit Analysis

Digit analysis is not performed on DSCs, Cell Site, or Inter-Vendor trunks but is performed only on IDCS or

looparound trunks. The CALL TYPE on the LDIT or RDIT form must be "ECP".

Digit analysis for incoming DCS calls is handled almost completely by the ECP. The 5ESS Switch performs digit analysis on only the first two digits to determine if the call is a test call.

2.8 DCS/ECP CCS7 Signaling Link

When a 5ESS Switch is used as a DCS in an AUTOPLEX system, it interfaces with the ECP via the CNI ring using A-Links. If ISUP signaling is used to communicate between the DCS and another switch, the DCS must also interface via the CNI ring with adjacent (home) STPs using A-Links, and optionally with non-adjacent STPs using E-Links.

Both the DCS and ECP must be assigned unique Point Codes and CLLI (Common Language Location Identifier) codes that will identify them in CCS7 network communications. These appear on views in the sample CNI translations in Figure 8.

Translations for the DCS/ECP A-Links and other CCS7 needs must be defined according to the guidelines that follow. Since CNI translations are entered on the switch (cannot be entered through the ODA system), the minimum set of input views included here and in Figure 8 refer to Recent Change views.

- The 5ESS Switch CNI information must be defined on View 15.1, Office Identification Data. The OFFICE ID on this view must match the OFFICE ID on Views 8.1 (OFCOPT form) and 8.28 (APXPARM form).
- Data links for the A-Link pair (0 and 1) between the DCS and ECP must be defined on View 15.2, Link Information. The FAR END PNT CODE on this view must match the ECP POINT CODE on View 8.28 (APXPARM form). Refer to Figure 8 for additional restrictions.

Since an insert of View 15.2 places the links in an unavailable state, the view must be updated to make the links available.

- SS7 routing data must be defined on Views 15.12 (network), 15.9 (cluster), and 15.18 (member). The 15.18 View is only added if member routing is used.
- Subsystem numbers for message routing must be assigned on View 15.10 (Subsystem Information). Subsystem 235 is used for ECP communication and is mandatory. Subsystem 3 is used for ISUP messaging and is required only if the DCS will communicate with ISUP signaling, through an STP (Signal Transfer Point), to another switch.
- The global title translation type 256 must be defined on View 15.11. The PC1 and PC2 fields on this view must match the ECP POINT CODE on View 8.28 (APXPARM form).

If the DCS will support ISUP signaling, the corresponding A-Links, and optionally the E-Links, must be defined. The CNI E-Link feature is an optional routing alternative required only if the service provider desires alternate routing of messages over E-Links to non-adjacent STPs. It is not used for messages routed over A-Links to adjacent (home) STPs. See Division 9, Section 1, for information about the E-Link feature.

2.9 Automatic Trunk Test Scheduler

For 5E9(1) and later, ATTS (Automatic Trunk Test Scheduler) is provided to schedule the automatic execution of specific types of test calls on outgoing trunks.

Scheduling is accomplished by creating and maintaining a set of "sessions" in an 8-week "schedule" through input forms. ATTS supports up to 20 schedules that can run concurrently. The entries in these schedules

correspond to scheduled sessions, where each session contains a single trunk group to be tested. The ATTS sequentially cycles through the test sessions.

To define ATTS sessions, the following steps (Figure 7) are required.

- Assign an ATTTN (Automatic Trunk Test Table Number) on the TKGRP form for the trunk group to be tested. This ATTTN must match the AUTOMATIC TRUNK TEST TABLE NUMBER on an AUTO form (5505 Record). The signaling type for the trunk group must be valid for the scheduled test.
- Enter an ATSPARM form to define parameters and options that control the ATTS test session within the schedule. (One ATSPARM form must be entered for each unique SCHEDULE that appears on ATSDATA forms.)
- Enter ATSDATA forms to define test sessions within the schedule that will be invoked by ATTS. The session performs automated trunk testing over a specific range of equipped members of a specified trunk group.

Test sessions within the same ATTS schedule cannot overlap. The START HOUR and START MINUTE of one ATSDATA form cannot be less than the STOP HOUR and STOP MINUTE of another ATSDATA form defined for the same SCHEDULE, WEEK, and DAY.

A session always stops at its assigned stop time, or earlier if all trunk group members have been tested.

ATTS schedule sessions can be linked together in a "chain". A session with a "chain" flag starts as soon as the prior one ends, provided the stop time of the first session exactly matches the start time of the second session.

A trunk group can be tested over two or more sessions if it is too big to be tested in one session. This is done by providing start and end member numbers to the testing session. Testing over the range is completed only if time permits.

The ATTS scheduler can be set to attempt an immediate single retry on an aborting trunk test with the RETRY ON ABORT field on the ATSPARM form. The default status of this option is "N": aborting trunks are not retried.

The scheduler can also be set to attempt an immediate single retest of failing trunks with the RETEST ON FAILURE field on the ATSPARM form. The default status of this option is "N": failing trunks are not retested.

Trunks are tested in member number order. Busy trunks or a busy responder in the far exchange are skipped for later retry. Scheduled time permitting, the system iterates over the member number list, attempting to test trunks previously skipped. The maximum number of iterations is controlled by the MAX LOOPS field on the ATSPARM form.

Each ATTS is activated and deactivated with the ST:ATTS and STOP:ATTS input commands on the switch, e.g. ST:ATTS,SCHED=A starts schedule A, and STOP:ATTS,SCHED=A,UCL stops schedule A.

2.10 Network Management

Network Management controls do not apply to DCS traffic. The NM controls are not turned off at the craft interface for DCS trunks, but NM is not supported.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
APXANNC	5051	7	1B	10.38
APXPARM	5050	7	1A	8.28
ATSDATA	5052	7	1C	14.9
ATSPARM	5053	7	1D	14.10
DCSDT	5054	7	1E	14.11
DCSTT	5055	7	1F	14.12
EQDUP	5730	8	17	20.4
LDIT	5300-3/5	3	3C	9.3
MLDIT	5300-3	3	3C	9.15
NAILUP	5207	3	2F	7.11
RDIT	5300-7/8	3	3H	9.9
SFSYS	5713	3	5AR	8.22
TIMING	5520	3	5T	8.5
TKGRP	5202	3	2A	5.1

APXANNC form (5051 Record) - This form, which is new for 5E9(1) and later, is used to associate an identification number from the ECP (Executive Cellular Processor) to a route index for an announcement. This form is populated when the switch is serving as a DCS (Digital Cellular Switch) in a cellular network.

APXPARM form (5050 Record) - This form, which is new for 5E9(1) and later, is used to administer global parameters that are required when a 5ESS Switch is functioning as a DCS in a cellular network.

ATSDATA form (5052 Record) - This form, which is new for 5E9(1) and later, is used to provide data that defines a test session within a schedule. Each session is invoked by the ATTS (Automatic Trunk Testing Scheduler) to perform automated trunk testing over a specified range of equipped members in a trunk group.

ATSPARM form (5053 Record) - This form, which is new for 5E9(1) and later, is used to define parameters and options that control an ATTS test session on a per schedule basis.

DCSDT form (5054 Record) - This form, which is new for 5E9(1) and later, is used to define digital tests for an automatic trunk test table. The digital test result threshold specified on this form will be used to define the pass/marginal/fail criteria for the tests.

DCSTT form (5055 Record) - This form, which is new for 5E9(1) and later, is used to define transmission tests for an automatic trunk test table. Tone measurement thresholds and noise or return loss thresholds defined on this form will be used to define the pass/marginal/fail status for the test calls.

EQDUP form (5730 Record) - This form is used to define the equipment location information for the DLTU (Digital Line/Trunk Unit) DFI (Digital Facility Interface) Pack Number.

For 5E9(1) and later, two AFAC ID fields were added, one for Facility 0 and one for Facility 1. These DCS Facility Identifier fields are used to communicate maintenance information to the ECP complex for the facility of a DFI.

LDIT form (5300-3/5 Record) - This form is used to interpret incoming digits. For line-originated calls, the LDIT is used after the PDIT; for trunk-originated calls, the LDIT is used after the INDIT when the LDIT(Y or N)? field is "Y" (Yes) on the INDIT form.

For 5E9(1) and later, the CALL TYPE field was modified to add the value "ECP" for mobile-originated calls on a 5ESS Switch serving as a DCS (Digital Cellular Switch) for an ECP (Executive Cellular Processor).

NAILUP form (5207 Record) - This form is used to define a dedicated path through the switch from one transmission facility to another.

For 5E9(1) and later, the field DSC NUM was added. This field specifies the Dedicated Switch Connection number between a cell site and the ECP (Executive Cellular Processor) complex.

RDIT form (5300-7/8 Record) - This form is used to translate remaining dialed digit strings for digit analysis. It translates digits collected but not translated in LDIT.

For 5E9(1) and later, the CALL TYPE "ECP" was added for mobile-originated calls on a 5ESS Switch serving as a DCS for an ECP.

SFSYS form (5713 Record) - This form is used to enable Secured Features.

For the DCS feature, the ACT field for SFID 130 must be set to "Y".

TIMING form (5520 Record) - This form is used to define intervals for Permanent Signal, Partial Dial, and Critical Timing in the switch.

For 5E9(1) and later, the TRUNK CLASS value "IDCS" was added for Inter-DCS trunks. Recommended and default timing values are specified in the form description in Division 3, Section 5T.

TKGRP form (5202 Record) - This form is used to define a trunk group. Trunk information entered on these records is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

For 5E9(1) and later, the CELLULAR DATA fields DCS TRK, DCS RETRY, DCS DIGCNT, CONT TEST, and DCS NOTIFY were added to this form. Also, new values were introduced for the following fields: HUNT TYPE, TRKCLS, INPULSING, and OUTPULSING.

The DCS TRK field indicates if the trunk group contains Digital Cellular Switch trunks. For these trunk groups, DCS RETRY determines if a retry should be attempted on a trunk in the group, DCS DIGCNT specifies the number of incoming digits for a DCS trunk, and DCS NOTIFY determines if a notification from the ECP is required.

The CONT TEST field specifies if a continuity test should be run on a DCS Cell Site 1 trunk. If this option is set, the DCS will perform a continuity check each time a trunk in the group is seized.

New HUNT TYPES added for this feature are "GUCD" (Forward Circular Sequential), "BGUCD" (Backward Circular Sequential), and "UCD" (Uniform Call Distribution).

The following new TRKCLSs were added:

- "CST1" - DCS Cell Site 1 trunks.
- "CST2" - DCS Cell Site 2 trunks.
- "DSC" - DCS Dedicated Switch Connections.
- "IDCS" - Inter-DCS (Digital Cellular Switch) or loop-around trunks.
- "IVTRK" - DCS Inter-Vendor trunks.

The INPULSING and OUTPULSING fields were modified to include the new value "DCS" (Digital Cellular Switch).

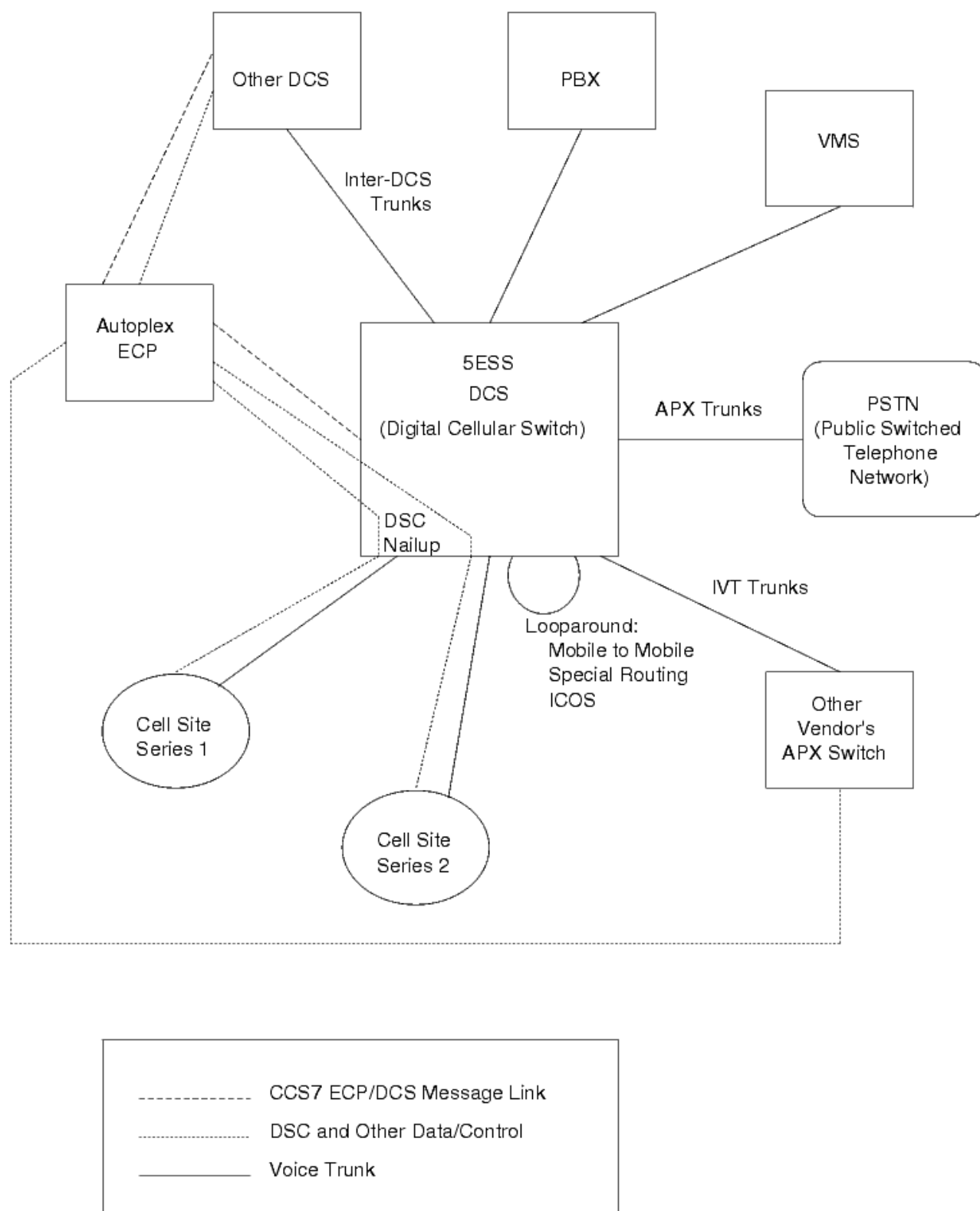


Figure 1 5ESS SWITCH AS A DCS IN A CELLULAR NETWORK

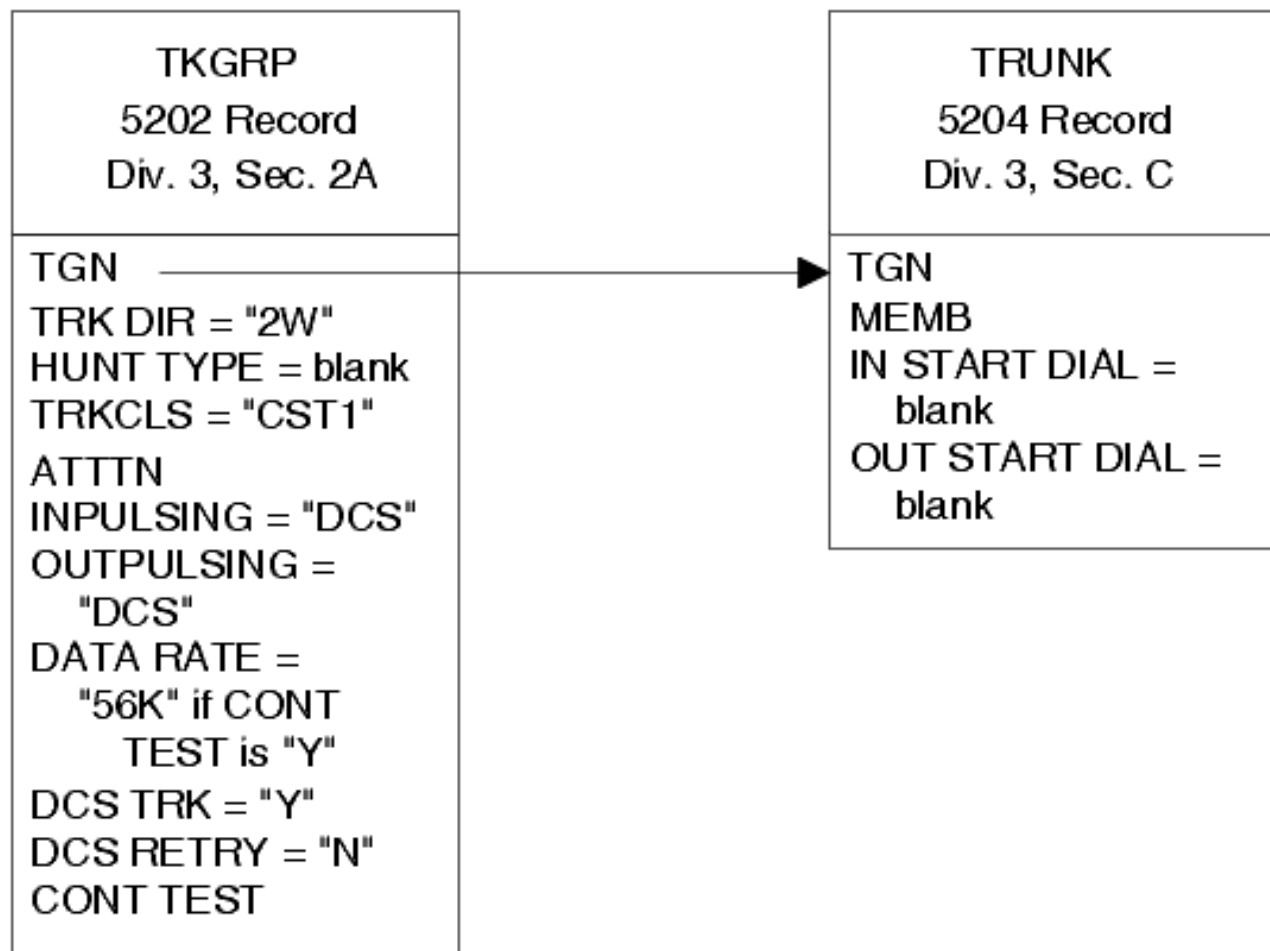


Figure 2 CELL SITE 1 TRUNK GROUP FORM FLOW

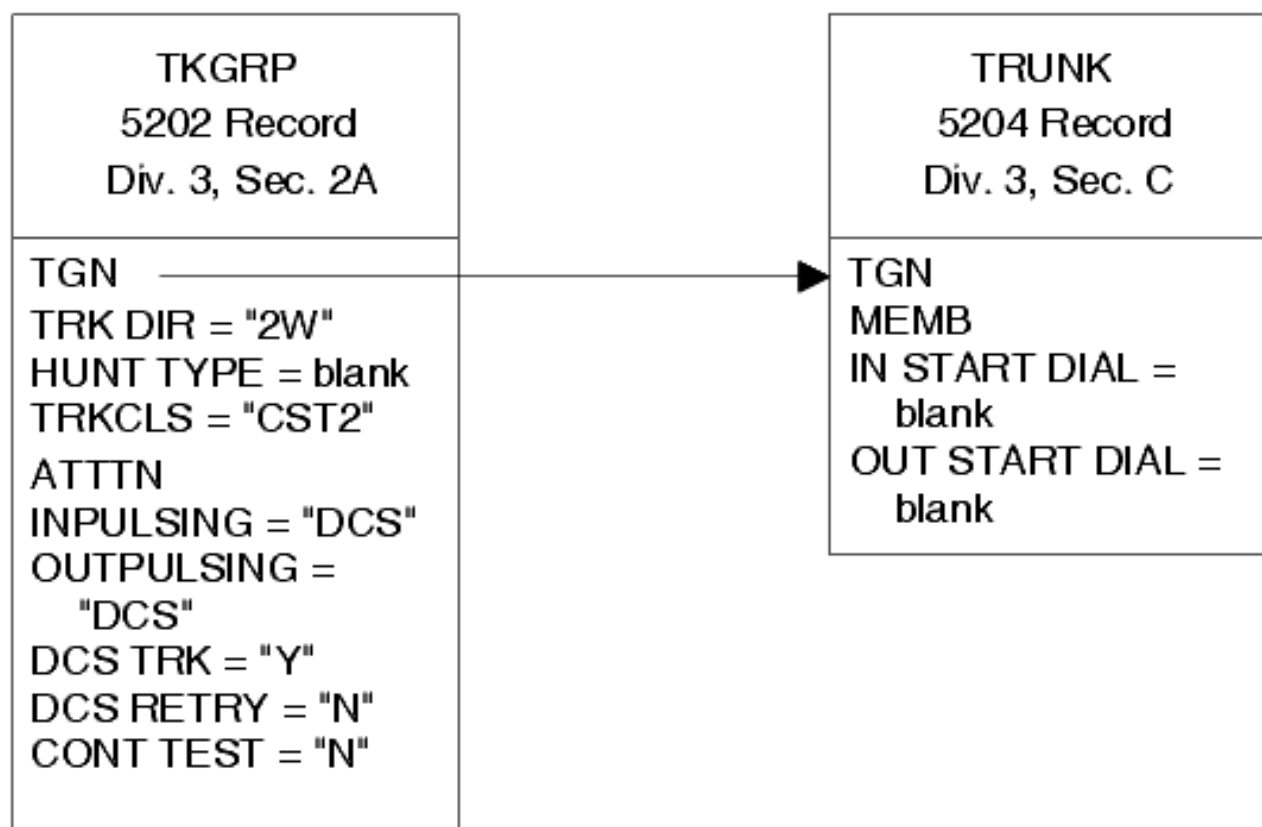


Figure 3 CELL SITE 2 TRUNK GROUP FORM FLOW

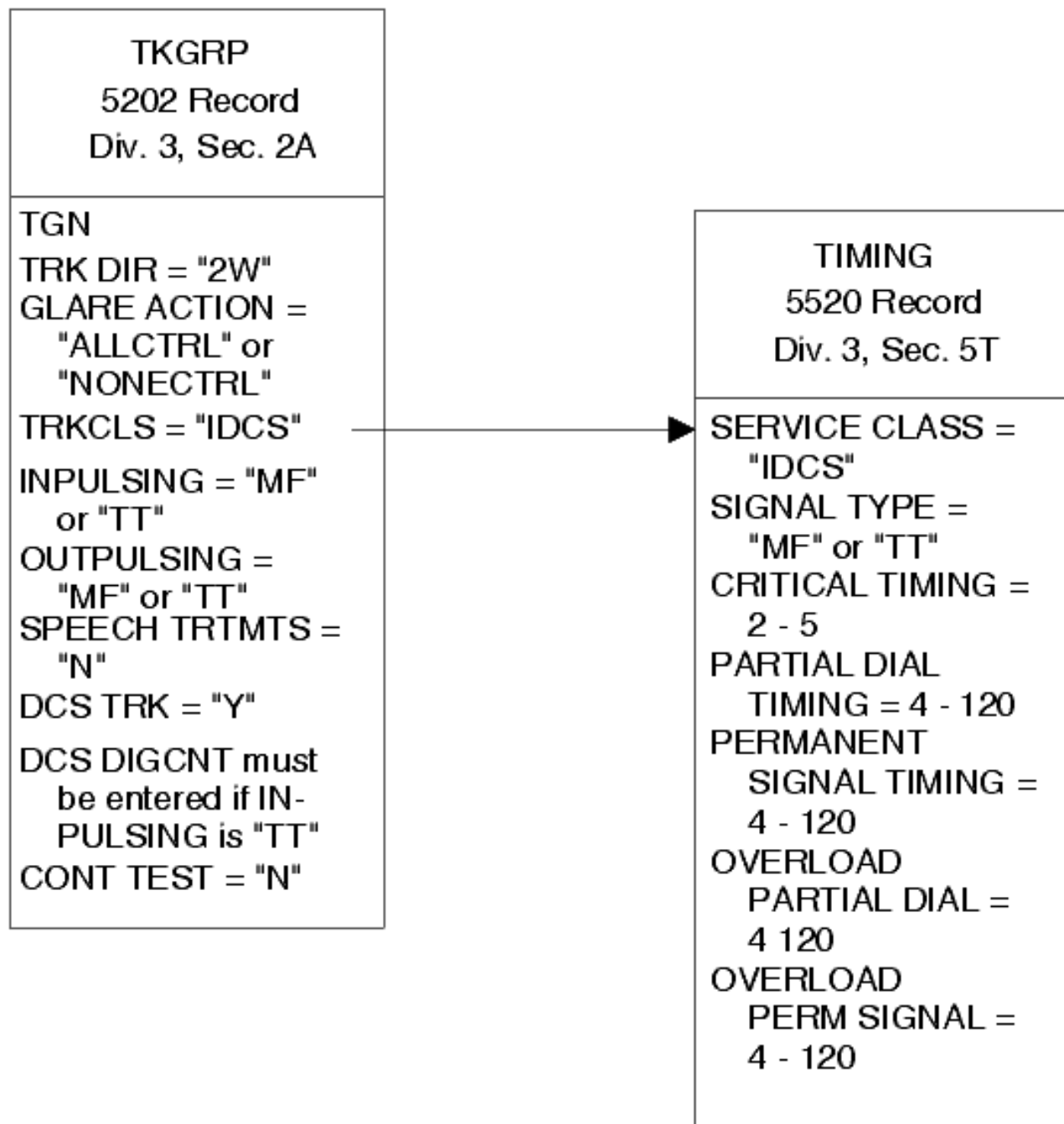


Figure 4 INTER-DCS OR LOOPAROUND TRUNK GROUP FORM FLOW

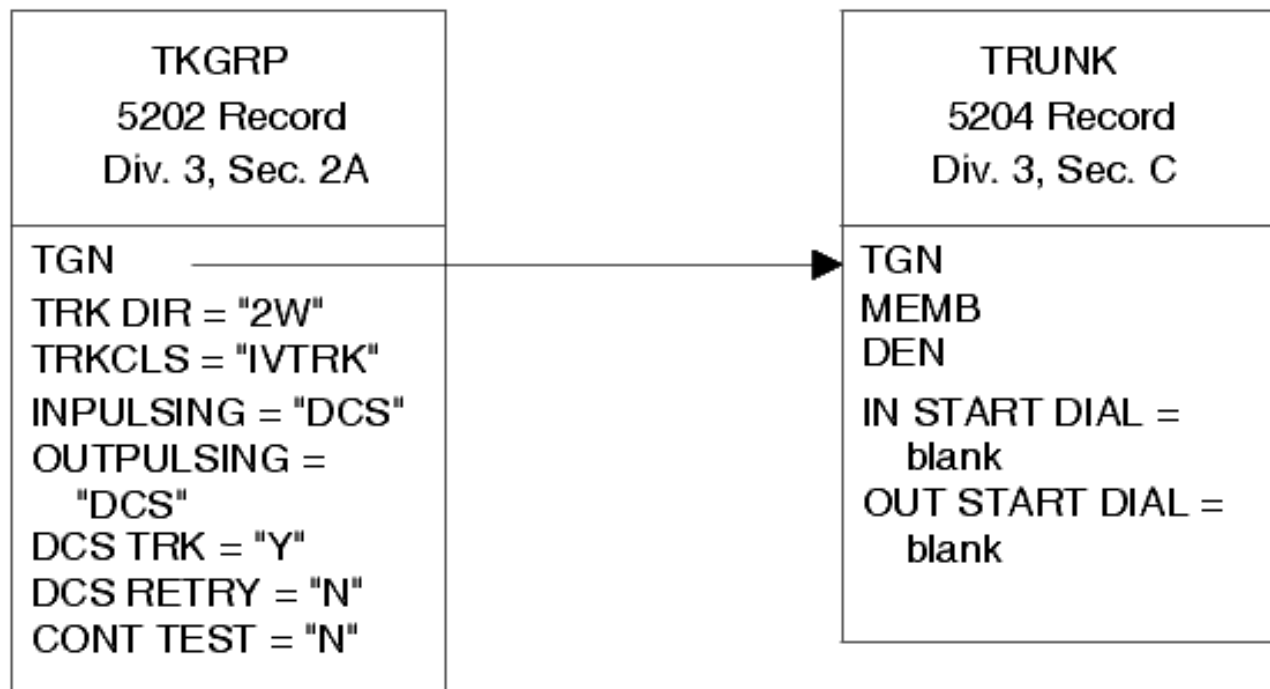


Figure 5 INTER-VENDOR TRUNK GROUP FORM FLOW

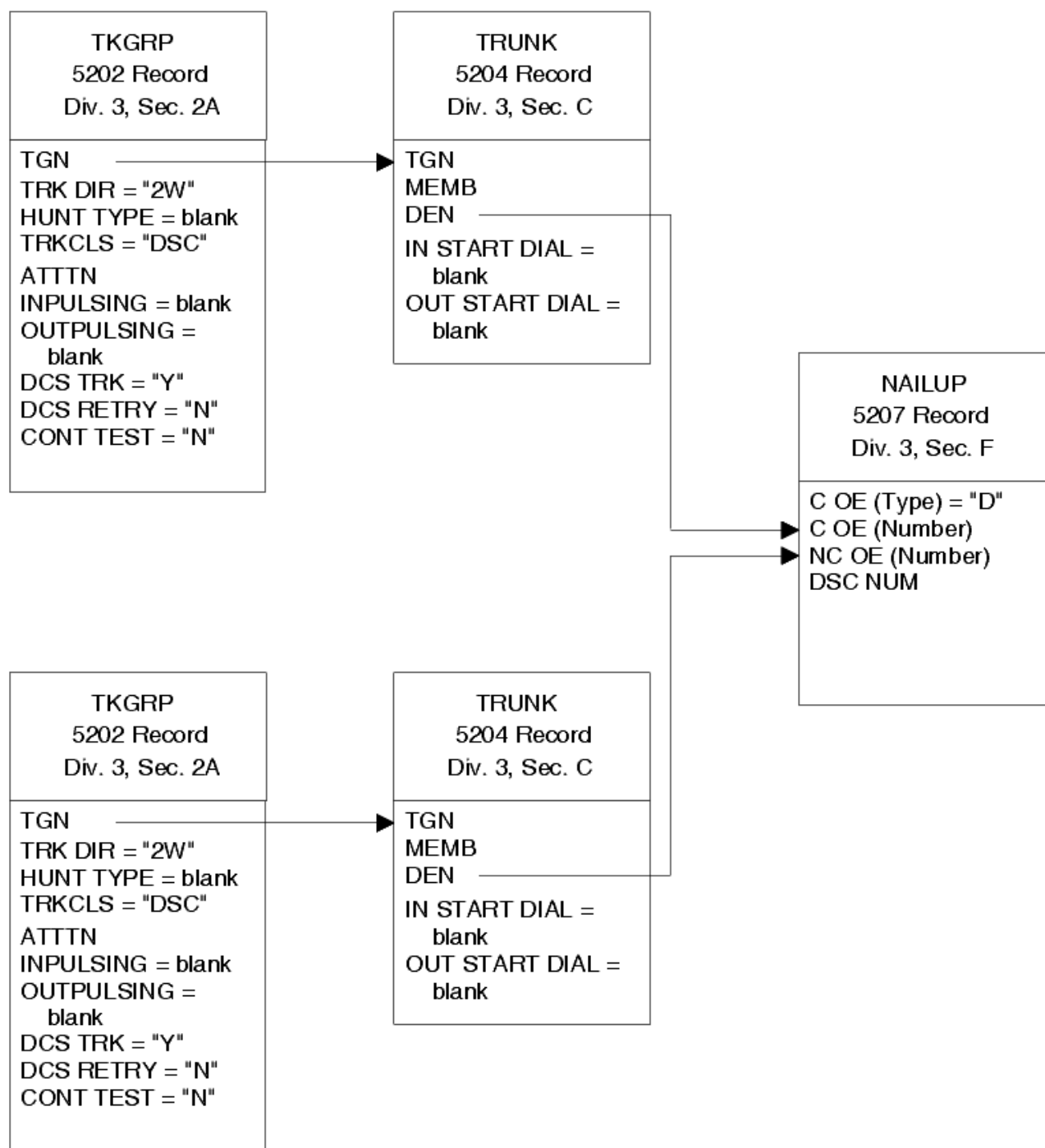


Figure 6 DSC TRUNK GROUP FORM FLOW

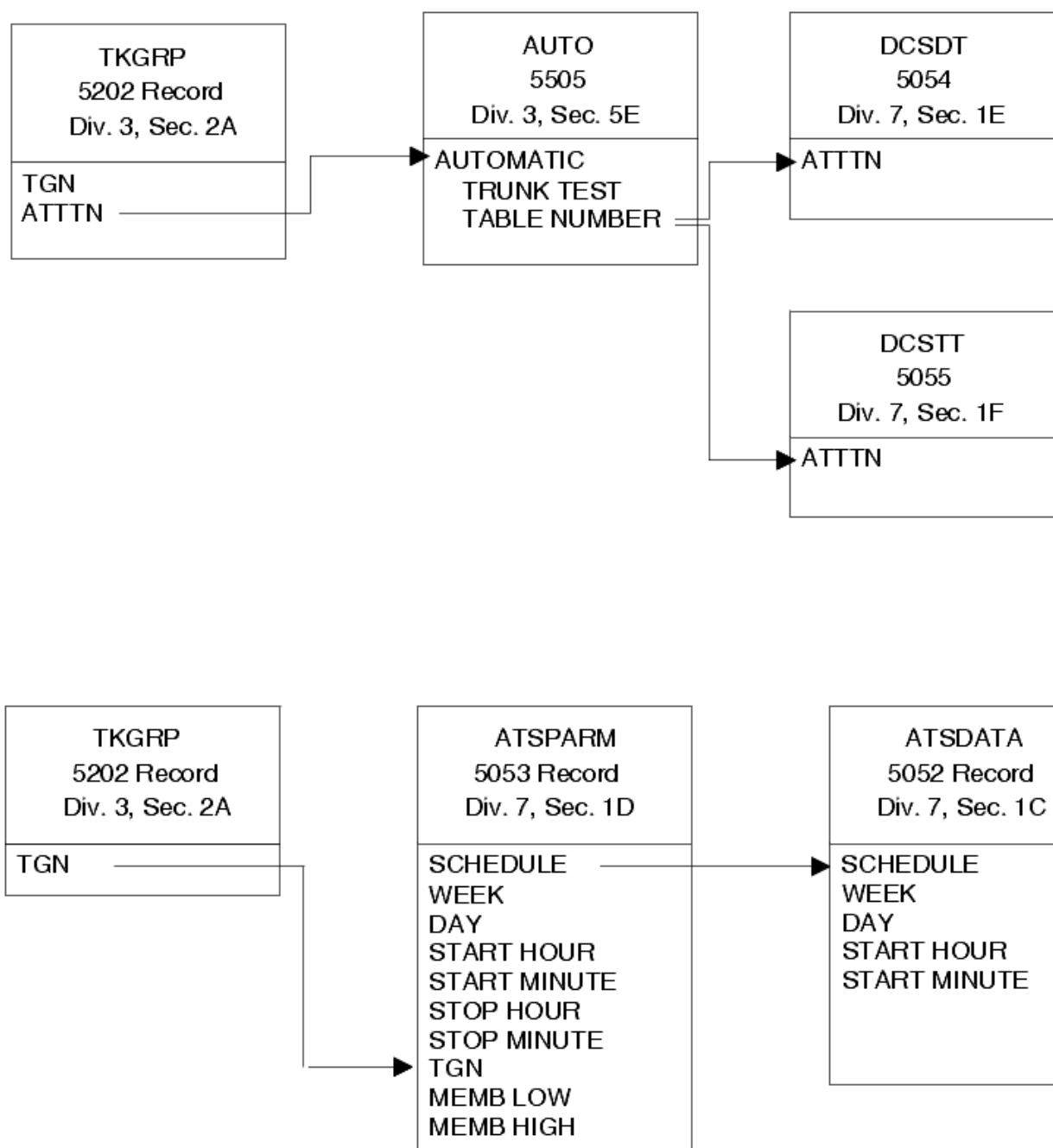
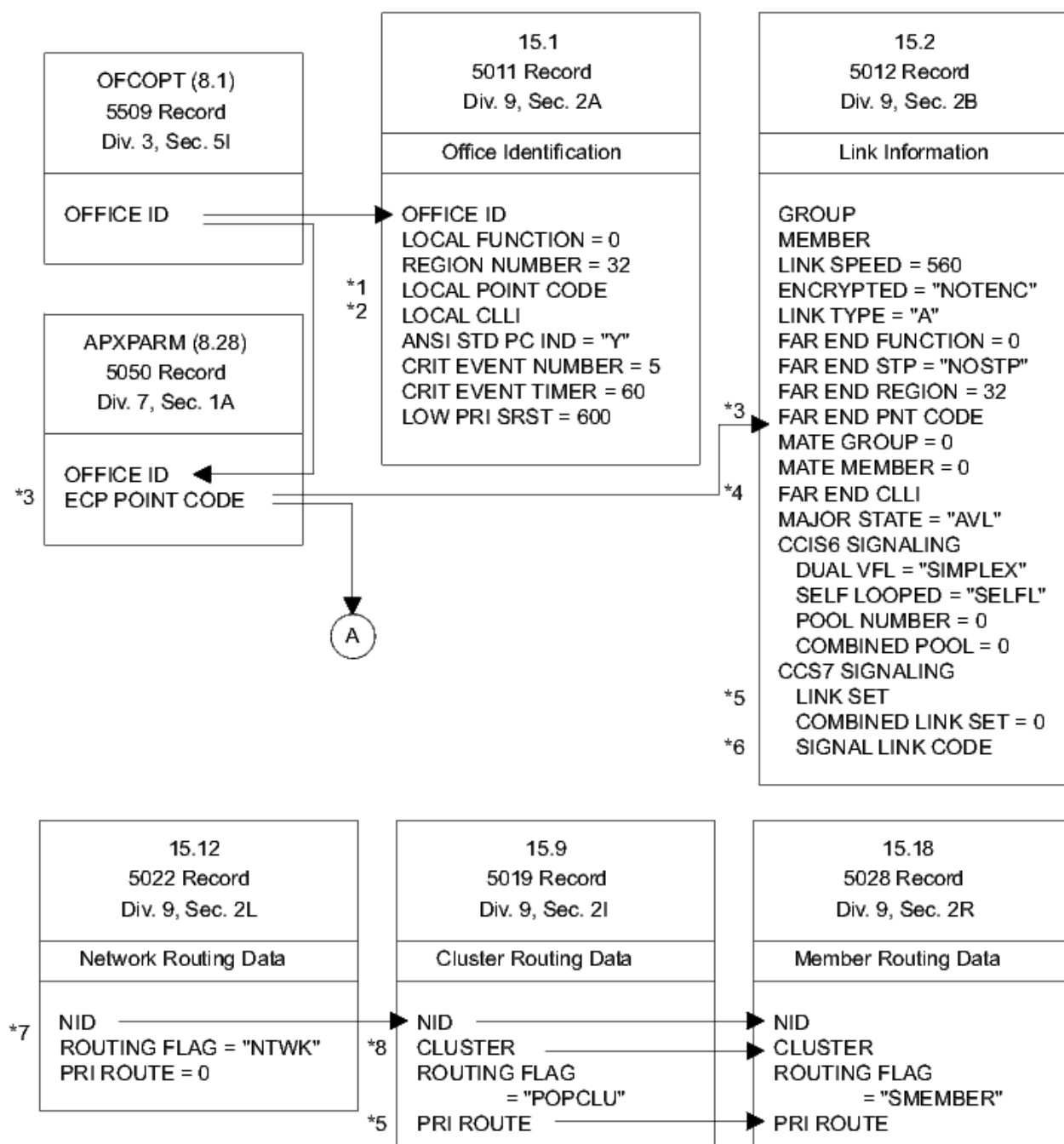
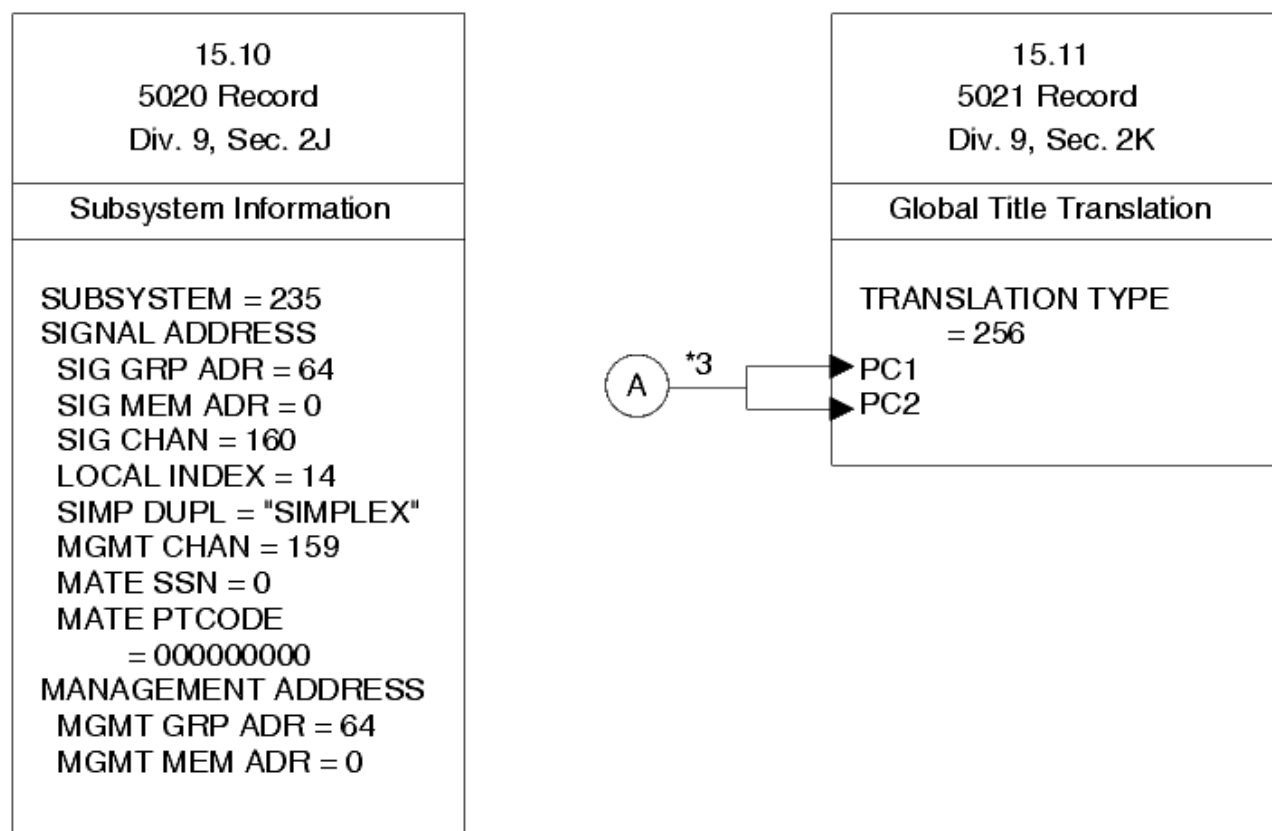


Figure 7 ATTS FORM FLOW



Notes (*):

1. 5ESS Switch Point Code (Network, Cluster, Member)
2. Character name of the 5ESS Switch (CLLI Code)
3. ECP Point Code (Network, Cluster, Member)
4. Character name of the ECP (CLLI Code)
5. Link Set that defines the ECP/5ESS Switch DCS Data Links
6. Must match ECP assignment (e.g., Data Links 0 and 1)
7. ECP SS7 Network ID (First three digits of the ECP Point Code)
8. ECP Cluster Number (2nd three digits of the ECP Point Code)



Note (*3) - from previous page:

3. ECP Point Code (Network, Cluster, Member)

Figure 8 CNI FORM FLOW

SEC. 8B: CODE DIVISION MULTIPLE ACCESS

1. FEATURE DESCRIPTION

CDMA (Code Division Multiple Access) is a 5E10 feature which builds on the DCS (Digital Cellular Switch) application initially offered in the 5E9(1) Software Release. It provides the 5ESS Switch the necessary hardware fabric and associated software to interconnect customers who use analog cellular phones, TDMA (Time Division Multiple Access) or digital CDMA handsets with the PSTN (Public Switched Telephone Network), as well as, other switching offices within the DCS network. The Lucent Technologies feature number for this capability is 99-5E-1600.

1.1 Technology Overview

CDMA is one of three multiple access schemes used to divide the radio frequency spectrum between CS (Cell Site) and MS (Mobile Stations) for cellular telephone service. The other two access methods are FDMA (Frequency Division Multiple Access) and TDMA (Time Division Multiple Access).

CDMA uses spread-spectrum technology, in which the radio signals associated with a call are spread across a single broad frequency spectrum and differentiated from other calls in that spectrum by assigning a unique code to each call's signal. At the receiving end (MS or CS), the specific call's signal is isolated by decoding the full received signal using the code assigned to that call's signal. All other noises or signals associated with calls that don't match the assigned code are ignored.

The CDMA frequency access method allows the service provider to reuse the same frequencies in adjacent cells as opposed to having cells spaced far enough apart to avoid co-frequency interference which is required by the other two access schemes. This benefit, along with other advantages, allows CDMA to provide a 10-fold capacity improvement in the frequency spectrum over the other two access methods.

With more efficient usage of the frequency spectrum, along with other advantages such as voice clarity and security, wireless providers can fulfill the access demand for service especially during high usage periods, such as rush-hour.

1.2 CDMA Call Flow Functionality in the 5ESS Switch

An MS (cell) originated CDMA call terminates to a packet pipe which consists of 2- to 8- DFI channels that terminate to a FRPH (Frame Relay Protocol Handler). The FRPH is a PH4 in the PSU-2 (Packet Switch Unit -2) hardware. The FRPH transports the encoded and compressed voice via the packet bus to the PHV1 or PHV2 (Protocol Handler for Voice) in the PSU-2 hardware.

The PHV1 or PHV2 can receive packets from multiple cell sites during a soft handoff via separate FRPH's. A soft handoff is a process that takes advantage of CDMA technology and allows a call to be handled by multiple cell sites so the best signal strength may be used for a given call. The function of the PHV1 or PHV2 is to select the "best" packet, convert the variable-length packets into 64 Kbps Circuit Switched PCM (Pulse Code Modulated) voice, and send it via a time slot to the PSTN (Public Switched Telephone Network).

In the reverse direction, the PCM voice is received at the PHV1 or PHV2 from the PSTN through the TSI (Timeslot Interchanger) and converted into variable-length packets. The PHV1 or PHV2 then sends the packets to multiple cell sites through the FRPH and DFI terminating each cell site's packet pipe.

The actual wireless call processing decisions are made by the ECP (Executive Control Processor) complex. Incoming signals on PSTN or inter-DCS trunks are transmitted to ECP complex. The ECP complex provides instructions for connecting trunks, outpulsing digits, etc. to the 5ESS Switch.

2. FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for the CDMA feature.

The CDMA feature impacts the following data areas:

- Secured Features
- Hardware
- Trunks
- Office Options

2.1 Secured Features

The DCS feature is required for CDMA. It is a secured feature, therefore the ACT field for SFID 130 must be set to "Y" on the SFSYS form (5713-1 Record) before the DCS feature can be activated.

The CDMA feature is also a secured feature. To activate CDMA, the ACT field for SFID 221 must be set to "Y" on the SFSYS form.

2.2 Hardware

CDMA requires the following new hardware:

- Packet Switching Unit 2
- Protocol Handler 4
- ECU (Echo Cancellation Unit) and the associated ECB (Echo Cancellation Boards) The new hardware are compatible with both the Switching Module and Switching Module 2000.
- DFMP (Data Fanout Multiple PIDB)
- PHV1 or PHV2

2.3 Protocol Handlers for CDMA

Unlike other access schemes (FDMA, TDMA) which use circuit switching between the cell sites and network switching offices, CDMA uses voice packets which terminate on the 5ESS Switch over a packet pipe. The packet pipe terminates on new Packet Switching Hardware. See Figure 3 for the Packet Pipe form flow.

The new PH is used to provide the following protocol handler functions needed to support CDMA:

- FRPH (Frame Relay Protocol Handler) - Transfers packets from/to cell sites via the CDMA packet pipe to/from the Speech Handler via the PSU-2 packet bus.
- PHV (Protocol Handler for Voice) (Also referred to as Speech Handler) - Provides functionality to convert between voice packets used by CDMA cell sites, and 64 kbs CSV (Circuit Switched Voice) used by the PSTN. The PHV1 is a speech handler with an 8 KB vocoder. The PHV2 is a speech handler with a 13 KB vocoder.

The CDMA feature allows switching within an SM. The PHA secured feature allows inter-SM switching. (See Division 2, Section 8C for more information on the PHA feature.)

On the EQPSUPH form, the appropriate PH CLI must be assigned to PH4s used for CDMA applications. Also, the PH4 MIN SPARE indicates the number of PH4 spares; the PHV1 and PHV2 MIN SPARE fields indicate the number of spare protocol handlers for voice.

On the PSUGP form, three new PH TYPEs were added. "PH4" was added for the PH4 used for FRPH (Frame Relay Protocol Handler). "PHV1" and "PHV2" were added for protocol handlers for voice.

2.4 Trunks

There are 3 different types of trunk groups required to handle CDMA calls.

1. Packet Pipe Member trunk groups with a trunk class of "PPMEM"
2. Packet Pipe trunk groups with the trunk class of "PKTPIPE"
3. Speech Handler trunk groups with a trunk class of "SPCHNDLR"

2.5 Packet Pipe Member Trunk Group

The channels on the digital facility associated with a particular PPMEM (Packet Pipe Member) are also trunks and are known as PPMEM Members. Each PPMEM or trunk is one of the DS0s (64Kbps or 56 Kbps channels) on the digital facility that terminates at a cell site. Since PPMEM is a trunk it also has a trunk group and member number. However, the PPMEM trunk group is a different trunk group from the PKTPIPE trunk group. A Packet Pipe Member trunk group can only be made up of PPMEM trunks. However, a PPMEM trunk group can support PPMEM for multiple Packet Pipes.

The following must be entered on the TKGRP form for PPMEM trunks:

- DATARATE must be 56K or 64K
- DCS TRK must be "N"
- INPUTSING must be "PP"
- OUTPUTSING must be "PP"
- TRK DIR must be "2W"
- TRKCLASS must be "PPMEM"

2.6 Packet Pipe Trunk Groups with FRPH

The Packet Pipe trunk assignments for FRPH define the specific PH channels that terminate a packet pipe of DS0 channels from the cell sites. A packet pipe consists of from 1 to 8 DS0 channels (DFI channels). A minimum of 1 to a maximum of 8 packet pipe member trunks must be assigned. The members making up a particular packet pipe may be in different trunk groups but they must be on the same DFI facility.

Packet Pipe Trunk Groups require the following entries on the TKGRP form (5202 Record):

DCS TRK must be "Y"
INPUTSING must be "PP"
OUTPUTSING must be "PP"
TRKCLASS must be "PKTPIPE"
TRK DIR must be "2W"

On the TRUNK form (5204 Record)

TRKOE (the OE type) must be "U"

TRKOE (the OE number) for UEN must be entered with SM, PSU, PH Shelf, PH CHL GRP, and PH CHL.

2.7 Speech Handler Trunk Groups with PHV

PHV1 or PHV2 trunks provide the ports that interface with the FRPH. The PHV1 or PHV2 contains 12 ports, each capable of terminating a packetized voice connection. See Figure 2 for Speech Handler form flow.

The following should be entered on the TKGRP form for PHV1 or PHV2 Trunks:

DCS TRK must be "Y"

DCS RETRY must be "Y"

IAPT must be "N"

SERV TYPE must be "VOICE"

TRK DIR must be "2W"

TRKCLASS must be "SPCHNDLR"

On the TRUNK form:

TRKOE (the OE type) must be "U"

TRKOE (the OE number)for UEN must be entered for SM, PSU, PH Shelf, PH CHL GRP, and PH CHL GRP.

2.8 Office Options

The Vocoder must be specified on the OFCOPT form as either 8 KBPS or 13 KBPS. The reverse voice quality threshold must be specified.

With 5E13 and later, CDMA DTMF Tone Programmability is provided by the OVERRIDE, LENGTH ON, and LENGTH OFF fields. The ability to set the on and off lengths at the PHV to 200 ms on and 50 ms off allows the voice messaging system to correctly detect mobile originated DTMF tones.

PP IDLE (Packet Pipe Idle timer), PER RATE, and PER THRESH (Protocol Error Record Rate and Threshold) fields were added to the ISDNOPT form to support the CDMA feature.

Also, a new test type was added to the ATSPARM form (5053 Record) for the Speech Handler trunk PCM loop back test. Also, the new test type was added to the AUTO form (5505 Record), which is used to define transmission tests for an automatic trunk test table.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
Equipment Assignment	-	8	1	-
ATSPARM	5053	7	1D	14.10
AUTO	5505	3	5E	14.1
EQDUP	5730	8	17	20.4

EQECSU	5743	8	62	19.15
EQIM	5700	8	2	22.1
EQPSU	5741	8	22	22.2
EQPSUPH	5742	8	23	22.3
				22.4
ISDNOPT	5941	5	5B	8.1
OFCOPT	5509	3	5I	8.1
PSUGP	5949	5	3J	22.16
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

Equipment Assignment - This section gives the CLI (Change Level Indicators for 5ESS Switch Equipment. The new CLI values for CDMA are listed under the appropriate equipment form.

ATSPARM form (5053 Record) - This form defines the parameters and options that control ATTS (Automatic Trunk Test Scheduler) test session on a per schedule basis. For the CDMA feature, the "SHCT" TEST TYPE was added to support Speech Handler trunk PCM look back testing.

AUTO form (5505 Record) - This form is used to define the ATTTN and their associated test lines. For the CDMA feature, the "SHCT" AUTOMATIC PROGRESSION TEST TYPE was added to support Speech Handler trunk PCM look back testing.

EQDUP form (5730 Record) - This form defines the equipment location information for the Digital Trunk Units. The FAC0/1 Echo Celler Packs fields support the CDMA feature for Echo Cancellers.

EQECSU form (5743 Record) - This form defines the characteristics of an Echo Celler Unit.

EQIM form (5700 Record) - This form defines Switching Module equipage assignments. The MCTSI (Module Controller/ Timeslot Interchange) Unit Package Interface is defined in the PI SG0/SG1 TYPE fields.

EQPSU form (5741 Record) - This form defines the PSUs equipped on a 5ESS Switch. The SG 0 and SG 1 CLI values must be entered.

EQPSUPH form, (5742 Record) - This form defines the Packet Switching Unit Protocol Handlers equipped on the 5ESS Switch. The PH4 MIN SPARE and the PHV1 and PHV2 MIN SPARE fields support the CDMA feature.

ISDNOPT form (5941 Record) - This form defines the office parameters that must be entered when the office is an ISDN switch. The PP IDLE, PER RATE, and PER RATE THRESH fields were added to the Packet Switching parameters for the CDMA feature.

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The PHV (Protocol Handlers for Voice) fields support the CDMA feature.

With 5E13 and later, CDMA DTMF Tone Programmability is provided by the OVERRIDE, LENGTH ON, and LENGTH OFF fields.

PSUGP form (5949 Record) - This form specifies the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. AVAILABLE PH4, PHV1, and PHV2 fields are Recent Change only verify fields displaying the number of available channel groups for protocol handlers for voice. The new PH TYPES "PH4", "PHV1", and "PHV2" were added to support the CDMA feature for protocol handlers for voice.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk

information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The "PPMEM", "PKTPIPE", and "SPCHNDLR" trunk classes were added to support the CDMA feature. Also PP signaling was added to INPULSING and OUTPULSING fields.

The SERV TYPE field was added to indicate the type of service for Trunk Groups with a TRKCLS of "SPCHDLR".

TRUNK form (5204 Record) - The trunk form defines each member of a Trunk Group in a 5ESS-2000 Switch Office. The "U" TRKOE for equipment type and TRKOE number was added to support the CDMA feature. Also, the Packet Pipe Member Trunk fields support Packet Pipe Trunks for CDMA.

4. PROTOCOL HANDLER FOR ASYNCHRONOUS TRANSFER MODE (PHA)

The PHA secured feature supports the CDMA feature. For more information on PHA, see Division 2, Section 4A224.

5. 13 KB/S VOCODER

For 5E10 and later, in addition to the 8 KB/S vocoder, the 13 KB/S vocoder was added to support CDMA. The PH (Protocol Handler) type for the 13 KB/S vocoder is "PHV2" (Protocol Handler for Voice 2). The PH type for the 8 KB/S vocoder is "PHV1". Protocol Handler types are assigned on the PSUGP form, 5949 Record.

6. GLOSSARY

ATTS	Automatic Trunk Test Scheduler
CDMA	Code Division Multiple Access
CS	Cell Site
CSV	Circuit Switched Voice
DCS	Digital Cellular Switch
ECB	Echo Cancellation Boards
ECP	Executive Control Processor
ECU	Echo Cancellation Unit
FDMA	Frequency Division Multiple Access
FRPH	Frame Relay Protocol Handler
MCTSI	Module Controller/ Timeslot Interchange
MS	Mobile Stations
PCM	Pulse Code Modulated
PH4	Protocol Handler 4
PHV	Protocol Handlers for Voice

PSTN	Public Switched Telephone Network
PSU	Packet Switching Unit
PSU-2	Packet Switch Unit - 2
TDMA	Time Division Multiple Access
TSI	Timeslot Interchanger

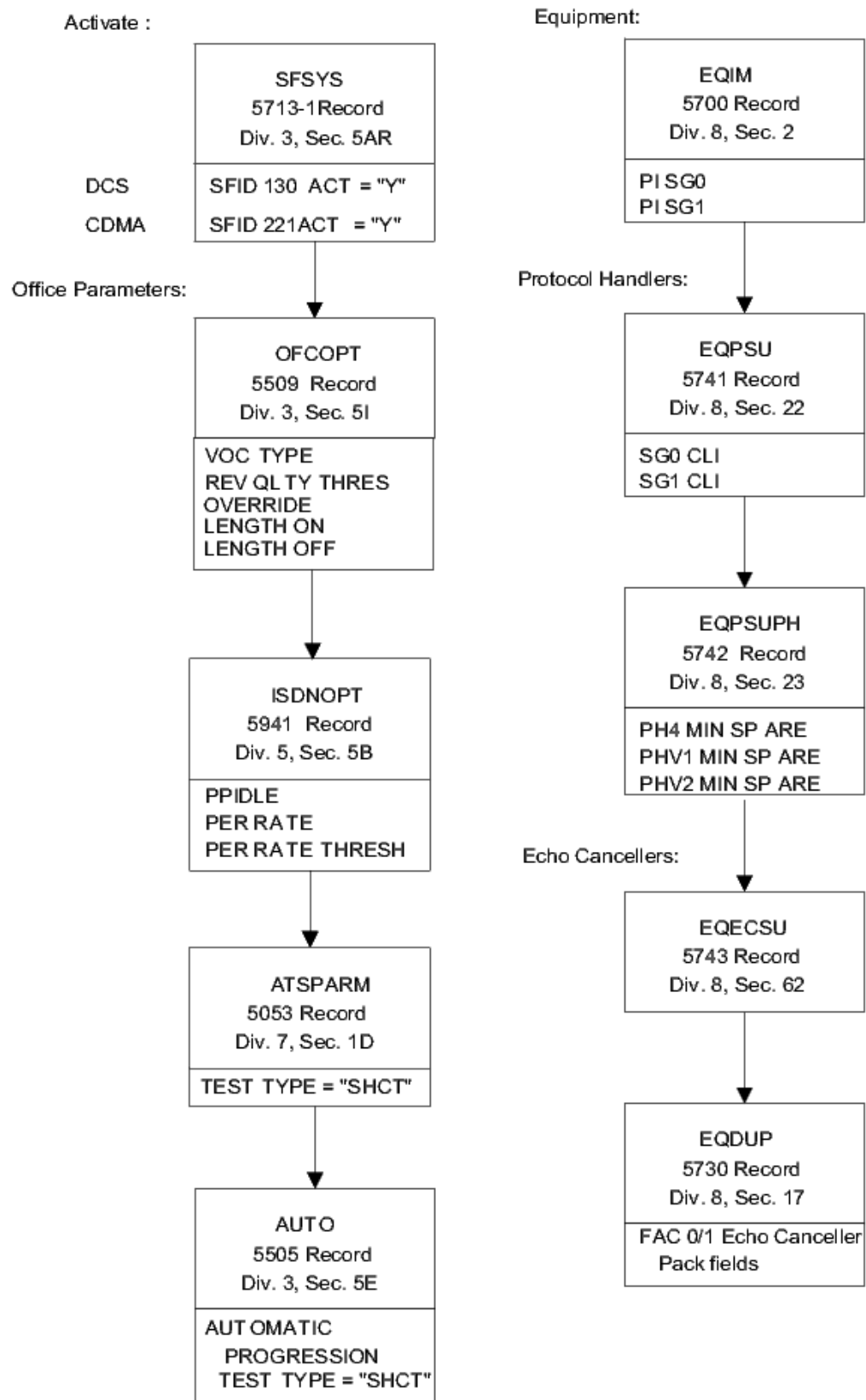


Figure 1 CDMA FEATURE FORM FLOW

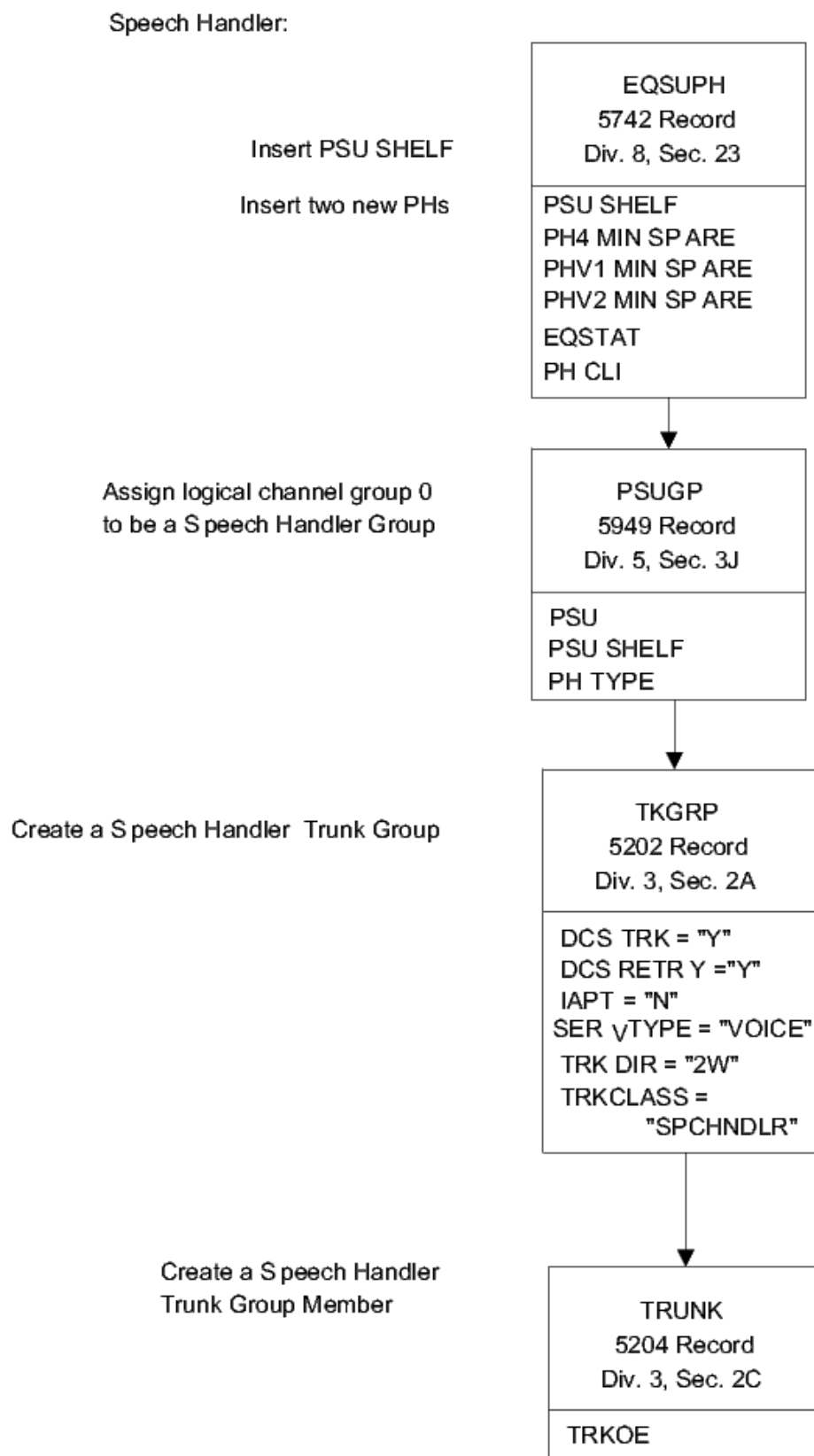


Figure 2 SPEECH HANDLER FORM FLOW

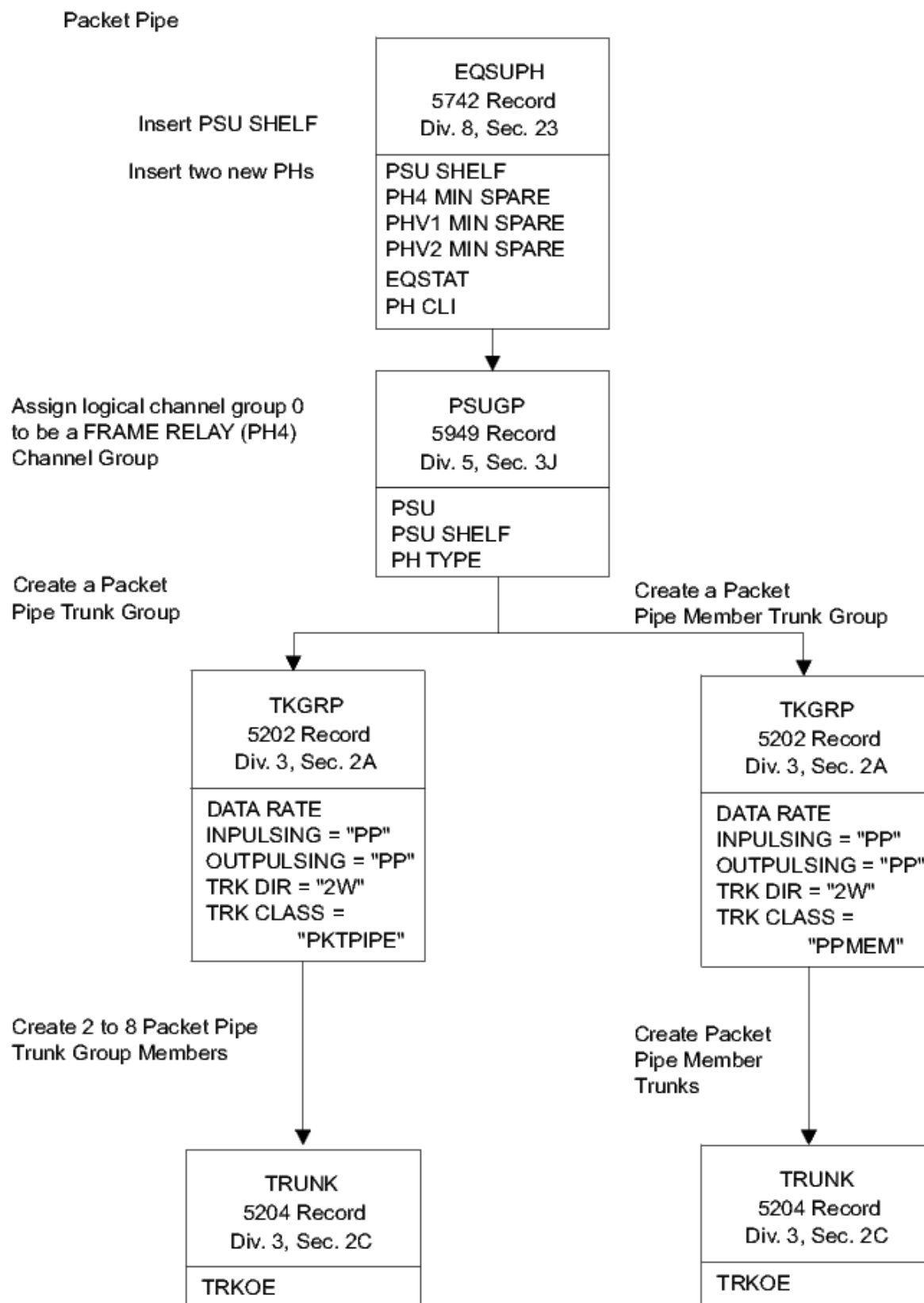


Figure 3 PACKET PIPE FORM FLOW

SEC. 8C: INTER-MSC TANDEM SUPPORT FOR INTERNATIONAL CALLS

1. FEATURE DESCRIPTION

This feature allows the mobile subscriber to make international calls the same way as calls within the North American numbering plan are made.

The Inter-MSC (Mobil Switching Centers) Tandem Support for International Calls provides digit outpulsing in the format: Mobile Number, PIC (Primary Carrier) and Called Number information on a standard T1 Facility (information digits are used to indicate the dialed prefix). This is what is used for routing tandem calls between MSCs where billing must be done based on the mobile number and the subscriber's PIC used to route the call.

The Inter-MSC Tandem outpulsing format currently provides 10 called number digits. This is sufficient for North American Numbering Plan calls, but does not provide enough digits to handle international numbers. This feature increases the number of digits supported initially to 12 for international numbers (minus prefix), and will subsequently expand the allowed number of digits to 15. The feature modifies the Inter-MSC Tandem format to allow an international number to be specified as the called number.

Introduction of the Inter-MSC Tandem Support for International Calls is in two phases. The first, supporting 12 digits as a 5E10 SU, and the second phase supporting 15 digits as a 5E11 SU. The feature number for this capability is 99-5E-3334.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS- 2000 Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). The valid entries for DCS DIGCNT were changed to 1 - 28.

3. GLOSSARY

MSC	Mobil Switching Centers
PIC	Primary Carrier

SEC. 8D: EXTENDED SOFT HAND-OFF THROUGH A MULTIPOINT ATM NETWORK CONNECTION

1. FEATURE DESCRIPTION

The Extended Soft Hand-Off Through a Multipoint ATM (Asynchronous Transfer Mode) Network Connection feature (99-5E-3081) is available with the 5E11 and later Software Releases. (A "soft" hand-off refers to the hand-off of a call between two cells (i.e., the primary and secondary) where the mobile is simultaneously transmitting to, and receiving from, both cells. A "hard" hand-off refers to the hand-off of a call between the two cells where the mobile stops transmitting to one cell before switching to the next).

NOTE: The 99-5E-3081 feature builds upon the 99-5E-3082 feature (Interswitch Soft Hand-Off) introduced for 5E10 and later. See Division 2, Section 8E. Both features are dependent upon the PHA (Protocol Handler for Asynchronous Transfer Mode) special feature; see Division 2, Section 4A224.

The 99-5E-3081 feature provides a means for interconnecting large numbers of PSUs (Packet Switching Units) to the 5ESS-2000 Switch. Without this feature, a service provider with a small number of PSUs can connect PSUs directly to each other with point-to-point connections. However, as the number of CDMA (Code Division Multiple Access) cells and PSUs increase, the number of point-to-point connections increase exponentially resulting in increased complexity. This feature provides the capability to increase the number of cells and PSUs by interconnecting PSUs through an ATM switch using a smaller number of PHAs than would be needed for point-to-point connections.

2. FEATURE ASSIGNMENT

To use this feature, the service provider must provision an ATM Switch and a PHA (Protocol Handler for ATM) to terminate the ATM link on the PSU of the 5ESS-2000 Switch. If the service provider currently uses PHAs to directly interconnect PSUs through point-to-point connections, the service provider may elect to re-use or re-deploy PHAs to terminate the ATM link and reduce the number of PHAs required.

3. TRANSLATION REQUIREMENTS

Form Name	New And Modified ODA Forms			
	Record Number	Division	Section	RC View
PSULNK	5057	7	2A	22.22

PSULNK form (5057 Record) - This form is used to define links between PSUs using PHAs (Protocol Handlers for AMT). The CON TYPE field was moved to this form from the EQPSU form (5741-1/2 Record). CON TYPE is used to indicate whether the connection terminates to a point-to-point PSU link or to a point-to-multipoint ATM configuration.

4. GLOSSARY

ATM	Asynchronous Transfer Mode
CDMA	Code Division Multiple Access
PHA	Protocol Handlers for Asynchronous Transfer Mode
PSU	Packet Switching Unit

SEC. 8E: INTERSWITCH SOFT HAND-OFF

1. FEATURE DESCRIPTION

The Interswitch Soft Hand-Off feature (99-5E-3082) is available with the 5E10 and later Software Releases. It enhances the delivery of CDMA (Cell Division Multiple Access) services by improving the quality and grade of service between large areas (such as cities, MTAs (Major Trading Areas) and/or BTAs (Basic Trading Areas)) to be comparable to the quality and grade of service that exists between smaller areas (such as suburbs or counties). The Interswitch Soft Hand-off feature provides for "seamless" CDMA service between PSUs (Packet Switching Units) of different 5ESS-2000 Switches as calls are "handed-off" between cells served by the switches. (A "soft" hand-off refers to the hand-off of a call between two cells (i.e., the primary and secondary) where the mobile is simultaneously transmitting to, and receiving from, both cells. A "hard" hand-off refers to the hand-off of a call between the two cells where the mobile stops transmitting to one cell before switching to the next).

The Interswitch Soft Hand-Off feature provides the capability to inter-connect PSUs (Packet Switching Units) of different 5ESS-2000 Switches, in either of two ways:

- PSU point-to-point (PSU link-to-PSU link)
- PSU point-to-Multipoint ATM (Asynchronous Transfer Mode) Network Connection

NOTE: The PHA (Protocol Handler for Asynchronous Transfer Mode) feature must be purchased to support the Interswitch Soft Hand-Off feature. See Division 2, Section 4A224.

2. FEATURE ASSIGNMENT

The service provider must physically interconnect the various PSUs of the 5ESS-2000 Switch.

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PSULNK	5057	7	2A	22.22

PSULNK form (5057 Record) - This form is used to define links between packet switch units using PHAs (Protocol Handlers for ATM (Asynchronous Transfer Mode)). The LINK TYPE field was added to this form to support the Interswitch Soft Hand-Off feature. When the PHAs are being used in a PSU "point-to-point" configuration, the LINK TYPE field defines whether the far PSU community address is in "this" office ("INTRA"), or another office ("INTER"). When the PHA is being used for the PSU "point-to-multipoint ATM" configuration, the LINK TYPE field must be "INTER" whether the link is carrying intra-office traffic, inter-office traffic, or both.

4. GLOSSARY

ATM	Asynchronous Transfer Mode
BTA	Basic Trading Area
CDMA	Cell Division Multiple Access
MTA	Major Trading Area

PHA Protocol Handlers for Asynchronous Transfer Mode

PSU Packet Switching Unit

SEC. 8F: PHV3 - DOWNLOADABLE PROTOCOL HANDLER FOR VOICE

1. FEATURE DESCRIPTION

Available as a software update for 5E11 and later, the PHV3 (Downloadable Protocol Handler for Voice) feature has feature number 99-5E-3359. This feature advances the vocoding power and flexibility of the 5ESS-2000 Switch. The PHV3 is a platform which supports multiple vocoding algorithms, even for multiple air interface standards.

The PHV3 feature allows the 5ESS DCS (Digital Cellular Switch) to offer new PHV (PHV3) using RAM (Random Access Memory) based DSP (Digital Signal Processor) vocoders that allows vocoder and echo canceler algorithms to be downloaded during the PHV initialization. The PHV3 feature increases the number of voice channels provided per PHV circuit pack from the 12 voice channels on the PHV1 and PHV2 to 16.

The PHV3 feature can support any vocoding algorithm through Software Release 5E13. The 5ESS-2000 Switch store all available vocoding algorithms. The service provider assigns each PHV3 a particular vocoding algorithm.

This feature does not require any operation on the part of the wireless subscriber. This feature is user transparent.

2. FEATURE ASSIGNMENT

Activation of this feature is dependent on the activation of the AMPS and CDMA features. To activate these feature, the ACT fields for SFID 130 and 221 on the SFSYS form (5713-1 Record) must be set to "Y". See Figure 1 for the provisioning form flow for this feature.

For more information concerning the CDMA feature and additional provisioning information, see Division 2, Section 8B.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSUPH	5742	8	23	22.3
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-1-8	3	2A	5.1
TRUNK	5204-1/2/3	3	2C	5.5

EQPSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS-2000 Switch. The PHV3 MIN SPARE field and a data rule for the PH CLI field were added for this form.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. The PH TYPE "PHV3" and data rules were added.

SFSYS form (5713-1 Record) - This form is used to enable secured features.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. Enumerations and data rules were added for field SERV TYPE. A data rule was added for field TRKCLS.

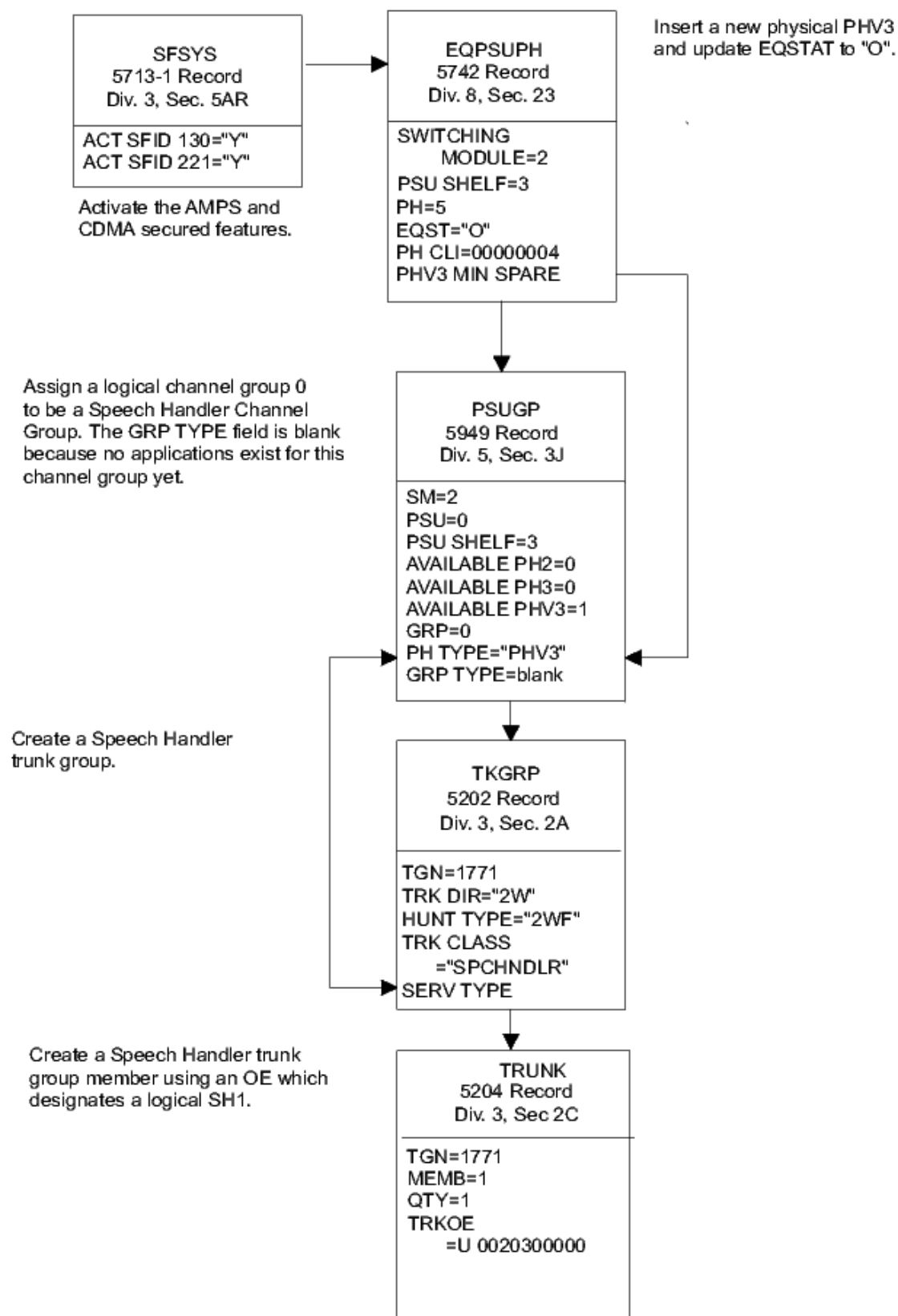


Figure 1 FORM FLOW FOR PHV3 SPEECH HANDLER TRUNK MEMBER

SEC. 8G: CDMA EVRC (ENHANCED VARIABLE RATE CODING)

1. FEATURE DESCRIPTION

Available as a software update for 5E11 and later, the CDMA EVRC (Enhanced Variable Rate Coding) feature has feature number 99-5E-3474. The CDMA Enhanced Variable Rate Coding feature defines a new enhanced 8 kbps vocoding algorithm adopted for CDMA voice services. The EVRC algorithm provides voice quality comparable to the present 13 kbps CDMA vocoding algorithm.

The EVRC provides the ability to maintain the voice quality provided by the 13 kbps algorithm but captures the spectrum and facility efficiencies of an 8 kbps coder.

The EVRC algorithm can be deployed in the same office and onto the same PSU2 as the other CDMA algorithms.

2. FEATURE ASSIGNMENT

Activation of this feature is dependent on the activation of the AMPS and CDMA features. To activate these features, the ACT fields for SFID 130 and 221 on the SFSYS form (5713-1 Record) must be set to "Y". For more information on the CDMA feature and provisioning information, see Division 2, Section 8B.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-1-8	3	2A	5.1

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. A data rule was added for PH TYPE.

SFSYS form (5713-1 Record) - This form is used to enable secured features.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The enumeration "EVRC" and data rules were added for field SERV TYPE.

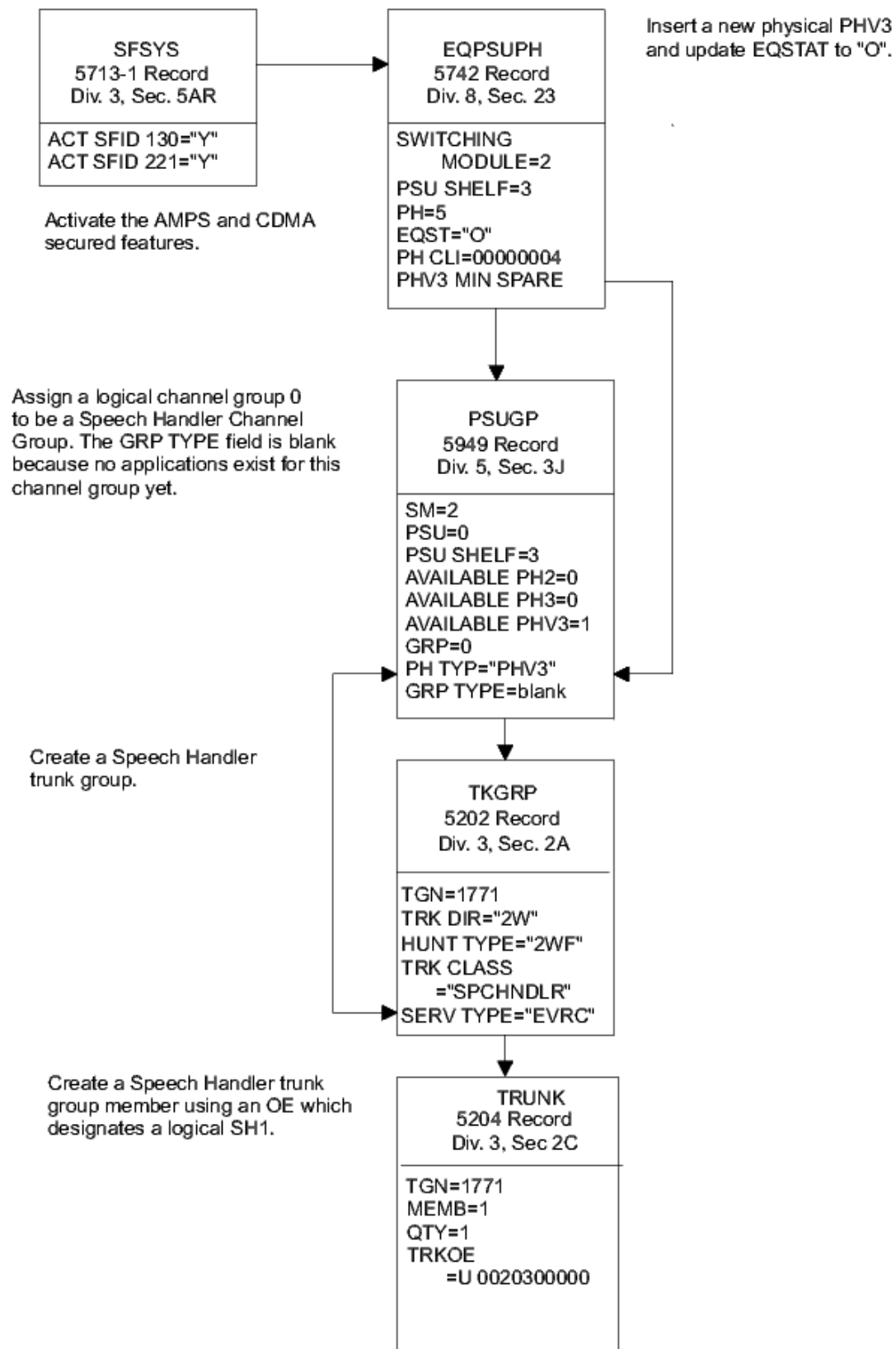


Figure 1 FORM FLOW FOR CDMA EVRC

SEC. 8H: IS41 INTER-SYSTEM HARD HANDOFF

1. FEATURE DESCRIPTION

The IS41 Inter-System Hard Handoff for the TDMA (Time Division Multiple Access) Circuit-Mode Data call is assigned feature number 99-5E-4491. This feature is available with 5E14 and later Software Releases. IS41 Inter-System Hard Handoff feature is dependent upon the TDMA Circuit Mode Data Service and the Switch Base TDMA Vocoder feature. The switch operator is able to have ISLP trunks provisioned in an office without Recent Change or software checking.

The new ISLP (Inter-System Link Protocol) trunk type is needed to support the inter-DCS (Digital Cellular Switch) or inter-MSC (Mobile Switching Center) TDMA Circuit Mode Data Service. To provide the IS41 Inter-System Hard Handoff for TDMA Circuit Mode Data Service, 5E-DCS requires ISLP PH (Inter-System Link Protocol Handler) in addition to the hardware already used for TDMA Circuit Mode Data Service. ISLP PH is a PHV4 (Protocol Handler Voice 4) which provides rate adaptation from the low speed air interface data rate (8Kbps, 14.4Kbps, etc.) to the higher speed inter-system DS0 rate of a T1 or E1 carrier (56Kbps). ISLP will use the Packet Pipe model for the semipermanent connection. A new ISLP channel group is introduced in the PSU to support the ISLP trunk.

The ISLP trunk is a 56Kbps clear channel trunk carrying the data packets used over the air interface. The ISLP DS0 can be viewed as a member trunk of ISLP and it is a semipermanent connection of the ISLP trunk from DFI (Digital Facility Interface) or DNU-S (Digital Network Unit - SONET) to the ISLP PH.

The IS41 Inter-System Hard Handoff feature utilize the existing IFRBC (ISDN Frame Relay Bearer Channels) interface with the IWF (Inter-Working Function).

A new ISLP Terminal Process is created for the AMPS (Advanced Mobile Phone System) call processing that communicates with ISLP PH. The PSTN (Public Switch Telephone Network) anchor switch is the switch that maintains the connection to the PSTN trunk. The IWF (Inter-Working Function) anchor switch is the switch that maintains the connection to the IWF. When a mobile station moves from one cell site to another cell site, the DCS that anchors PSTN or IWF does not change for the duration of a call. The ECP (Executive Cellular Processor) sends messages to setup the ISLP trunk as well as the ADT (Autoplex Data Trunk) in the new serving DCS, then the ECP instructs the anchor DCS to switch from the SVC-ADT path to the SVC-ISLP path which is S-type handoff.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT fields for SFID 221 and 259 must be set to "Y" to activate this secured feature.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch.

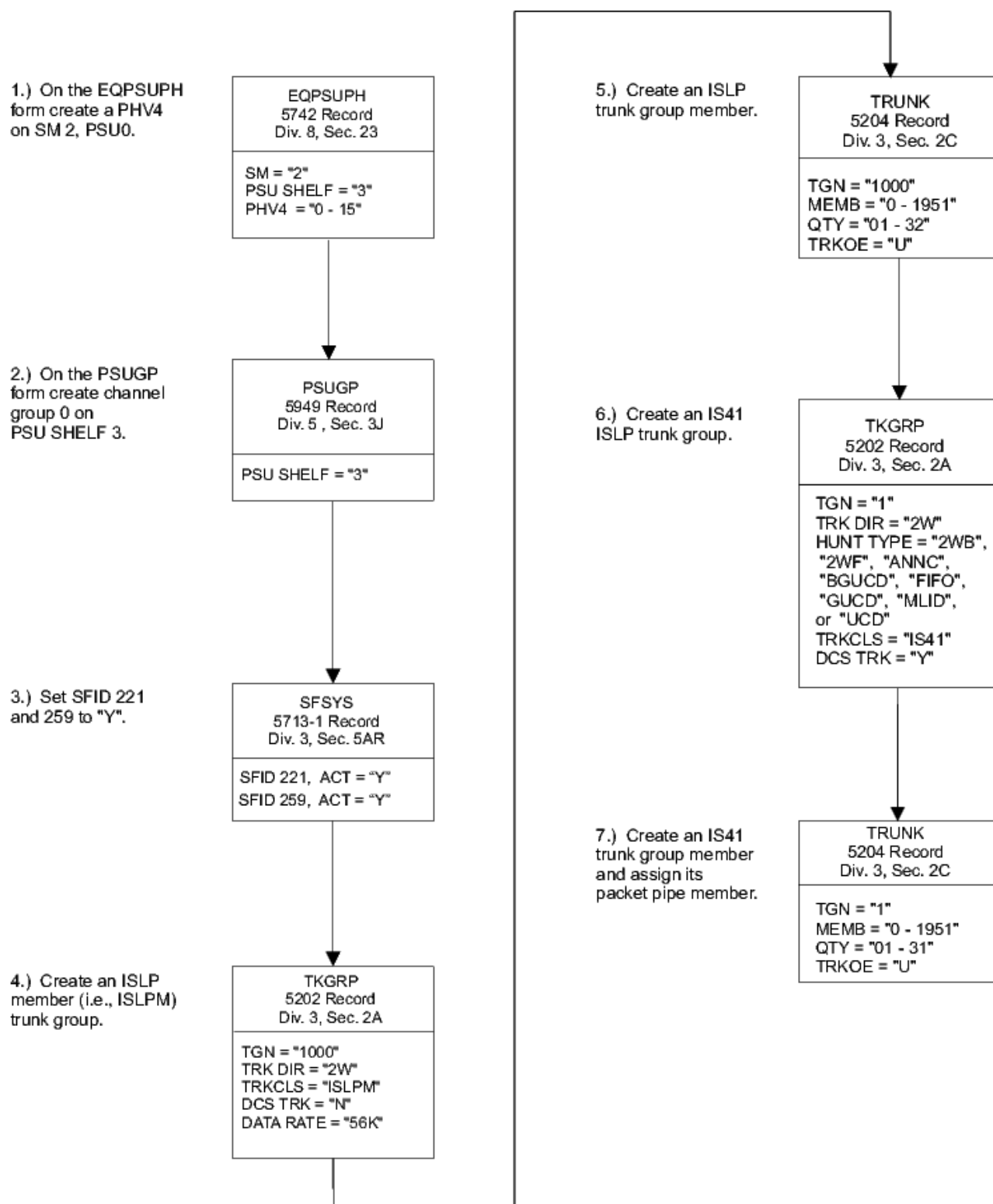


Figure 1 IS41 INTER-SYSTEM HARD HANDOFF FORM FLOW 5E14 AND LATER

SEC. 8I: IS634 A5 INTERFACE

1. FEATURE DESCRIPTION

The IS634 A5 Interface is assigned feature number 99-5E-4979 and is available as a Software Update for the 5E14 and later Software Releases. The A5 feature provides connectivity to IS634 compliant base stations for CDMA (Code Division Multiple Access) Circuit-Mode Data Calls. IS634 compliant base stations perform decoding of the RLP (Radio Link Protocol) in the base station. Lucent Technologies Proprietary Cells rely upon the 5E-DCS (Digital Cellular Switch) to perform RLP related processing. Thus, the data received over the A5 Interface can be relayed directly to the IWF (Inter-Working Function) without further processing that is required for Lucent Technologies calls.

The A5 Interface will be supported through the use of an ISLP (Inter-System Link Protocol) trunk with an A5 Class-of-Service. ISLP trunks are being introduced in the IS41 Intersystem Hard Handoff Feature (Division 2, Section 8H). The A5 Interface feature requires the presence of the ISLP PH (Protocol Handler) and its associated OA&M (Operation, Administration and Maintenance), Packet Services, and Provisioning functionality. The A5 Interface feature is therefore dependent on the IS41 Inter-System Hard Handoff feature to deliver this functionality.

This feature will also utilize the functionality provided by the CDMA Circuit-Mode Data feature related to the connection with the IWF via the SVC (Switched Virtual Circuits). The primary differences in call routing will be the connection of these SVCs to the A5 trunks instead of the ADTs (Autoplex Data Trunks) used to connect to the Lucent Technologies Cells.

In addition to call originations and terminations for IS634 compliant base stations, this feature will provide capability for the following types of Intra-DCS handoffs:

IS634 Base Station - IS634 Base Station,

IS634 Base Station - Lucent Series 2 Cell,

and Lucent Series 2 Cell - IS634 Base Station.

Requests for A5 service will be received from the ECP (Executive Cellular Processor) via the A_INTF_REQ message. This message was initially added by the A2 feature which serviced IS634 CDMA voice traffic. This message will be reused to setup asynchronous data and fax calls by the A5 feature.

1.1 FEATURE ASSIGNMENT

See Figure 1 for feature assignment form flow for this feature.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ATSDATA	5052	7	1C	14.9
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

ATSDATA form (5052 Record) - This form is used to provide data that defines a test session in a certain test schedule to be invoked by ATTS (Automatic Trunk Testing Scheduler) for the purpose of performing

automated trunk testing over a specific range of equipped members of a specified trunk group.

SFSYS form (5713-1 Record) - This form is used to enable secured features. The ACT fields for SFIDs (Secured Feature IDs) 221 and 259 must be set to "Y" to activate this secured feature.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added the A5 entry to the TKCLS field.

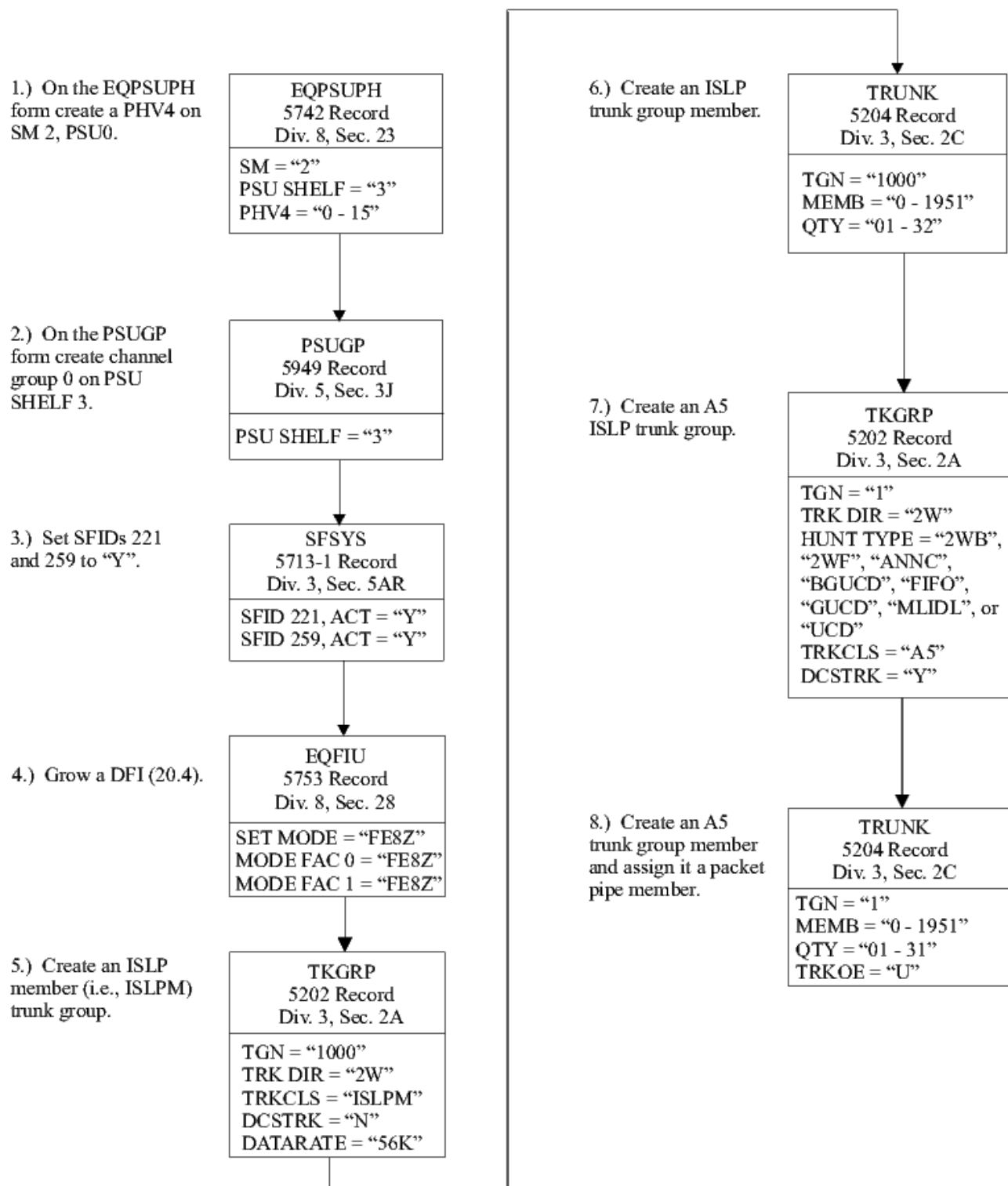


Figure 1 IS634 A5 INTERFACE FORM FLOW 5E14 AND LATER SOFTWARE RELEASES

SEC. 8J: PHV4 - DOWNLOADABLE PROTOCOL HANDLER FOR VOICE 4

1. FEATURE DESCRIPTION

Available as a Software Update for 5E11 and later, the PHV4 (Downloadable Protocol Handler for Voice) feature has feature number 99-5E-3412. This feature advances the vocoding power and flexibility of the 5ESS-2000 Switch.

The Protocol Handler for Voice 4 (PHV4) provides 32 speech vocoders per circuit board, double the capacity of the PHV3. Like the PHV3, the PHV4 is a downloadable platform which will support multiple vocoding algorithms, even for multiple air interface standards.

The PHV4 feature allows the 5ESS DCS (Digital Cellular Switch) to offer new PHV (PHV4) using RAM (Random Access Memory) based DSP (Digital Signal Processor) vocoders that allow vocoder and echo canceler algorithms to be downloaded during the PHV initialization. The PHV4 feature increases the number of voice channels provided per PHV circuit pack from the 12 voice channels on the PHV1 and PHV2 to 32.

By deploying the PHV4 in combination with PSU2 units equipped with the PSU (Packet Switching Unit) Capacity Expansion feature (99-5E-3411), the traffic capacity of the PSU2 is more than triple the capacity of the 5E10 PSU2 configurations. This means a savings of PSU2 units deployed and SM-2000s deployed.

It will also be possible to mix PHV1, PHV2, PHV3 and PHV4 circuit packs in the same PSU2 unit.

The PHV4 feature can support any vocoding algorithm through Software Release 5E13. The 5ESS-2000 Switch stores all available vocoding algorithms. The service provider assigns each PHV4 a particular vocoding algorithm.

This feature does not require any operation on the part of the wireless subscriber. This feature is user transparent.

2. FEATURE ASSIGNMENT

Activation of this feature is dependent on the activation of the AMPS and CDMA features. To activate these features, the ACT fields for SFID 130 and 221 on the SFSYS form (5713-1 Record) must be set to "Y". See Figure 1 for the provisioning form flow for this feature.

For more information concerning the CDMA feature and additional provisioning information, see Division 2, Section 8B.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSUPH	5742	8	23	22.3
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-1-8	3	2A	5.1

EQPSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS-2000 Switch. The PHV4 MIN SPARE field and a data rule for the PH CLI field were added for this form.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical

channel group on a PSU shelf. The field AVAILABLE PHV\$ was added to this form. The PH TYPE "PHV4" and data rules were added.

SFSYS form (5713-1 Record) - This form is used to enable secured features. Activation of this feature is dependent on the activation of the AMPS and CDMA features. To activate these feature, the ACT fields for SFID 130 and 221 on the SFSYS form (5713-1 Record) must be set to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. Enumerations and data rules were added for field SERV TYPE. A data rule was added for field TRKCLS.

Activation of this feature is dependent on the activation of the AMPS and CDMA features. (Special feature IDs 130, and 221.)

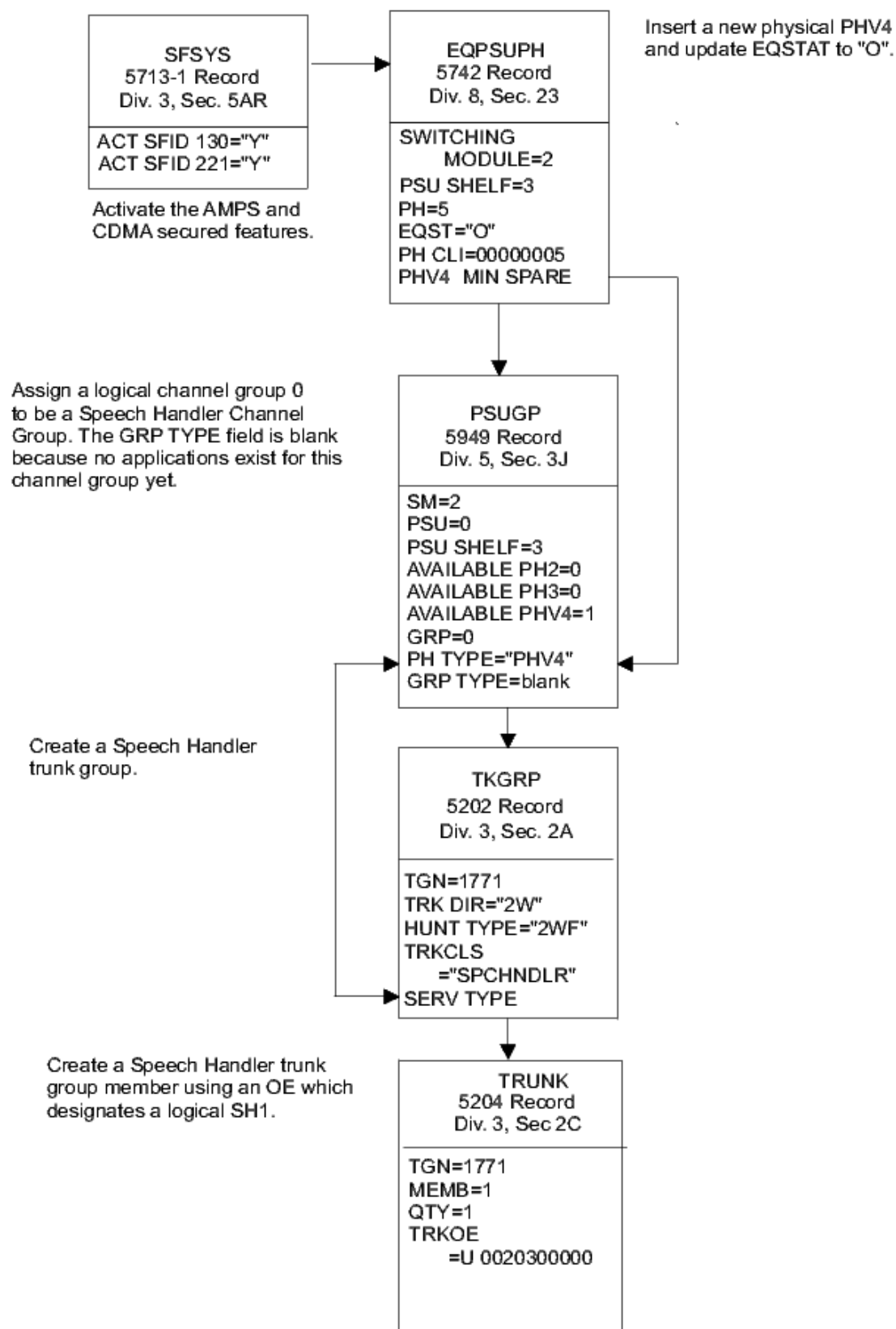


Figure 1 FORM FLOW FOR PHV4 SPEECH HANDLER TRUNK MEMBER

SEC. 8L: WIRELESS TRUNKS ON DNU-S

1. FEATURE DESCRIPTION

The Wireless Trunks on the DNU-S (Digital Networking Unit - SONET (Synchronous Optical Network)) feature is available as a 5E13 Software Update. Prior to this feature, the DNU-S did not support the termination of Autoplex trunks. Autoplex trunks currently terminate on a DLTU (Digital Line Trunk Unit).

This feature provides a high-capacity trunk interface on the 5ESS-2000 Switch that is compatible with a SONET interface. The DNU-S can support up to 12 STSX-1 links, and each STSX-1 electrical interface conforms to the SONET standard. The STSX-1 link has a data rate of 51.84 Mb/s and supports up to 672 DS0 channels formatted as 28 Virtual Tributaries (i.e., VT1.5). A VT1.5 can accommodate one DS1. With the implementation of this feature, the following trunk types are supported by DNU-S:

Inter-Vendor

Autoplex PSTN

Inter-DCS

Loop-Around

Packet Pipe Member

Frame Relay Bearer Channel

ISDN PRI (interface with IWF)

Inter-Vendor Base Station

ECP-DCS SS7 Link

The feature number for this feature is 99-5E-3553.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDUP	5730	8	17	20.4
EQVT	5858	8	60	20.24
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

EQDUP Form (5730 Record) - This form is used to define Digital Line and Trunk Units.

The following data rule was added:

AFAC IDs must be unique across EQDUP and EQVT forms in an office.

EQVT Form (5858 Record) - This form is used to define the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S.

For this feature, a new field, AFAC ID, was added to define a wireless trunk.

The following data rules were updated and/or added to include the DNU-S VT:

When an AFAC ID is entered, APPLICATION TYPE must be "TRUNK".

AFAC IDs must be unique across EQDUP (5730 Record) and EQVT forms in an office.

DNU-S VTs with trunks assigned to autoplex (wireless) facilities must have an EQDSC3 form (5852 Record) with the EQSTAT attribute set to "O" for the associated SM.

TKGRP Form (5202 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The following data rules were added:

the following existing TRKCLS entries are now valid entries for wireless trunks terminating on a DNU-S: "A2", "BCM", "CST1", "CST2", "DSC", "IDCS", "IVTRK", "LTOLLCON", "PPMEM",

if "PPMEM" is entered, an AFAC ID must be entered on all corresponding EQDUP or EQVT forms for the respective DEN or NEN populated on the associated TRUNK form,

if DCS TRK is "N", and TRKCLS is not equal to "BCM" or "PPMEM", and TRK DIR is not equal to "SGNL" on a TKGRP form, AFAC ID must not be entered for all corresponding EQDUP or EQVT forms,

if DCS TRK is "Y", an AFAC ID must be entered on all corresponding EQDUP or EQVT forms for the respective DEN or NEN populated on the associated TRUNK form,

if TRKCLS of "BCM" or "PPMEM" is entered and associated SVCs have DCS TRK of "Y" on the TKGRP form, an AFAC ID must be entered on all corresponding EQDUP or EQVT forms for the respective DEN or NEN populated on the associated TRUNK form.

TRUNK Form (5204 Record) - This form is used to define each Trunk Group in a 5ESS-2000 Switch. The following data rule was added:

if at least two PSU PIPE MEMBER TRUNKS row entries are entered, the DEN or NEN trunk members entered must all reside on the same facility.

SEC. 8M: AMPS IN-BUILDING AMPS/PRI/PRA INTERWORKING

1. FEATURE DESCRIPTION

Available as a 5E14 Software Update, the AMPS (Advanced Mobile Phone System) In-Building AMPS/PRI/PRA (Primary Rate Interface/Primary Rate Access) Interworking feature has feature number 99-5E-4375. This feature provides the direct interworking between the CDMA (Code Division Multiple Access) wireless call and the PBX (Private Branch Exchange) wireline call. This provides wireline users with CDMA wireless call capability.

AMPS In-Building AMPS/PRI/PRA Interworking is an AUTOPLEX domestic and international feature which provides the ability to connect CPE (Customer Premises Equipment), such as PBX or other equipment compatible with ISDN (Integrated Services Digital Network) PRI/PRA specifications, directly to the AUTOPLEX MSC (Mobile Switching Center).

This feature supports both the United States ISDN PRI and the International ISDN PRA. The PRI/PRA interface trunks are used for general call processing purposes, including routing calls directly from a mobile subscriber to the CPE and from the CPE to a mobile subscriber without the need to go through the PSTN (Public Switched Telephone Network).

2. FEATURE ASSIGNMENT

Activation of this feature is dependent on the activation of the Digital Cellular Switch feature and the CDMA or TDMA (Time Division Multiple Access) VIS (Vocoder in Switch) feature. To activate these features, the ACT fields for SFIDs 130 and 221 (for CDMA) or 259 (for TDMA VIS) respectively must be set to "Y". See Figure 1 for the provisioning form flow for this feature.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

SFSYS form (5713-1 Record) - This form is used to activate secured features. Activation of this feature is dependent on the activation of the DCS and the CDMA or TDMA VIS features. To activate these features, the ACT fields for SFIDs 130 and 221 (CDMA) or 259 (TDMA VIS) on the SFSYS form must be set to "Y".

TKGRP form (5202) - This form is used to define each Trunk Group in a 5ESS Switch. For 5E14 and later, valid entries and data rules for the APPLICATION field were added.

Turn on the Digital Cellular Switch feature.

SFSYS 5713-1 Record Div. 3, Sec. 5AR
ACT SFID 130= "Y"

Set the appropriate secured feature for CDMA or TDMA Vocoder.

<table border="1"><tr><td>SFSYS 5713-1 Record Div. 3, Sec. 5AR</td></tr><tr><td>ACT SFID 221= "Y"</td></tr></table>	SFSYS 5713-1 Record Div. 3, Sec. 5AR	ACT SFID 221= "Y"	<table border="1"><tr><td>SFSYS 5713-1 Record Div. 3, Sec. 5AR</td></tr><tr><td>ACT SFID 259= "Y"</td></tr></table>	SFSYS 5713-1 Record Div. 3, Sec. 5AR	ACT SFID 259= "Y"
SFSYS 5713-1 Record Div. 3, Sec. 5AR					
ACT SFID 221= "Y"					
SFSYS 5713-1 Record Div. 3, Sec. 5AR					
ACT SFID 259= "Y"					

Set the appropriate fields to provision the AMPS PRI/PRA on In-Building feature for a trunk group.

TKGRP 5202 Div. 3, Sec. 2A
TRKCLS= "EDSL" or "EDSLHM" APPLICATION= "INBLDG" DCS TRK= "Y" DCS RETRY= "N"

Figure 1 AMPS ON PRI/PRA IN-BUILDING FORM FLOW

SEC. 8N: CDMA IS-53A PREFERRED LANGUAGE

1. FEATURE DESCRIPTION

This section describes the CDMA IS-53A Preferred Language (5E13) feature and the CDMA IS-53A Preferred Language, Phase 1 Enhancement (5E15 and later) feature.

1.1 CDMA IS-53A Preferred Language

The CDMA (Code Division Multiple Access) IS-53A Preferred Language feature is assigned feature number 99-5E-4651.

This feature allows a mobile subscriber to subscribe to a preferred language for network services. The subscriber can choose a preferred language by dialing a feature code. The service provider specifies the languages which are supported on a per system basis. When the mobile subscriber accesses a network service involving language, (e.g., a recorded announcement) the network provides the service in the subscribers preferred language, if it has the capability to do so. If the provider does not support the subscribers preferred language then it provides the services in the default language chosen by it.

This feature is limited to the support of the following four preferred languages applicable to the NAR market.

English

French

Mandarin

Cantonese

1.2 CDMA IS-53A Preferred Language, Phase 1 Enhancement

The IS-53A Preferred Language, Phase 1 Enhancement feature is being deployed for 5E15 and later. The feature number for this feature is 99-5E-7290.

The IS-53A Preferred Language, Phase 1 Enhancement feature allows a mobile subscriber to receive a 5E-DCS (Digital Cellular Switch) provided recorded announcement in the preferred language of their choice. Upon receipt of a message from the ECP (Executive Cellular Processor) requesting an announcement to be played to the mobile, the 5E-DCS examines the optional preferred language parameter and determines whether this language is currently defined on the 5E-DCS. If so, the 5E-DCS plays the recorded announcement in the requested language. If the language requested is not defined on the 5E-DCS, the announcement is played in the default language which is defined on 5E-DCS by the service provider.

This feature follows the TR45 standard. Currently, approximately 61 languages are defined, with the possibility of defining up to 255 different languages. For the phase 1 Enhancement, the 5E-DCS will support any 4 languages out of the 61 or 255 as mentioned above.

2. FEATURE ASSIGNMENT

For 5E13 and later, the provisioning rules for this feature are as follows:

Insert an APPLICATION of type "VARRAF" on the ANNAPL form.

Insert a PHRASE ID on the PHRASE form.

Insert a HDR ID on the ANNHD form.

Insert a ROUTE TYPE on the FIXRTRAF form.

Set or change the value of the DEFAULT LANGUAGE field on the APXPARM form.

Insert a ECP INDEX on the APXANNC form.

3. TRANSLATION REQUIREMENTS

3.1 CDMA IS-53A Preferred Language

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ANNAPL	5529	3	5AC	8.64
ANNHD	5531	3	5AE	8.61
APXANNC	5051	7	1B	10.38
APXPARM	5050	7	1A	8.28
FIXRTRAF	5058	7	1H	8.68
PHRASE	5534	3	5AH	8.63

ANNAPL form (5529 Record) - This form is used to enter the SMs (Switching Modules) on which the DSU2-RAF (Digital Service Unit Model 2 - with Recorded Announcement Functions) reside and the type of application announcements supported by that DSU2-RAF. Added the enumeration value, VARRAF, and added a data rule to the APPLICATION field.

ANNHD form (5531 Record) - This form lists the phrases, in the required order, associated with an announcement header. The Non-English Announcement phrases must be entered on this form under the same announcement header ID as English phrases, but with the Language Application Identifier also assigned on the LANGTBL form (5483-Record). Added the enumeration value, VARRAF, and added a data rule to the APPLICATION field.

APXANNC form (5051 Record) - The 5051 Record provides mapping between ECP (Executive Control Processor) announcement identification numbers and 5ESS Switch route indices. Added the ROUTE TYPE field and its related data rules.

APXPARM form (5050 Record) - This record is used to associate an identification number from the ECP (Executive Cellular Processor) to a route index for an announcement. Added the LANGUAGE CODE field and its related data rules.

FIXRTRAF form (5058 Record) - This form is used to assign recorded announcement data to fixed route types. New form created for 5E13 to support this feature. New form added to support the CDMA IS-53A Preferred Language feature.

PHRASE form (5534 Record) - This record defines and describes phrase IDs which are provided on the DSU2-RAF (Digital Services Unit 2-Recorded Announcement Function) Announcement Storage circuit packs for each application (see Division 8, Section 36 for required pack assignments). Added the LANGUAGE CODE field and the enumeration value, VARRAF to the APPLICATION field.

3.2 CDMA IS-53A Preferred Language, Phase 1 Enhancement

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
FIXRTRAF	5058	7	1H	8.68

PHRASE	5534	3	5AH	8.63

FIXRTRAF form (5058 Record) - This form is used to assign recorded announcement data to fixed route types. The LANGUAGE CODE valid entry was expanded to 1 - 255.

PHRASE form (5534 Record) - This record defines and describes phrase IDs which are provided on the DSU2-RAF (Digital Services Unit 2-Recorded Announcement Function) Announcement Storage circuit packs for each application. Added data rules for the APPLICATION and LANGUAGE CODE fields. New form created for 5E15 to support this feature.

SEC. 8P: TANDEM CALL OVER ISUP TRUNK

1. FEATURE DESCRIPTION

The feature, Tandem Call Over ISUP Trunk delivers the software changes needed to handle the Hop Counter Parameter, Carrier Identification Code, Carrier Selection, and the Transit Network Selection in ISUP (ISDN (Integrated Services Digital Network) User Part) messages. The feature number for this feature is 99-5E-4400. The feature is being deployed as a Software Update for the 5E12 Software Release and the BMI (Beginning Managed Introduction) of the 5E13 Software Release.

Currently the Autoplex System 1000 supports incoming ISUP calls for local terminations but blocks tandem calls. This feature provides the enhanced SS7 (Signaling System 7) signaling procedures to interconnect incoming ISUP calls to outbound ISUP or outbound MF (Multi-Frequency) trunks, but does not provide full ISUP tandem functionality, since some of the ISUP parameters are not sent through the MSC (Mobile Switching Center).

To provide ISUP tandem functionality the MSC would need to pass all ISUP parameters received from an incoming IAM (Initial Address Message) on to the next office transparently, except for the signaling information. With the Tandem Over ISUP feature, the 5ESS Switch DCS (Digital Cellular Switch) will see two calls, an incoming ISUP call and an outgoing ISUP or MF call. For this feature, the 5ESS Switch DCS is enhanced to send to the ECP (Executive Control Processor) and receive from the ECP the following additional ISUP parameters:

- Hop Counter,
- Carrier Identification Code,
- Carrier Selection Information,
- Transit Network Selection.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record). Added one new form check for this feature.

SEC. 8R: VOCODER HUNTING ENHANCEMENTS

1. BACKGROUND

Prior to this feature, RTA (Routing and Terminal Allocation) used the SMIM (Switch Maintenance for the Switching Module) connectivity to return the next PSU (Packet Switch Unit) connected to the Packet Pipe. If that PSU did not support the requested service handler type, it was skipped and the next connected PSU was read until three connected PSUs were read. If this resulted in no trunk groups being found, a second attempt was made for two more connected PSUs. With this feature, only PSUs that support the requested service type are read.

2. FEATURE DESCRIPTION

The Vocoder Hunting Enhancements feature is available with the 5E15 Software Release. The feature number is 99-5E-7412.

When a wireless call must leave a 5ESS Switch, the ECP (Executive Control Processor) identifies a list of outgoing trunk groups to be hunted. The ECP knows the identity and status of the trunk groups. Unlike outgoing trunk groups, the ECP does not keep track of the service handler trunk groups. Therefore, when a service handler request is received by RTA, RTA must get a list of service handler trunk groups to hunt. This feature does not involve hunting the vocoder trunk groups. It is an enhancement to the way the trunk group list (i.e., a listing of vocoder trunk groups to hunt) is formed.

Vocoders (i.e., service handlers because this feature includes ADT (AMPS Data Trunk) - AMPS (Advanced Mobile Phone Service) Data Trunks) are a limited pooled resource. Limited because not all service handler trunk groups can be hunted for each call and pooled because there is a busy overflow from one trunk group to another. All members of a service handler trunk group are of the same service type (i.e., 8K, 13K, EVRC, Data, etc.) and must be in the same PSU. This feature improves the formation of the list of service handler trunk groups because it avoids reading the database for PSUs that do not support the requested service type. It also increases the number of service handler trunk groups that are put into the list from 4 to 7.

3. TRANSLATION REQUIREMENTS

There are no new fields or new forms added for this feature.

4. GLOSSARY

ADT	AMPS Data Trunk
AMPS	Advanced Mobile Phone Service
ECP	Executive Cellular Processor
PSU	Packet Switch Unit
RTA	Routing and Terminal Allocation
SMIM	Switch Maintenance for the Switching Module

SEC. 8S: AUTOPLEX FACILITY IDENTIFIER (AFACID) EXPANSION

1. FEATURE DESCRIPTION

The Autoplex Facility Identifier Expansion feature is being deployed as a Software Update to the 5E14 Software Release. The feature number for this feature is 99-5E-7382. The Autoplex Facility Identifier Value Expansion Phase II is being deployed for the BMI (Beginning Managed Introduction) of the 5E15 Software Release. The feature number for this feature is 99-5E-7382.A.

AFAC ID (Autoplex Facility Identifier (previously called Advanced Mobile Phone Service Facility Identifier)) is a number used to distinguish DS1(s) (Digital Signal Level 1 (1.544 Mbps Synchronous Channel On A T1 Facility)) associated with Autoplex facilities (example: a DS1 to Cell Site) from DS1(s) associated with non-Autoplex facilities (example: a DS1 to a PBX (Private Branch Exchange)). If an alarm occurs on an Autoplex DS1 facility, the DCS (Digital Cellular Switch) will notify the ECP (Executive Cellular Processor) with a message containing the AFAC ID. The ECP will remove the facility and any associated trunks from its inservice list.

The AFAC ID assignment to a DS1 currently allows the user to see the status of the DS1 with the assigned AFAC ID on the ECP Display Page (DSP) 2143. Currently the highest AFAC ID value that can be assigned in the EQDUP form (5730 Record) is 1023. The current number of DS1s that can be equipped is higher than 1023. In order to maintain this OA&M (Operation, Administration and Maintenance) capability, the AFAC ID number has to go up in-line with the latest highest equipped value. Because the DCS can now support a large number of DS1s, this feature, 99-5E-7382, expands the AFAC ID from its current value of 1023 to 4080. The feature 99-5E-7382.A expands the value from 4080 to 4500. The first phase of this feature (99-5E-7382), being deployed as a 5E14 SU (Software Update) will increase the highest value from 1023 to 4080. Phase II of this feature (99-5E-7382.A) will increase the highest value from 4080 to 4500.

2. FEATURE ASSIGNMENT

This feature is an OA&M special feature and its use is not restricted by purchase arrangements.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDUP	5730	8	17	20.4
EQVT	5858	8	60	20.24

EQDUP form (5730 Record) - The Digital Line/Trunk Unit Pack Equipage form is used to define the Switching Module, equipment location information for the Digital Line/Trunk Units and the Digital Facility Interface Pack Number.

EQVT form (5858 Record) - The DNU-S (Digital Networking Unit - SONET) Virtual Tributary (SM-2000)-EQVT form is used for the equipage of the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S.

SEC. 8T: FLEXANT A2 INTERFACE DATARATE ENHANCEMENTS

1. FEATURE DESCRIPTION

The Flexant A2 Interface Datarate Enhancements feature is available with the 5E13FR1 (Feature Release 1). The feature number for this feature is 99-5E-7423.

This feature allows the service provider the ability to assign "56K" or "64K" datarates for IS-634 A2 Interface trunks. These new trunks were introduced by the IS-634 A2-Interface feature (97-5E-3457), which is the base feature for the Flexant A2 Interface Datarate Enhancements feature. For more information on the base feature, see Division 2, Section 4A191.

2. FEATURE ASSIGNMENT

The primary enhancement element of this feature is that, prior to this feature, the DATA RATE field on the TKGRP form (5202 Record) only accepted a value of "56K", while this feature allows a value of "64K" also.

To insert a new A2 trunk group, on the TKGRP form:

Set TRK DIR to "2W".

Set HUNT TYPE to "2WF".

Set TKCLS to "A2".

Set INPUTSING to "DCS".

Set OUTPUTSING to "DCS".

Set DCS TRK to "Y".

Set DATA RATE to "56K", or "64K".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added a data rule to the TKCLS field for the "A2" class.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. Added data rules to the DEN and NEN fields.

SEC. 8U: DECOUPLE COMMON CHANNEL SIGNALING FROM GLOBAL SM INITIALIZATIONS

1. FEATURE DESCRIPTION

The Decouple CCS (Common Channel Signaling) from Global SM (Switching Module) Initializations feature (99-5E-7428) builds upon the 5E15 SS7 (Signaling System 7) - PSU (Packet Switch Unit) Architectural Enhancements feature (99-CP-4246) which provides an internal CCS message transport architecture - see Division 2, Section 7AG.

The Decouple CCS from Global SM Initializations feature provides the capability to maintain signaling links and CMT (CCS Message Transport) connectivity during a Selective Initialization of a Host GSM. It also reduces signaling link downtime during a Full Initialization of a Host GSM (Global SM). If a TMH (Transfer Message Handler) is provisioned in the Host GSM that is initializing, CMT connectivity downtime between the Host GSM and each NGSM (Non-Global SM) is minimized during a Full Initialization only when a second TMH is provisioned.

This feature also implements a CCS-preserving GR (Generic Retrofit) sequence, which reduces signaling link downtime for a primary Host GSM and each Island GSM in an office during GR. As part of this sequence, a GR office configuration check is executed. This check examines CCS static data in each GSM and selects a primary Host GSM in the office. The primary Host GSM is selected based on the Host GSM servicing the most number of trunks and CCS applications in the office. This check also rates the configuration of each Host GSM in the office. The rating of each GSM in the office is reported through an output message. This message displays the GSM number, PSU number and office equipment number for each signaling link set member associated with that GSM. This message also states whether the GSM is a supported configuration for Retrofit. This will also warn the customer of any potential link congestion or if there is a possibility for DPC (Destination Point Code), cluster or network isolation during Retrofit. If it is determined that potential link congestion to each DPC, cluster and/or network may occur during Retrofit, the message will also state the maximum link capacity that will result during Retrofit. This will be a percentage greater than 0% and less than 50%. A best attempt is made to reduce signaling link downtime for other Host GSMs in the office. If a TMH is provisioned in the primary Host GSM, CMT connectivity downtime between the primary Host GSM and each NGSM is minimized during GR only when a second TMH is provisioned.

The CMTMH form (6021 Record) provides the option to provision a second TMH to add message transport capacity and enhance reliability of the CMT path between the GSM and its NGSMs to facilitate load-share of CCS messages between GSM and NGSMs in an office.

As a part of this feature, the capability to terminate SDLs (Signaling Data Links) on Non-Global SMs will be provided to allow service providers to optimize the configuration of signaling links terminating on a Host GSM to maximize SS7 reliability. This capability allows customers to provision SDLs on any SM-2000 or non-SM-2000 with the "Loaded" or "Signaling" software configuration.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CCLNK	6004	9	10D	16.6
CMTMH	6021	9	10U	16.16
EQCORE	5701	8	3	17.14

CCLNK form (6004 Record) - This form is used to specify data used for the GSM. The following data rule was added:

- An SM defined on this form must be defined on the EQIM form with CONFIGURATION set to "LOADED", "SM2000", or "SIGNALING".

CMTMH form (6021 Record) - This 5E15 form is used to define the message handler used for CCS (Common Channel Signaling) message transport for communication between a GSM and NGSM. This form supports the functionality implemented in support of the 99-CP-4246 feature. The MH SM 1 and MH SM 2 fields provide the capability to specify the CMT SM used for communication between the NGSM and GSM. Numerous data rules were added to support this modification (see the form section).

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments in a 5ESS Switch office. The following data rule was added to support this feature:

- For 5E15 and later, when CM VINTAGE is 2 and NON GLOBAL SM on the CMTMH form (6021 Record) does not have an SM-2000 class processor on the corresponding EQIM form, there must be EQPC forms entered on SIDE 0 and SIDE 1 with PC NO. set to 32 and EQSTATUS set to "O".

SEC. 8V: ONE-WAY AUDIO DETECTION TOOL - PHASE 2

1. FEATURE DESCRIPTION

The One-Way Audio Detection Tool Phase 2 feature is available with the 5E15 Feature Release 1. The feature number is 99-5E-7463.A.

The second phase of this feature provides a tool to simulate sending voice over a Speech Handler trunk. The new PVELBK (PHV (Protocol Handler) Voice Encoding Loopback) test is similar to the existing 102-LB (102-Loopback) test. The PVELBK test simulates voice by sending 404hz and 1004hz tones simultaneously from the GDSF/TTF (Global Digital Service Function/Transmission Test Facility), and the 102-LB test uses a single 1004hz tone and loops the signal received back. The PVELBK test sends the PCM (Pulse Code Modulation) tones to the PHV vocoder which encodes the signal into CDMA (Code Division Multiple Access) packets that are looped back into the vocoder for decoding into PCM tones before being sent back to the GDSF/TTG for analysis. The test analyzes the results and gives a Pass or Fail assessment. This test is run on a trunk labeled OOS (Out-of-Service) and it preserves the timeslots used while the trunk is IS (In-Service).

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AUTO	5505	3	5E	14.1
DCSTT	5055	7	1F	14.12

AUTO form (5505 Record) - This form is used to define the ATTTN and its associated test lines. For 5E14 and earlier, and for 5E15 and later, data rules were added for the AUTOMATIC PROGRESSION TEST TYPE field.

DCSTT form (5055 Record) - This form is used to define transmission tests for an automatic trunk test table. Tone measurement thresholds and noise or return loss thresholds defined on this form is used to define the pass/marginal/fail status for the test calls. For 5E15 and later, "PVELBK" was added to the Valid Entries table for the TEST TYPE field.

3. GLOSSARY

ATTTN	Automatic Trunk Test Table Number
CDMA	Code Division Multiple Access
GDSF	Global Digital Service Function
IS	In-Service
OOS	Out-of-Service
PCM	Pulse Code Modulation
PVELBK	Protocol Handler Voice Encoding Loopback

SEC. 8W: FORWARD TRAFFIC CHANNEL DTMF FOR CDMA EVRC

1. FEATURE DESCRIPTION

NOTE: AS OF 5E16 FR1, THIS FEATURE IS NO LONGER SUPPORTED.

The Forward Traffic Channel DTMF (Dual Tone Multi-Frequency) for CDMA (Code Division Multiple Access) EVRC (Enhanced Variable Rate Coding) feature is available with the 5E15 FR1 (Feature Release 1). The feature number for this feature is 99-5E-7512.

This feature has three components. First, it provides reliable detection and subsequent transmission of DTMF tone signals using FDTMF sent burst or send continuous DTMF signals. Second, it provides the SP (Service Providers) the ability to select EVRC DSP (Digital Signal Process) features via RC/V (Recent Change/Verify) on an office wide basis. Third, it provides the SP the ability to turn on and off the 13K/EVRC TTY/TDD (Teletypewriter/Terminal Device for Deaf) feature via RC/V on an office wide basis.

Currently, DTMF Tone Signaling for CDMA EVRC exists in the Reverse Traffic Channel, but not in the Forward Traffic Channel. The ANSI/TIA/EIA-95-B standards support DTMF Tone Signaling both in the Forward Traffic Channel and Reverse Traffic Channel.

This feature implements DTMF Tone Signaling in CDMA air-interface with EVRC vocoders in the Forward Traffic Channel for WLL (Wireless Local Loop) and mobile subscribers.

It assures reliable detection of DTMF within the DCS (Digital Cellular Switch) and subsequent transmission of DTMF Tone Signals using the Forward Traffic Channel Send Burst DTMF Message or the Start/Stop Continuous DTMF Tone Order with Layer 3 Acknowledgement from the Cell site for EVRC vocoder.

On the subscriber side, the RAT (Radio Access Terminal) is needed to support receipt of Forward Traffic Channel signaling Message Send Burst DTMF or Start/Stop Continuous Tone Order providing Layer 3 Acknowledgement to the Cell site and generate the corresponding tones locally.

FDTMF is driven by the ECP on a per call basis. The feature also provides office-wide Recent Change control over the tones-on length and off-length that are indicated in the burst DTMF Message Send to the mobile for tone generation.

FDTMF is supported by both PHV3 and PHV4 with EVRC vocoders.

TTY/TDD capability provides office-wide Recent Change control over turning on and off the TTY/TDD capability of the vocoder for CDMA 13K and EVRC calls.

The following four CDMA 16.1 features impact DSP images downloaded in to DSPs on PHV3 (Protocol Handler for Voice 3) and PHV4:

1. EVRC Modifications for TTY/TDD,
2. 13K Modifications for TTY/TDD,
3. EC (Echo Cancellation) on PHV4, and
4. FDTMF (Forward DTMF) Signaling for EVRC

Due to DSP memory limitations both on PHV3 and PHV4, all the features cannot be supported simultaneously. The following table presents the combination of features that are being supported.

Vocoder Type	PVH3	PVH4
13K	TTY/TDD	TTY/TDD and EC
EVRC	TTY/TDD and FDTMF	TTY/TDD and FDTMF (default), or TTY/TDD and EC, or FDTMF and EC

For PVH4 only, the Service Provider is provided the ability via Recent Change to choose the combination of features on an office-wide basis. Changes to the feature selected triggers automatic downloading of DSPs through selective initialization of the PH (Protocol Handler). Stable calls are preserved, if possible. New vocoder capability may not immediately be available to the stable calls after an update.

The downloading of vocoders is completed in 30 minutes after the changes to the feature selected.

2. FEATURE ASSIGNMENT

In order to provision this feature, set the following fields on the CDMAOPT form (5599 Record) accordingly:

To utilize the CDMA Forward DTMF feature:

- Change the EVRC IMAGE field to a value 0 or 2.
- Change the FWD LEN ON field to a value 95, 150 through 350 by 50 milliseconds.
- Change the FWD LEN OFF field to a value 60, 100 through 200 by 50 milliseconds.

To turn on the TTY/TDD feature:

- Change the EVRC IMAGE field to a value 0 or 1.
- Change the TTY/TDD ACT field to "Y".

To turn on the EC feature:

- Change the EVRC IMAGE field to a value 1 or 2.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CDMAOPT	5599	8	80	8.75

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. For more information on this feature, see Division 2, Section 4A552. Added the OVERRIDE, EVRC IMAGE, TTY/TDD ACT, FWD LEN ON, and FWD LEN OFF fields.

SEC. 8X: SIGNALING ONLY GSM (GLOBAL SWITCHING MODULE)

1. FEATURE DESCRIPTION

Available with 5E15 Feature Release 3 and with 5E16 and later Software Releases, the Signaling Only Global SM (99-5E-7776) feature allows the Wireless customer who uses PSUs (Packet Switch Units) for SS7 signaling to choose a MRC (Maximum Reliable Configuration) for the Global SM. A new field, MAX REL CONFIG was added to the APXPARM form (5050 Record) to define whether this feature is used. When the MRC feature is activated (set to "Y"), non-signaling hardware will not be allowed on the Global SM. Thus, when this feature is activated, non-signaling equipment, defined on the following forms, must not be defined for the corresponding Global SM:

EQLU (19.1)
 EQTU (19.2)
 EQDU (19.4)
 EQDNU-S (19.14)
 EQAIU (19.16)
 EQPLTU (19.24)

When this feature is activated, the GSM will be reserved for signaling only, thereby isolating it from possible failures due to call processing functions. When the MRC is not chosen, the GSM can be used just like any other SM for call processing.

To support this feature, the following CLI value information must be defined on the EQPSUPH form:

- CLI must be 2800 hex, with circuit board TN1873, 16-Megabyte (type PH22) with a PSU TYPE of "PSU1" or "PSU2".

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSUPH	5742	8	23	22.8
APXPARM	5050	7	1A	8.28

APXPARM form (5050 Record) - This form is used to administer global parameters that are required when a 5ESS Switch is functioning as a digital cellular switch in a cellular network. A new field, MAX REL CONFIG, was added to activate (Y/N) this feature.

EQPSUPH form (5742 Record) - This form is used to define the Packet Switch Unit for the Protocol Handler. The existing 16-megabyte TN1873 pack with a CLI value of 2800 is required to support this feature.

SEC. 8Y: DYNAMIC ALLOCATION OF VOCODERS ON PHV5

1. BACKGROUND

Prior to this feature, service providers monitored vocoder usage and made manual adjustments to obtain the correct vocoding algorithm when there were changes in the traffic pattern. This feature eliminates the need for such manual changes.

2. FEATURE DESCRIPTION

The Dynamic Allocation of Vcoders on PHV5 (Protocol Handler for Voice 5) feature is made available with the 5E16(1). This feature uses feature number 99-5E-7807.

This feature:

provides the capability of call-by-call selection of vocoder algorithms for either the CDMA (Code Division Multiple Access) or TDMA (Time Division Multiple Access) vocoder pools.

supports selection of 13 Kbps QCELP (Qualcomm Code-Book Excited Linear Prediction) and EVRC (Enhanced Variable Rate Coding) vocoders for CDMA, and selection of ACELP (Algebraic Code Excited Linear Predictive) algorithm vocoders for TDMA.

NOTE: This feature only supports CDMA. It does not currently support the TDMA (TACVS) channel group. References to TDMA (TACVS) appear in this document as it may potentially be supported for future use. In light of this, it is important to note that TACVS is currently not provisionable as part of the Dynamic Allocation of Vcoders on PHV5 feature or any other feature.

3. FEATURE ASSIGNMENT

Activation of this feature is dependent on the activation of the DCS (Digital Cellular Switch) feature (SFID 130).

NOTE: This feature only supports CDMA. It does not currently support the TDMA (TACVS) channel group. References to TDMA (TACVS) appear in this document as it may potentially be supported for future use. In light of this, it is important to note that TACVS is currently not provisionable as part of the Dynamic Allocation of Vcoders on PHV5 feature or any other feature. To provision this feature, the following must be done in the order listed:

Activate the DCS feature by setting the ACT field for SFID 130 to "Y" on the SFSYS form (5713-1 Record). DCS is a secured feature that is required for CDMA, and TDMA VIS (Vocoder in the Switch), and therefore must be activated on the SFSYS form.

Activate either the CDMA feature (SFID 221) or the Switched-Based TDMA Vcoders feature (SFID 259) by setting the ACT field for SFID 221 or SFID 259 to "Y" on the SFSYS form.

Define a Speech Handler trunk group with a SERV TYPE of "CEV13" for CDMA or "TACVS" for TDMA on the TKGRP form (5202 Record).

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View

OFCOPT	5509	3	5I	8.1, 8.15
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. For 5E16 and later, the SEC VOC ALG field and related data rules were added.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switch Unit) shelf. For 5E16 and later, a data rule was modified to add the "CEV13" and "TACVS" SERV TYPEs and related "PHV5" PH TYPEs to the valid entries table for the PH TYPE field.

SFSYS form (5713-1 Record) - This form is used to activate secured features. Activation of this feature is dependent on the activation of the DCS feature (SFID 130) and the CDMA (SFID 221) or the TDMA VIS feature (SFID259). This feature is activated by setting the ACT fields for both SFIDs 130 and 221 or 259 to "Y" respectively.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 7R/E 5ESS Switch. For 5E16 and later, modified a data rule for the TGN field and added the following for the SERV TYPE field:

"CEV13" and "TACVS" to the SERV TYPE Valid Entries table.

"CEV13" and "TACVS" SERV TYPEs, and related PH TYPE entries to the Valid PH TYPE Entries table.
data rules.

SEC. 8Z: CDMA 3G-1X HIGH SPEED PACKET DATA SERVICES

1. FEATURE DESCRIPTION

The feature number for the CDMA (Code Division Multiple Access) 3G-1X High Speed Packet Data Services feature is 99-5E-4779 and is made available with 5E15 Feature Release 3. This feature is dependent on the CDMA Data Services - Packet Mode feature (99-5E-4076) which is controlled by SFID (Secured Feature ID) 285. See Division 2 Section 4A285 for more information.

The CDMA 3G-1X High Speed Packet Data services feature (99-5E-4779) provides a subscriber the ability to transmit bursts of data up to a raw speed of 153.6 Kbps over a packet data network via the CDMA 3G-1X air interface. Prior to this feature, CDMA data services were limited to raw speeds of 9.6 Kbps and 14.4 Kbps. The HSPD (High Speed Packet Data) feature enables mobile users with laptop computers or other data devices conforming to the TIA/EIA/IS707A-1 standard to access various data applications, such as Internet Access, Database Access, E-mail, File Transfer at higher speeds. These applications may reside on existing or custom designed data networks. The 3G-1X HSPD services are bi-directional and apply to both cellular and PCS systems.

1.1 HSPD Traffic Measurements

Another functionality of the CDMA 3G-1X High Speed Packet Data Services feature is the creation of the new HSPD Traffic Measurements report. This report provides measurements for CDMA 3G-1X High Speed Packet Data Trunk Groups. The following counters are provided in the new HSPD TRFM report:

FBATT (Forward Burst Attempts) - the number of times the forward backlog threshold is exceeded and the subsequent FS_FSCH_REQ message sent to the Anchor Cell (forward direction burst request) requesting a burst. This counter is provided for the following rates: 19.2 kbps, 38.4 kbps, 76.8 kbps, 153.6 kbps and the total (TOTAL) of all Forward Burst Attempts is counted.

FBBLK (Forward Burst Blocked) - the number of times forward burst attempts were blocked. A forward burst attempt is only to be counted once as blocked. A forward burst attempt is blocked when a sent FS_FSCH_REQ message does not result in a burst in the forward direction. This counter is provided for the following rates: 19.2 kbps, 38.4 kbps, 76.8 kbps, 153.6 kbps and the total (TOTAL) of all Forward Burst Blocked is counted.

RBATT (Reverse Burst Attempts) - the intersection of this row and the requested discrete data burst rate column is pegged each time a valid FS_RSCH_REQ message is received. The requested discrete data burst rate is the received Maximum Reverse Cell Data Rate Supported parameter value mapped to its discrete data burst rate. This counter is provided for the following rates: 19.2 kbps, 38.4 kbps, 76.8 kbps, 153.6 kbps and The total (TOTAL) of all FS_RSCH_REQ messages is counted.

RBBLK (Reverse Bursts Blocked) - the intersection of this row and the TOTAL column is pegged each time the DPH (Data Priority High) cannot accept an incoming reverse burst request at the minimum allowed discrete data burst rate of 19.2 kbps. In this case, the invoked FS_RSCH_RESP message is sent to the Cell with the Maximum Reverse DCS Data Rate Supported parameter having a value of 15 (0 kbps). This counter is provided only for the TOTAL.

The following enhancements are provided to the existing ECPSRVT (Executive Cellular Processor Service Type) TRFM report:

Service type 23 - CDMA 3G-1X HSPD Service (C1XHSPDSIP)

Service type 24 - CDMA 3G-1X HSPD CDPD Service (C1XHSPDCDPD)

ECPSRVT report should be accessed by the unique component ID call equipment number consisting of Switching Module, Packet Switching Unit and the Service Type.

2. FEATURE ASSIGNMENT

2.1 CDMA 3G-1X HSPD

The information that follows represents Recent Change provisioning for SVC (Switched Virtual Circuit) -> FRBC (Frame Relay Bearer Channel) and 3G1XPD (High Speed Data) trunks. The equipment needed for each Recent Change view described is also provided.

Equipment Needed: SM2K - On the Trunk Group View 5.1, define FRBC Trunk Group.

On the Trunk Member View 5.5:

Equipment Needed: BCM Trunks, PH4 (Protocol Handler 4) - enter 1 - 16 FRBC trunk members on PH4 (IFRPH (ISDN Frame Relay Protocol Handler)).

Equipment Needed: FRBC Trunks - enter up to 239 SVCs per FRBC.

Equipment Needed: SM2K - On the Trunk Group View 5.1, define 3G1XPD trunk group.

Equipment Needed: PHV4 (Protocol Handler Voice version 4) - On the Trunk Member View 5.5, enter 1 - 20 3G1XPD trunk members on PHV4 (3G1XD Channel Group).

2.2 HSPD Traffic Measurements

The Recent Change provisioning for the HSPD Traffic Measurements functionality of this feature is provided using the following RC views:

On the Measurement Collection Selectivity View 13.7, for the new HSPD traffic measurements the following fields are used:

SECTION NAME = HSPD

START1COMP = High Speed Data Trunk Group or blank

START2COMP = blank

START3COMP = blank

DEST SM = blank

All valid components for this combination are displayed on the COMPONENT COLLECTION LIST in the ID field where the service provider can decide if the specific component should be taken into collection or not by specifying the appropriate value in the COLLECT field of this list. The customer can also decide whether to generate the report on the ROP or not by specifying the appropriate value in the ROP field of the list.

On the Measurement Range Selectivity view 13.8 for the new HSPD traffic measurements the following

fields are used:

SECTION NAME = HSPD

START1COMP = High Speed Data Trunk Group or blank

END1COMP = High Speed Data Trunk Group or blank

START2COMP = blank

END2COMP = blank

START3COMP = blank

END3COMP = blank

DEST SM = blank

COLLECT = blank

ROP = blank

On the Measurement Collection Summary View 13.9 for the new HSPD traffic measurements the following fields are used:

SECTION NAME = HSPD

START1COMP = High Speed Data Trunk Group or blank

START2COMP = blank

START3COMP = blank

DEST SM = blank

The ODA provisioning for this feature is as follows:

The ACT field for SFID 285 on the SFSYS form (5713-1 Record) must be set to "Y".

SECTION NAME must be set to "HSPD" on the MEASSUM form.

The TGN entered in the START1COMP field on the MEASSUM form should match the TGN on the TKGRP form with the TRKCLS set to "3GPD".

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ATSDATA	5052	7	1C	14.9
MEASSUM	5563	3	5BG	13.9
OFCOPT	5509	3	5I	8.1, 8.15

SFSYS	5713-1	3	5AR	8.22
TKGRP	5202	3	2A	5.1

ATSDATA form (5052 Record) - This form is used to provide data that defines a test session in a certain test schedule to be invoked by ATTS (Automatic Trunk Testing Scheduler) for the purpose of performing automated trunk testing over a specified range of equipped members for a specified trunk group. Added a data rule to the TGN field.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Components are defined as the entity to be measured; components can be at the end product level (AIU, DNU-S, SS7 PSU, etc.) or subassemblies (i.e., packs, lines, DPIDB, etc.). Added a data rule to the SECTION NAME field.

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and parameters. The OFCOPT form is required at the time of initial translations for all offices. Added two new fields (PER 3G RATE and PER 3G THRESHOLD) to support this feature.

SFSYS form (5713-1 Record) - This form is used to activate secured features. This feature requires the ACT field for SFID 285 to be set to "Y".

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added the following information:

data rules to the TGN field.

"3GPD" to the valid entries table for the TRKCLS field.

"3G1XPD" to the valid entries table for the SERV TYPE field.

data rules to the TGN, TRK DIR, TRKCLS, and SERV TYPE fields.

data rules to the TRKCLS field for the "3GPD" and "FRBC" valid entries.

SEC. 8AA: CNI CONVERSION TO SS7 IN A WIRELESS ENVIRONMENT

1. FEATURE DESCRIPTION

The feature number for the CNI (Common Network Interface) Conversion to SS7 (Signaling System 7) In Wireless Environment feature is 99-5E-7673 and is made available with 5E15 SU (Software Update) 10. The feature number for SS7 PSU (Packet Switching Unit) Conversion for Landline is 99-CP-4916 (see Division 2, Section 7BA for more information).

The CNI to PSU Signaling Platform Conversion feature will allow existing 7R/E 5ESS offices including those supporting wireless applications, whose current SS7 signaling needs are supported by a CNI, to be converted to a PSU-based SS7 signaling platform on a Host GSM (Global Switching Module).

The CNI to PSU conversion has four main phases:

Host GSM Installation or Growth

During this phase a Host GSM is provisioned and may be installed new to the office or an existing Island GSM may be converted to a Host GSM.

Pre-Cutover Mode

During this phase the office is conditioned for the actual cutover taking place in the next phase.

This phase introduces new software that will allow the Host GSM to have the same primary and alias point codes which reside on the CNI platform

Cutover Mode

Actual cutover of signaling traffic takes place during this phase. Two methods are available to accomplish the cutover. The swing link method and the dual link method. Wireless will execute the swing link procedure to physically "move" signaling links between signaling platforms. This may require the use of a time slot cutover device, such as a DACS (Digital Access and Cross-Cutover System) to "swing" existing SS7 links from the CNI platform over to the PSU platform. The Swing Link method is the only option available for the Wireless DCS (Digital Cellular Switch) office because the ECP (Executive Cellular Processor) supports the definition of only a single Combined Link Set to Mobile Switching Center.

Post-Cutover Mode

Executing this phase will commit the office to use the Host GSM instead of CNI.

If the office supports wireless applications, by converting signaling links between the DCS and the ECP, the DCS signaling platform must be changed from the CNI to the Host GSM. On the DIGITAL CELLULAR SWITCH PARAMETERS Recent Change View (8.28), modify the AMPS DCS GSM field from "0" to the target Host GSM number.

At this point, both the CNI and Host GSM signaling platforms are handling wireless traffic. Since the cutover mode is POSTCUT and the DCS platform is specified as the Host GSM, all outbound traffic will utilize the Host GSM platform, but inbound traffic may be received by either the CNI or Host GSM

platforms, according to ECP load-sharing algorithms.

When the 7R/E 5ESS is a digital cellular switch serving an executive cellular processor in a wireless configuration, further testing is required. Specifically the following additional actions are required:

Monitor the ECP MCRT page 2141,X (where X is the DCS number) and verify the SS7 connection between the CNI and the ECP is active.

Monitor the 5ESS and ECP ROPs for a loss of heartbeat messages, noted by the critical alarm message: REPT DCS-ECP COMMUNICATION LOST.

If the office administrators have a set of typical wireless test calls, they should be executed. This could include verification of voice quality of mobile to mobile, mobile to messaging system, mobile to landline termination, landline origination to mobile, via ISUP (ISDN User Part) trunks.

Based upon the analysis of CCS (Common Channel Signaling) processing for wireless applications, one of the following actions must be taken:

If no problems are found, or problems detected are not deemed to be directly related to the conversion process, CONTINUE the procedure, after resolving pertinent issues.

If unexplained call disruption has occurred, a backout of the conversion process should be considered using the CNI to Host GSM Signaling Platform Conversion - Backout Procedure. To perform the proper level of backout, the following state information should be noted: POSTCUT state with partial Host GSM CSSLK access available and the Host GSM is the current wireless DCS. This is a "safe stopping point" in the conversion process. Although data is not in its final state, all SS7 signaling traffic is now being handled exclusively by the Host GSM, and an emergency backout is possible at any time.

The related hardware is as follows:

The Host GSM is an SM-2000 equipped with a PSU2.

All CCS protocol handlers (QPH, STPH) on a Host GSM must be equipped with PH22 hardware on the PSU2-0 DF2 shelves. PH22s are used to control the SS7 data link protocol.

SEC. 8AB: PHV5 - DOWNLOADABLE PROTOCOL HANDLER FOR VOICE 5

1. FEATURE DESCRIPTION

Available with 5E16.1 and later software releases, the PHV5 (Downloadable Protocol Handler for Voice 5) feature, feature number 99-5E-7537, introduces a new PHV hardware platform with increased capacity to handle voice and data simultaneously. The PHV5 is a downloadable vocoder board that reduces COGS (Cost of Goods Sold) and increases the capacity of CDMA (Code Division Multiple Access) 5ESS DCS (Digital Cellular Switch) systems. The PHV5 can support up to 64 usable vocoders for voice and up to 32 low speed data calls simultaneously, or it can support up to 64 high speed data channels. PHV5 supports all the features that are currently supported on PHV4. Refer to Division 2, Section 8J for further information on PHV4. A downloadable PHV5 supports 13K and EVRC vocoder algorithms. It also supports a multi-integrated test system.

2. FEATURE ASSIGNMENT

PHV5s are assigned on a per call basis and should be treated as a single pool of vocoder servers across all PSU2s (Packet Switch Unit 2). If possible, it is recommended that PHV5s be distributed across multiple PSU2s.

PHV5s can be mixed in the same PSU2 shelf with all other PHVs. DF2 must be used on all PSU2 shelves equipped with PHV5 hardware.

Activation of this feature is dependent on the activation of the AMPS and CDMA features. To activate these features, the ACT fields for SFID 130 and 221 on the SFSYS form (5713-1 Record) must be set to "Y". See Figure 1 for the provisioning form flow for this feature.

For more information concerning the CDMA feature and additional provisioning information, see Division 2, Section 8B.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSUPH	5742	8	23	22.3, 22.4
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-1/8	3	2A	5.1

EQPSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. The PHV5 MIN SPARE field, a value of 20 and a data rule for the PH CLI field were added to this form.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU shelf. The field AVAILABLE PHV5 was added to this form. A PH TYPE value of "PHV5" and data rules were added.

SFSYS form (5713-1 Record) - This form is used to enable secured features. Activation of the PHV5 feature is dependent on the activation of the AMPS and CDMA features. To activate these features, the ACT fields for SFID 130 and 221 on the SFSYS form (5713-1 Record) must be set to "Y".

TKGRP form (5202-1/8 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The range

for the channel component of TRKOE NUMBER field was expanded to 000 - 095.

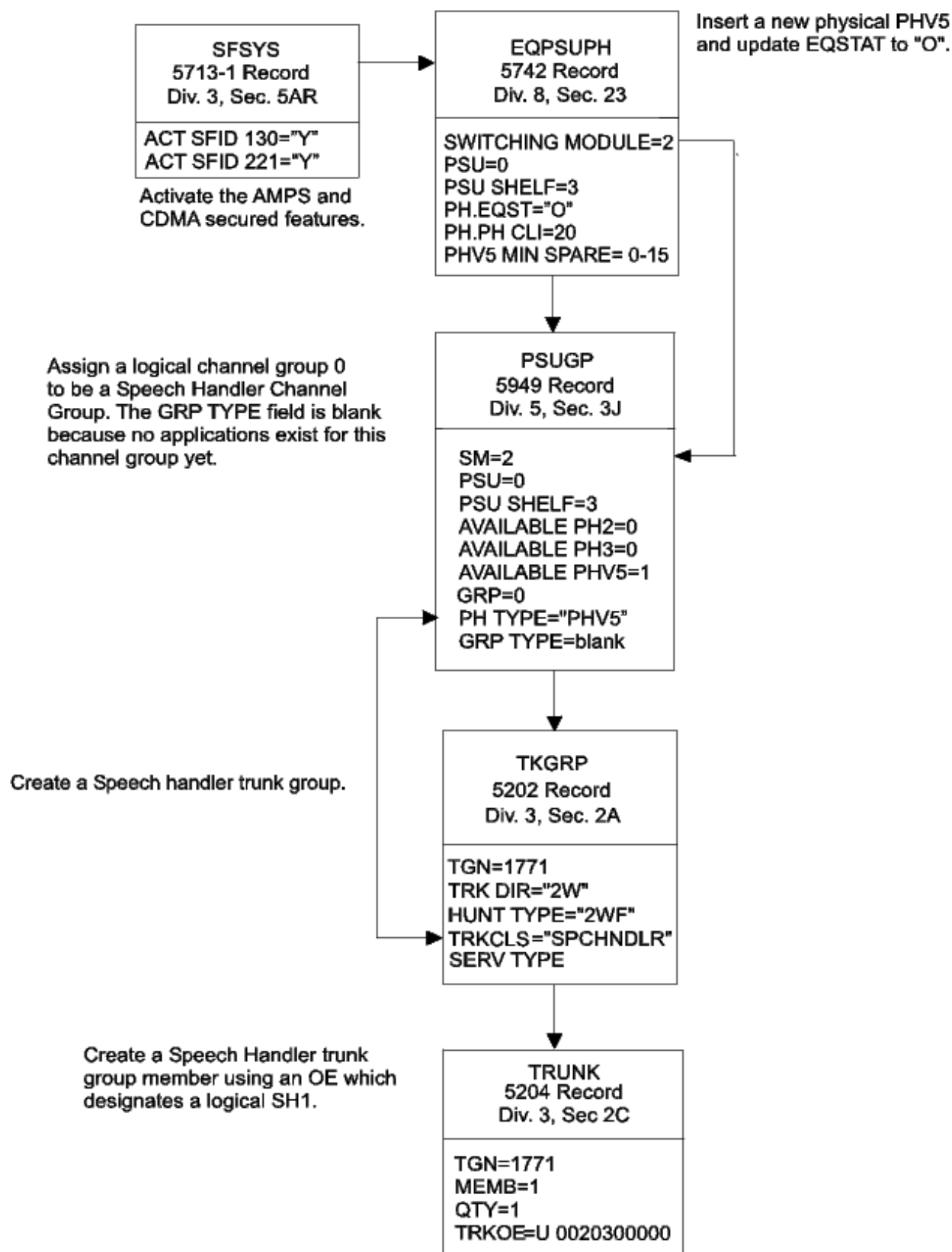


Figure 1 FORM FLOW FOR PHV5 SPEECH HANDLER TRUNK MEMBER

SEC. 8AC: PCF ON PHE2

1. FEATURE DESCRIPTION

Available with 5E16 FR 3 (Feature Release 3) and later Software Update, the PCF (Packet Control Function) on PHE2 (PH30 (Protocol Handler) with Ethernet Link) feature extends the 5EDCS (5ESS Switch DCS (Digital Cellular Switch)) Wireless Network to a PDSN (Packet Data Serving Node) cloud over a 100 Mbps Ethernet link. This PDSN cloud connects to an IP (Internet Protocol) network. The feature number is 99-5E-7868.

The connection between the PCF and the PDSN cloud is the R-P (Radio Protocol) interface. The R-P interface signaling and bearer connection traffic are carried over the Ethernet link as IP encapsulated data in Ethernet frames. The 5EDCS supports multiple PCFs.

The PCF is introduced on a PHE2. The PCF on PHE2 feature introduces the PHE2 hardware. The PHE2 has an Ethernet Paddle board which provides one Ethernet link, a NP (Network Processor), an AP (Applications Processor), and memory. The PHE2 channel group is an ETH (Ethernet).

The ECP/5EDCS (Executive Cellular Processor/5EDCS) signaling for packet data services calls remains unchanged for setting up and clearing ADTs/HSPD (AMPS (Advanced Mobile Phone System) Data Trunks/High Speed Packet Data) trunks. The ECP/5EDCS signaling for the PCF trunks is the same signaling as for the setting up and tearing down of the FR SVCs (Frame Relay Switched Virtual Circuits). As for FR SVCS, the ECP provides a TG (Trunk Group) list to the 5EDCS to hunt in a SETUP_SVC_X message. This TG list can now be an all PCF TG list, or a mix of PCF TGs and FR SVC TGs.

The goal is to use the PCFPH (PCF assigned to a PHE2) for all new packet customers. The IFRPH is being used for previous established packet data customers and for circuit mode data customers. The PCFPH is to coexist with the IFRPH (Frame Relay Protocol Handler).

The PCF sets up and tears down sessions between the MS (Mobile Station) and the PDSN. These sessions can be opened and closed. Open sessions are either active or dormant. An open active session requires switch PSU2 (Packet Switch Unit) PH and Packet Bus resources for connecting a Cell to the PDSN for the session. A transition of an open active session to an open dormant session, releases these switch resources connecting a Cell to the PDSN for the session.

However, the PCF must maintain information about a session when a session goes dormant. This open dormant session information retained must be sufficient to reactivate an open dormant session to the open active session state. This session reactivation can be initiated by the session MS (by the ECP) or the session PDSN (by the PCF). When a session is reactivated, the session transitions from the open dormant state to the open active state. An open session can have a number of these open active - open dormant transitions throughout the "lifetime" of the session. The R-P standards also allow for a session closure. When the "lifetime" of a session expires from the R-P protocol perspective or as commanded by the ECP or the session PDSN, the session is closed and all of its resources are released including LLCR (Link Layer Connection Record) memory, A10 connection data, and the switch ADT/HSPD connection resources.

The PCF performance is in terms of active calls and dormant calls. Active calls require PHV/DPH (Protocol Handler Voice/Data PH) PSU2 Packet Bus connections to the PCF. Dormant calls require PCF memory. Since the PCF is introduced without a PCF TP (Terminal Process) per session and communicates mostly with the APX (Application Processor) TP, the PCF is mostly not subject to the SMP (Switching Module Processor) BHCA (Busy Hour Call Attempts). However, the packet zone reconnects for dormant sessions do impact the available SM2K BHCA. With the PCF TP removed from the SM2K, the PCF choke points then become the PSU2 Packet Bus (100 Mbps) and the Ethernet Link (100 Mbps).

When the PCF is introduced, the active calls have a 50 second hold time. This leads to a direct SM2K BHCA

choke point with the PCF TP in the SM2K (SM2000). With the PCF TP removed from the SMP, this hold time would still indirectly impact the PCF active calls, since the SMP is involved with setting up and tearing down the ADT/HSPD 1/2 call of each active connection. When the PCF TP is in the SMP, the SMP as the choke point and not the PSU2 Packet Bus.

The PCF has the following interfaces:

internal communications with the APX TP. This communication is accomplished by primitive communications

an internal data path connection through the PSU2 PB (Packet Bus) with ADTs on PHVs and HSPD trunks on DPHs.

Network - introduces external R-P communications over a full duplex 100 Mbps Ethernet Link. The R-P signaling traffic introduces UDP (User Datagram Protocol). The Ethernet link introduces the PHE2.

the R-P interface. This consists of the A11 signaling used to setup and to tear down A10 connections over the Ethernet link between the PCF and the PDSN.

the R-P interface introduces IP, UDP, GRE (Generic Routing Encapsulation), ARP (Address Resolution) on the 5EDCS to the CDMA (Code Division Multiple Access) Data Services features. The GRE carries the bearer traffic.

PCF to many (up to 1024) PDSNs connections.

2. FEATURE ASSIGNMENT

To provision this feature the following steps must be followed:

Define the PHE2 on the EQPSUPH form; RCV (Recent Change View) 22.4.

Reserve Channel Groups on the PSUGP form; RCV 22.16.

Assign Internet Protocol Processors on the IPPROC form; RCV 33.1.

Insert an Internet Protocol Interface for Ethernet on the ETHIP form; RCV 33.4.

Define the PDSN Configuration on the PDSNCNFG form; RCV 34.3.

Assign a PCF on the PCFPDSN form; RCV 34.2.

Insert PCF office parameters on the PCFOPT form; RCV 34.1.

Insert a trunk group on TKGRP form; RCV 5.1.

Insert PCF trunk member on the TRUNK form; RCV 5.5.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ATSDATA	5052	7	1C	5.11
EQPSUPH	5742	8	23	22.3, 22.4

ETHIP	5996	5	3S	33.4
IPINTF	5988	5	3O	33.2
IPPROC	5987	5	3N	33.1
IPROUT	5989	5	3P	38.3
PCFOPT	5996-1	5	3T	34.1
PCFPDSN	5996-2	5	3U	34.2
PDSNCNFG	5887	5	3V	34.3
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

ATSDATA form (5052 Record) - This form is used to provide data that defines a test session in a certain test schedule to be invoked by ATTS (Automatic Trunk Testing Scheduler) for the purpose of performing automated trunk testing over a specific range of equipped members of a specified trunk group. Modified a data rule for the TGN field.

EQPSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. The PHV5 MIN SPARE field, a value of 20 and a data rule for the PH CLI field were added to this form. Added a data rule for the SM field and modified a data rule for the PSU field.

ETHIP form (5995 Record) - This form provides the ethernet capability to provision IP addresses, subnet masks, and associated IP parameters to an internet interface. New form to support this feature.

IPINTF form (5988 Record) - This form provides the capability to provision up to five IP addresses and subnet masks, and associated IP parameters to an internet interface. Modified a data rule for the GATEWAY IP ADDRESS field.

IPPROC form (5987 Record) - This form provides the capability to provision up to five IP addresses and subnet masks, and associated IP, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) parameters to a processor (SM or PH). Added the REFRESH INTRVL and CLEANUP INTRVL fields. Also modified data rules for the PROCESOR TYPE field.

IPROUT form (5989 Record) - This form provides the capability to provision an IP gateway between an external IP destination and a local IP interface. Modified a data rule for the INTERFACE NAME field.

PCFOPT form (5996-1 Record) - This form is used to assign office-wide PCF parameters. New form to support this feature.

PCFPDSN form (5996-2 Record) - This form provides the capability to provision a PDSN (Packet Data Serving Node) IP address to PCF. New form to support this feature.

PDSNCNFG form (5997 Record) - This form is used to assign PDSN configuration parameters. New form to support this feature.

TKGRP form (5202-1/8 Record) - This form is used to define each Trunk Group in a 5ESS Switch. The range for the channel component of TRKOE NUMBER field was expanded to 000 - 095. Added data rules to the TRKCLS field.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. Modified and added a data rule for the TRKOE field.

SEC. 8AD: CDMA Frame Relay on PH22 (Protocol Handler) - FRPH (Frame Relay Protocol Handler) on PH22

1. FEATURE DESCRIPTION

Available with 5E16.1 and later software releases, the CDMA Frame Relay on PH22 - FRPH on PH22 feature , feature number 99-5E-7741, adds existing FRPH and IFRPH (ISDN Frame Relay Protocol Handler) application software, that is currently on the PH4 platform, to the PH22 platform. The PH22 platform supports 64 time slots or ports when equipped with FRPH or IFRPH channel groups. This reduces Cost of Goods for CDMA applications by enabling more time slot connections per PSU shelf. This feature is supported only on a PSU2 which is equipped with a DF2 on the PSU shelf where these PH22 channel groups are equipped.

2. FEATURE ASSIGNMENT

Activation of this feature is dependent upon activation of the AMPS and CDMA features. To activate these features, the ACT field for SFIDs 130 and 221 on the SFSYS form (5713-1 Record) must be set to "Y". Refer to figure 1, the form flow for CDMA Frame Relay on PH22 (Protocol Handler) - FRPH (Frame Relay Protocol Handler) on PH22 for provisioning details.

For more information concerning the CDMA feature and additional provisioning information, see Division 2, Section 8B.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPSU	5741-1/2	8	22	22.2
EQPSUPH	5742	8	23	22.4
PSUGP	5949	5	3J	22.16
SFSYS	5713-1	3	5AR	8.22
TKGRP	5202-1/8	3	2A	5.1
TRUNK	5204	3	2C	5.5

EQPSU form (5741-1/2 Record) - This form is used to define the PSUs equipped in a 5ESS Switch and to reserve a pool of dedicated peripheral timeslots for the exclusive use of the PSUs equipped in a 5ESS Switch. Data rules were added to this form.

EQPSUPH form (5742 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. Data rules were added to this form.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU shelf. Data rules for PH22 usage were added to this form

SFSYS form (5713-1 Record) - This form is used to enable secured features. Activation of this feature is dependent on the activation of the AMPS and CDMA features. To activate these features, set ACT to "Y" for SFIDs 130 and 221 on the SFSYS form (5713-1 Record).

TKGRP form (5202-1/8 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Data rules were added to this form.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. The trunk information that is entered on this record is unique to the individual member of a Trunk Group. Data rules for PH22 usage were added to this form.

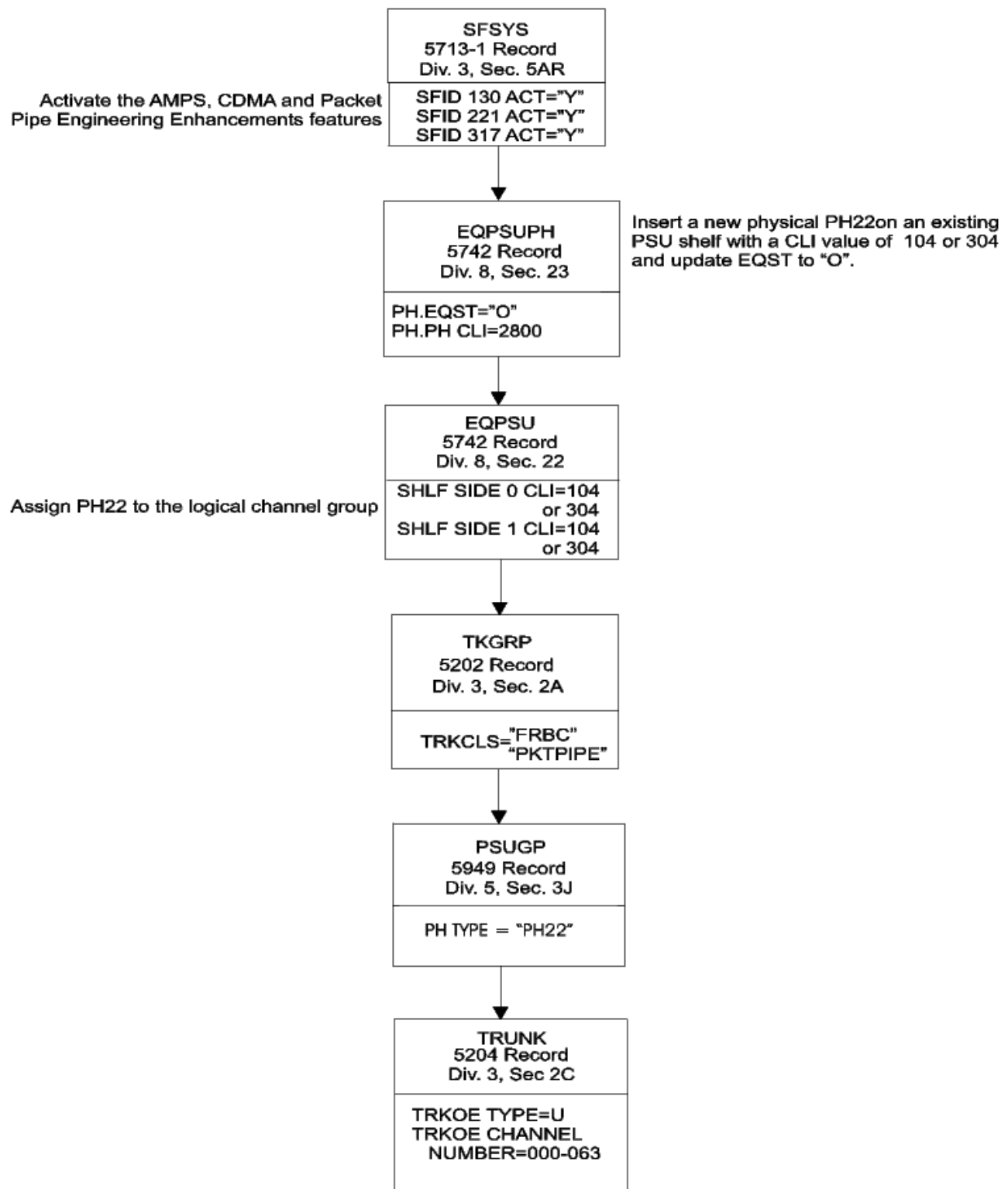


Figure 1 FORM FLOW FOR CDMA FRAME RELAY ON PH22 (PROTOCOL HANDLER) - FRPH (FRAME RELAY PROTOCOL HANDLER) ON PH22

SEC. 8AE: 256K TRUNK SCALING FOR LARGE CAPACITY TANDEM

1. FEATURE DESCRIPTION

For information on this feature refer to Division 2, Section 4B990.

SEC. 8AF: OXU CABINET RENUMBERING

1. FEATURE DESCRIPTION

The OXU (Optical Extended Unit) Cabinet Renumbering feature (99-5E-7953) is made available with the 5E16(2) Software Release. This feature builds upon the base OXU feature. For more information on the base feature, see Division 2, Section 9V.

This feature uses alphabetical Bay numbers if peripherals are connected to the Primary OXUs. An OXU can be configured as either "Primary" or "Secondary". A Primary OXU handles the fan and fuse alarms of the peripheral unit it supports. The MCTSI (Module Controller/Time Slot Interchange) handles the fan and fuse alarms for the peripheral units if the OXU is Secondary.

Currently, the TLP (Trouble Locating Procedure) indicates printing out the Primary OXU number and the BAY number of the peripheral unit. The OXU Cabinet Renumbering feature is changing this. However, instead of printing the OXU number and the BAY number, the TLP now prints out the LTP (Logical Test Port) number (bay) with an alphabetical character, if the OXU is Primary.

The following table describes how to translate from the primary cabinet type and cabinet number to the real location of the suspected faulty pack. If the primary OXU is OXU2 and the cabinet number is 205, the actual location is LTP cabinet number F05 for the SM (Switching Module) of the unit under test.

PRIMARY OXU	NUMERICAL CABINET NUMBER	NEW CABINET NUMBER
OXU1	0xx,1xx,2xx	Axx,Bxx,Cxx
OXU2	0xx,1xx,2xx	Dxx,Exx,Fxx
OXU3	0xx,1xx,2xx	Gxx,Hxx,Jxx
OXU4	0xx,1xx,2xx	Kxx,Lxx,Mxx
OXU5	0xx,1xx,2xx	Nxx,Pxx,Qxx
OXU6	0xx,1xx,2xx	Rxx,Sxx,Txx
OXU7	0xx,1xx,2xx	Uxx,Vxx,Wxx
OXU8	0xx,1xx,2xx	Xxx,Yxx,Zxx

If, as in the example, the Primary OXU is OXU1 and the cabinet number is 105, the location of the suspected faulty circuit pack is in SM 30, LTP cabinet B05.

As for ODA (Office Dependent Data) and RC/V (Recent Change/Verify), the form/view must accept alphabetical characters on the bay fields instead of the numeric number only.

ALLOWED BAY VALUE COMBINATIONS			
PRIMARY UNIT	00 - 14	00 - 04	00 - 08
0	0	1	2
1	A	B	C
2	D	E	F
3	G	H	J
4	K	L	M
5	N	P	Q
6	R	S	T
7	U	V	W
8	X	Y	Z

For example, when PRIMARY UNIT is 1 on the EQXCDU form (RC/V 18.19), BAY can be A00 - A14, B00 - B04, or C00 - C08. The value in the PRIMARY UNIT field on this form/view determines the allowable value for the BAY field.

2. FEATURE ASSIGNMENT

Provisioning data for these expanded ranges only need to follow existing provisioning documentation with the exception of allowing the expanded ranges (described above).

3. TRANSLATION REQUIREMENTS

These are all of the forms impacted by the renumbering expanded range.

New And Modified ODA Forms				
Form Name	Record Number	Div.	Sec.	RC View
EQAUIU	5745	8	64	19.16
EQDCLU	5810	8	30	19.6
EQDCTU	5751	8	26	19.9
EQDSC3	5852	8	54	19.18
EQGDSC3	5860	8	63	19.19
EQIDCU	5846	8	48	19.12
EQISLU	5731	8	18	22.5
EQLU	5710	8	9	19.1
EQMSU	5750	8	25	19.7
EQPSU	5741	8	22	22.2
EQRA	5821	8	35	19.10
EQTU	5720-1	8	13	19.2
EQXCDCU	5832	8	84	18.19

EQAUIU form (5745 Record) - This form is used to define the AIU (Access Interface Unit) (see Division 2, Section 7K). Added a data rule to the INTF UNIT field.

EQDCLU form (5810 Record) - This form is used to define equipment information for the DCLU (Digital Carrier Line Unit). Added a data rule to the INTF UNIT field.

EQDCTU form (5751 Record) - This form provides metallic access testing capabilities to users via a CRT (Cathode Ray Tube) at the TLWS (Trunk and Line Work Station). Added a data rule to the INTF UNIT field.

EQDSC3 form (5852 Record) - This form is used to define the DSC3 unit to provide the LDSUF (Local Digital Services Unit Function) to expand tone generators and decoders required for the expanded capacity of the SM-2000. Added a data rule to the INTF UNIT field.

EQGDSC3 form (5860 Record) - This form is used to define the GDSF (Global Digital Service Function) on the DSU3 for the SM and the SM-2000 class processor. Added a data rule to the INTF UNIT field.

EQIDCU form (5846 Record) - This form is used to define the IDCU (Integrated Digital Carrier Unit) and the LSI (Loop Side Interface) packs, ELI (Electric Line Interface) packs, and the PIDBs (Peripheral Interface Data Buses) associated with the IDCU. Added a data rule to the INTF UNIT field.

EQISLU form (5731 Record) - This form is used to define ISLU (Integrated Services Line Unit) assignments in a 5ESS Switch. Added a data rule to the INTF UNIT field.

EQLU form (5710 Record) - This form is used to define SM (Switching Module) and LU (Line Unit) assignments in a 5ESS Switch. Added a data rule to the INTF UNIT field.

EQMSU form (5750 Record) - This form is used to define MSU (Metallic Service Unit) assignments from the EQMSU and the EQMTIB (5E10 and later), EQMSP or EQMMSP forms. Added a data rule to the INTF UNIT field.

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. Added a data rule to the INTF UNIT field.

EQRA form (5821 Record) - This form defines the RAF (Recorded Announcement Function) unit, and the SAS (Service Announcement System) services unit. If a RAF unit is defined on this form, then a corresponding EQRAP form (5822 Record) must be defined for the RAF circuit packs. Added the INTF UNIT

field and a data rule to this field.

EQTU form (5720-1 Record) - This form is used to define Trunk Unit Assignments. Added a data rule to the INTF UNIT field.

EQXCDU form (5832 Record) - This form is used to define the Extended Control and Data Unit. Added data rules to the PRIMARY UNIT field.

SEC. 8AG: RNC HOMED VOICE/DATA CALLS

1. FEATURE DESCRIPTION

The RNC (Radio Network Controller) Homed Voice/Data Calls feature (99-5E-8283) is made available with the 5E17(1) FR 1 (Feature Release 1) and later Software Releases.

This feature provides the 5ESS-DCS (Digital Cellular Switch) portion of the functionality needed for the Wireless Core IP R20 (20.1 for Voice/Packet Data) MSC (Message Service Center) architecture that is equipped with RNC. Using an ATM (Asynchronous Transfer Mode) switch, traffic (voice, circuit data, and packet data) from the BTS (Base Transceiver Station) terminates on the RNC. Traffic frames are routed between the RNC(s) and the 5ESS PSU(s) (Packet Switching Unit) based on the community address information. Data frame selectors and voice frame selectors are in the same global (soft handoff) address space. For voice and circuit data calls, the FS (Frame Selector) and vocoder will always reside in the 5ESS PSU.

For packet data calls the PCF (Packet Control Function) resides on either the RNC or in the stand-alone IWF (Inter-Working Function) off the DCS. The FS/RLP (Frame Selector/Radio Link Protocol) functionalities can be either on the RNC or the IWF.

Note that in the normal situation the PP (Packet Pipe) typically terminates on the 5ESS-DCS FRPH (Frame Relay Protocol Handler), and hunting for the PHV (Protocol Handler for Voice) starts in the PSU that the PP terminated on. Therefore, for the case where the BTS is homed on the RNC; the ECPC (Executive Cellular Processor Complex) will have to send the SH_REQ_X message to 5ESS-DCS with PP Trunk Group/Member=0/0 as well as the community address of the PSU. 5ESS PSU will start hunting for a PHV starting with the PSU identified in the SH_REQ_X message.

Once the PHV is selected on the 5E-DCS, the DLCI (Data Link Connection Identifier) information is passed, in the SH_ASGN_X message, back to the ECP to be eventually made available to the BTS. The address (DLCI) for the FS is received by the BTS gateway on the RNC in the TPU (Traffic Processing Unit) shelf. The BTS gateway evaluates the address and establishes a bearer path to the PSU gateway in the RNC. From the PSU gateway, the address is used to set up the bearer path from the RNC through the center stage ATM switch to the PHA (Protocol Handler for ATM) on the 5ESS PSU. The 5ESS PSU on the DCS accepts the bearer connection using the normal inter-PSU processing.

From 5E-DCS perspective, the RNC is equivalent to a 5E-PSU. It is expected that the RNCs and the 5E-PSUs are all interconnected by their shared (soft hand-off) community address space using ATM PVC connections. The RNC needs to interoperate with 5E-PSUs. In order to achieve this, the RNC has to implement the interface for soft hand-off similar to the 5ESS Switch functionalities being implemented as part of the PSU to PSU Connectivity feature and the PHA2 Connectivity Enhancement feature. The RNC feature mirrors these functionalities on the CoreIP MSC architecture. For more information on the PSU to PSU Connectivity feature, see Division 2, Section 7BY.

R20 Packet Core Growth System Architecture document (ARD-0130) describes the architecture needs and the derived architectural design (i.e., the Hardware and Software architecture) for this feature.

2. FEATURE ASSIGNMENT

There is no ODA impact.

SEC. 8AH: MEASUREMENTS FOR PCF ON PHE2

1. FEATURE DESCRIPTION

The Measurements for PCF (Packet Control Function) on PHE2 (Protocol Handler Ethernet 2) feature (99-5E-8173) is made available with the 5E17(1) FR 2 and later Software Releases.

This feature creates two new traffic 30 sections: PHE and PCF. PCF trunk group traffic contributes to selected counters on the following existing traffic 30 sections:

- 12 (TG)
- 212 (TGN)
- 15 (PROC)
- 22 (SMS)
- 244 (HSPD)
- 247 (ECPSRVT)

2. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
MEASSUM	5563	3	5BG	13.9

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the PCF and PHE values to the SECTION NAME field and associated data rules.

SEC. 8AI: PCF SECURITY ON PHE2

1. FEATURE DESCRIPTION

The PCF (Packet Control Function) Security on PHE2 (Protocol Handler Ethernet 2) feature (99-5E-8494) is made available with the 5E17(1) FR 2 and later Software Releases. This feature is a NAR (North American Region) RC (Recent Change) only feature. It builds upon the base PCF on PHE2 feature. For more information on the base feature see, Division 2, Section 8AC.

This feature bounds the number of PHE2s in the office that can be provisioned. For this purpose, the PCF Security on PHE2 feature introduces three Recent Change global fields. These fields are PCF PHE LIMIT, PCF PHE PROV, and PCF PHE PSWD.

2. FEATURE ASSIGNMENT

The *PCF PHE2 LIMIT* field defines the maximum number of PCF PHE2s that may be provisioned in the office. The value is administered only on the equivalent RC (Recent Change) view 34.1, and is stored in a global parameter in the ODD (Office Dependant Data). For ODA, the value is no-change and is used to preserve the value of the global over a LTG (Large Terminal Growth).

The *PCF PHE PROV* field defines the number of PCF PHE2s provisioned in the office. The value is administered only on the equivalent RC view 34.1, and is stored in a global parameter in the ODD. For ODA, the value is no-change and is used to preserve the value of the global over a LTG.

The *PCF PHE PSWD* is no-change for ODA. It is used only by Recent Change when an office wishes to change the PCF PHE2 LIMIT value via view 34.1. PCF PHE2 LIMIT can be updated only when a valid PCF PHE PSWD is entered in 34.1 (the password obtained from Customer Technical Support).

For further provisioning information for this feature see the base feature at Division 2, Section 8AC.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFOPT	5996	5	3T	34.1

PCFOPT form (5996 Record) - This form is used to assign office-wide PCF parameters. Added the PCF PHE2 LIMIT, PCF PHE2 PROV, and PCF PHE2 PSWD fields. These fields are all no change fields.

SEC. 8AJ: GSM ESCALATION STRATEGY MODIFICATIONS

1. BACKGROUND

Wireless DCS (Digital Cellular Switch) offices have been experiencing total loss of CCS (Common Channel System) functionality (yielding an outage of the entire mobile complex), when such functionality is provided on a PSU (Packet Switch Unit) signaling platform on a GSM (Global Switching Module). Such GSMs can be provisioned in a dedicated mode, where the only hardware provisioned on the GSM is used explicitly by the CCS signalling platform (suggested configuration), or an integrated mode, where additional hardware is provisioned on the GSM to support CDMA (Code Division Multiple Access) or general trunking needs. The CCS signaling outages recorded were primarily in integrated GSM environments, due to recovery of extraneous hardware (not CCS-related), which lead to an SM (Switching Module) full initialization or otherwise affected CCS operation.

2. FEATURE DESCRIPTION

The purpose of the feature is to modify PSU/SM (Packet Switching Unit/SM) fault recovery strategies to avoid the disruption of CCS Connectivity when possible, and to restore CCS Connectivity whenever it is lost (all of these actions are related to a global SM PSU signaling platform only).

This feature will increase the availability of CCS functionality supported on a PSU signaling platform on a GSM in a DCS. Minimally acceptable CCS functionality includes signaling link access from the DCS to the ECP (Executive Cellular Processor) and to STPs (Signaling Transfer Points) providing access to the PTSN (Public Telephone Switching Network), as well as the ability to transport CCS messages from the GSM to any SM in the DCS for processing; total failure of CCS functionality effectively causes call processing in the parent MSC (Mobile Switching Center) to cease.

Techniques utilized by high-level escalation strategies provided by this feature include:

- Override peripheral hardware recovery that would result in a GSM full initialization, if minimal CCS functionality is still available (such an initialization would result in a total CCS loss for several minutes).

- If minimal CCS functionality on a GSM becomes unavailable, new GSM-wide strategies will be spawned to hasten the recovery of such functionality, which is critical to MSC operation. Due to the impact of CCS signaling on the office, quicker/more drastic recovery actions (including possible GSM full initialization) are merited.

- To better isolate PSU shelf problems without affecting CCS operation, shelf removals are allowed on a PSU, which has been provisioned as a critical unit.

- The use of all new GSM escalation strategies in an MSC is optional (the service provider will be able to enable/disable the feature via recent change controls).

Though primarily intended to address the interactions of non-CCS hardware recovery in integrated GSM environments, reliability has also been enhanced in dedicated GSMs, and applies to both critical/non-critical unit designations associated with resident PSUs (to address growth situations).

The GSM (Global Switching Module) Escalation Strategy Modifications feature (99-5E-8505) is made available with the 5E16(1) FR 4 and later Software Releases.

3. FEATURE ASSIGNMENT

In a DCS, this feature may be activated/deactivated by a single recent change update, at the service provider's discretion. This feature is only available in digital cellular switch (DCS) configurations.

4. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5l	8.15

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the GSM ESCALATION field and associated data rules.

SEC. 8AK: PCF ON PHE2 STANDARDS ENHANCEMENTS

This feature has been moved to Division 2, Section 8AQ, and is now part of the 99-5E-8604 feature.

SEC. 8AL: 3G-1X HSPD PERFORMANCE FOR CHATTY APPLICATIONS

1. FEATURE DESCRIPTION

The 3G-1X HSPD Performance for Chatty Applications (99-5E-8398) is made available with the 5E17(1) FR 3 and later Software Releases.

This feature is based on the PCF on PHE2 (99-5E-7868) and Measurement for PCF on PHE2 (99-5E-8173) features. For more information on these features see, Division 2, Section 8AC and Division 2, Section 8AH, respectively. This feature (99-5E-8398) improves the performance of 3G-1X Packet Data services by using system resources effectively.

There is a special class of packet data service: chatty application that presents a challenge for system resource optimization. The characteristic of chatty application is psuedo-periodical packet arrival with inter-arrival time of seconds to tens of seconds. Applications that fall into this category are:

heartbeat message for "always-on" access, and

weather/traffic information, or stock updates.

Typically they are of best-effort nature and the traffic is extremely low, the system-wise packet data inactivity timer often leads to the unnecessary waste of system resource.

A per-call throughput-driven algorithm is designed to determine when to release a chatty application (i.e., push the Chatty application dormant mode without FCH allocation). The purpose of this feature is to proactively manage the system resource based on each application's usage of the system. Therefore, it can reduce system resource usage (presumably caused by the chatty application) and support higher rate for other data users.

In addition to choosing chatty applications for release, a more general inactivity timer method is developed to adjust the inactivity timer based on a packet inter-arrival time and the cost of reactivation. The general idea is to increase the inactivity timer if the packet inter-arrival time is big, and to decrease the inactivity timer if the packet inter-arrival time is small. This method is referred to as the packet-driven timer adaptation.

2. FEATURE ASSIGNMENTS

For provisioning information for this feature see the base feature at Division 2, Section 8AC.

3. TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC Viewm
PCFOPT	5996	5	3T	34.1

PCFOPT form (5996 Record) - This form is used to assign office-wide PCF parameters. Added the INIT TIMER, INACT TIME, REACT COST, LOCAL MARGIN, INTER ARRIVAL, and STEP DOWN SIZE fields.

SEC. 8AM: 3G-1X HSPD IMPROVED SCHEDULING

1. FEATURE DESCRIPTION

The 3G-1X HSPD (High Speed Packet Data) Improved Scheduling feature (99-5E-8399) is made available with the 5E17(1) FR 3 and later Software Releases.

This feature is a data performance improvement feature that allows for forward burst rate upgrades and downgrades in the middle of a burst in progress, as well as a finer level of timing granularity for forward burst requests. This facilitates more efficient use of OTA (Over the Air) resources, by reducing the amount of time it takes to make forward burst upgrades and downgrades.

This feature is applicable to PHV4s (Protocol Handler for Voice 4s) and PHV5s only.

2. FEATURE ASSIGNMENTS

There is no ODA impact for this feature, therefore there is no needed provisioning.

SEC. 8AN: CORE700

1. FEATURE DESCRIPTION

The CORE700 feature (99-5E-8335) is made available with the 5E16(2) FR5 and 5E18(1) and later Software Releases.

The CORE700 feature provides a processor and realtime upgrades for the SM-2000. The latest generation of SM-2000 has a core processor based on a 68060 design, UN588. The UN588 has some on-board memory but expects to support up to four more external memory boards. The UN588 is a duplex capable processor and the update bus is instantiated by the BSN (Bus Service Node). The BSN ties together updates to memory and peripherals, as well as passes through reads and writes to the "right side bus". These includes 32 bit peripherals like the MHs and 16 bit peripherals off the SUIB (Sub-unit Interface Bus) such as PIs (Packet Interfaces) and CIs (Control Interfaces).

The CORE700 feature replaces the UN588 with a PowerPC processor. It also replaces UN540, UN560, and UN594 in NAR (North America Region). The new pack code is UN732. The UN732 processor board is in the UN588 slot position and additional memory boards are not supported. The CORE700 processor has 383 Mega Bytes of memory on board. There may be additional registers related to PowerPC operation that are available. All of the original hardware registers will still be available.

2. FEATURE ASSIGNMENTS

The Growth/Degrowth of an MHPPC will not be different from the growth of a MH with the exception of the CLI value entered on the 19.13 RC/V (Recent Change/View) form. The CLI value for a MHPPC replacing or functioning like a MH32 will be a 0x4, and 0xCH for a MHPPC replacing or functioning like a MHEIB.

For conversion procedures, see Divisionn 2, Section 8AP.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
CCGSM	6008	9	10H	16.1
CCLNK	6004	9	10D	16.6
EQCORE	5701	8	3	17.14
EQDUP	5730	8	17	19.4
EQIM	5700-1	8	2	20.4
OFCOPT	5509	3	5I	18.1
TKGRP	5502	3	2A	8.1
				5.1

CCGSM form (6008 Record) - This form is used to specify data used for the global switching module. Modified a data rule for the GSM field.

CCLNK form (6004 Record) - This form is used to define the CCS7 (Common Channel Signaling System No. 7) link sets and members. Modified a data rule for the OE field.

EQCORE form (5701 Record) - This form is used as an Office Record for those 5ESS Switch offices that are not utilizing an Operational Support System (e.g., RMAS) for generation of Office Records. Modified a data rule for the DRM field and added data rule to VCDX field.

EQDUP form (5730 Record) - This form is used to define the Switching Module, Digital Line/Trunk Units, and the Digital Facility Interface Pack Number. Modified a data rule for the AFAC ID field.

EQIM form (5700-1 Record) - This form is used to define Switching Module Equipage Assignments. Added data rules to the IMPU CLI, UNIT TYPE, and OPSM fields.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the MAXIMUM display only field.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Removed a data rule from the SVC GRP field and added data rules to the CONFIGURATION and DCS TRK fields.

SEC. 8AO: MH0 (MESSAGE HANDLER SLOT 0)

1. FEATURE DESCRIPTION

The MH0 (Message Handler Slot 0) feature (99-5E-8360) is made available with the 5E16(2) FR5 and later Software Releases.

The MH0 feature (Support for Peripherals on Slot 0 using MHPPC) was developed in parallel with the MHPPC base feature (99-5E-8364), and is dependent upon the base feature. It allows a single MHPPC located in slot 0 to support both Communication Links (CLNKs) and QLNKS (Quad Link Packet Switch Links. It also supports PCT (Peripheral Control and Timing) based peripherals (e.g. OIU (Optical Interface Unit)). For more information on the base feature, see Division 2, Section 8AP.

2. FEATURE ASSIGNMENTS

The MH peripheral rehomming uses the new RC/V form MHREH to rehome peripherals from a MH32/MHPPC to a MHPPC.

The following are the steps for MH peripheral rehomming. The procedure is written to only perform one peripheral type at a time and one peripheral unit at a time:

1. Poke the 1010, (SM #) to obtain all affected peripherals on the SM.
2. Update RC/V 8.1 field MH REHOMING ENABLE to N.
3. Remove side 0 of the affected peripheral from service.
4. Update the RC/V MHREH form with the SM#, MH# and the rehomming peripheral. Then identify the peripheral unit and SG=0. Update the targeted peripheral DEST MH field with the destination MH number.
5. Restore side 0 of the affected peripheral to service.
6. Remove side 1 of the affected peripheral from service.
7. Update the RC/V MHREH form with the SM#, MH# and the rehomming peripheral. Then identify the peripheral unit and SG=1. Update the targeted peripheral DEST MH field with the destination MH number.
8. Restore side 1 of the affected peripheral to service.
9. Verify on RC/V MHREH that affected peripheral has been rehomed.
10. Update RC/V 8.1 field MH REHOMING ENABLE to Y.

For MH to MHPPC conversion procedures, see Division 2, Section 8AP.

2.1 TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
OFCOPT	5509	3	5I	8.1

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the MH REHOMING ENA display only field.

SEC. 8AP: MHPPC (MESSAGE HANDLER POWERPC)

1. FEATURE DESCRIPTION

The MHPPC (Message Handler PowerPC) feature (99-5E-8364) is made available with the 5E16(2) FR5 (Feature Release 5) and later Software Releases.

The MHPPC feature is the base feature that supports two other wireline features, CORE700 99-5E-8335, and MH0 (Message Handler Slot 0) 99-5E-8360. For more information on these features, see Division 2, Section 8AN and Division 2, Section 8AO, respectively.

The MHPPC feature is a hardware/software feature that enhances the Message Handler capabilities for the SM-2000. The MHPPC adds the capabilities to support 256 time slots and two 10/100 Ethernet terminations. It is designed to be a full replacement for the MH32 and the MHEIB circuit packs.

With the introduction of MHPPC, the MH will now have more available timeslots on the MH in slot 0 (224) than in an MH32. This feature allows MH32-based Peripherals to be grown on the MHPPC in slot 0, thus saving the costs of an additional two UN550 (MHPPCs) in the MCTSI (Module Controller and Timeslot Interchange Unit). This includes VCDX (Very Compact Digital Exchange) and non-VCDX environments. Ethernet-based Peripherals (RTCD (Real Time Call Detail), EEC (External Echo Cancellation), and PS3 (Packet Service 3)) as well as OIU-ATM (Optical Interface Unit - Asynchronous Transfer Mode) are not allowed on an MHPPC in slot 0. A "Rehoming" procedure is available to migrate Peripherals currently assigned to an MH32 in either slot 1 or slot 2 to an MHPPC in slot 0.

Some other capabilities that this feature allows is as follows:

It allows for additional MH-based peripherals to be connected to the SM-2000 as more time slots and channels are now available. This enables slot 0 to support HDLC (High Data Level Link Control) peripherals.

It allows the MHPPC to support more than 32 peripheral links on an MHPPC - scaling. This means that more than 62 XAIU/EAIU (Expansion Access Interface Unit) COMDACs (Common Data And Control Circuits) can be supported on one SM-2000. For MH0 peripheral support, all applications software using MTCE (Maintenance (Subsystem)) messages must explicitly check the new SI (Screening Index) DD (Data Decoder) key.

2. FEATURE ASSIGNMENTS

The De/growth of an MHPPC will be no different from the growth of a MH with the exception of the CLI value entered on the 19.13 RC/V form. The CLI value for a MHPPC replacing or functioning like a MH32 will be a 0x4H and 0xCH for a MHPPC replacing or functioning like a MHEIB.

2.1 Conversion to MHPPC

The following are the high level steps that will be followed to convert a MH32/MHEIB to a MHPPC base:

1. Remove MCTSI side 0 from Service.
2. Power Down MCTSI Side 0.
3. Remove MH32/MHEIB packs

4. Install the MHPPC pack for side 0. If MHPPC supports ethernet connection also install Ethernet card to the MHPPC pack to support ethernet connections.
5. Update RC/V 19.13, Side 0 CLI value to either 0x4H or 0xCH.
6. Power Up MCTSI Side 0. A new image from the old MH will be created by the initialization of the MCTSI for the MHPPC. This new image of the MH will be pumped to the new MHPPC.
7. Diagnose MCTSI Side 0. New diagnostic capabilities for the MHPPC would be run here.
8. Unconditionally Restore MCTSI Side 0.
9. Switch MCTSI side 1 to side 0. This will have an affect on the transient calls and call setups while the MHPPC is being updated. No stable calls will be lost.
10. Remove MCTSI side 1 from Service.
11. Power Down MCTSI Side 1.
12. Remove MH32/MHEIB packs.
13. Install the MHPPC pack for side 1. If MHPPC supports ethernet connection also install Ethernet card to the MHPPC pack to support ethernet connections.
14. Update RC/V 19.13, Side 1 CLI value to either 0x4H or 0xCH
15. Power Up MCTSI Side 1. A new image from the old MH will be created by the initialization of the MCTSI for the MHPPC. This new image of the MH will be pumped to the new MHPPC.
16. Diagnose MCTSI Side 1. New diagnostic capabilities for the MHPPC would be ran here.
17. Unconditionally Restore MCTSI Side 1.

SEC. 8AQ: PCF OA&M ENHANCEMENTS

1. FEATURE DESCRIPTION

The PCF (Packet Control Function) OA&M (Office, Administration and Maintenance) Enhancements feature (99-5E-8604) is made available with the 5E19(1) and later Software Releases.

These are the various elements of this feature:

- Auto-Ping

- PDSN (Packet Data Service Network) Selection Algorithm

- Reverse Buffering

- PDSN Tier

- PCF PDSN OOS (Out of Service) Status Marking Override

- PDSN OOS Timer on a Per PDSN Basis

1.1 Auto-Ping

The PCF On PHE2 feature Auto Ping performs an automatic PING request to each PDSN assigned to a PCF. When enabled, the automatic PING will automatically, send a PING to each PDSN (destination IP address) assigned to a PCF (source IP address from the automatic PING perspective) on a periodic basis.

Automatic PING is enabled on a switch basis.

A PING sends an ICMP (Internet Control Message Protocol) Request message to a destination IP address. The PCF expects an ICMP Reply back from the destination IP address. If successful, the PDSN PINGSTATE is marked "IS-PING", if it fails, the PDSN PINGSTATE is marked "OOS-PING".

The PCF uses this IS-PING and the OOS-PING PDSN PINGSTATES states in deciding on PDSN selection for new session registration requests. Only an IS-PING PDSN PINGSTATE would allow for new session registrations.

The PDSN PINGSTATES, IS-PING and OOS-PING, are at a lower level than the PDSN STATUS IS and OOS determination made at the R-P A11 signaling layer.

When the automatic Ping marks a PDSN PINGSTATE "OOS-PING", a message is printed to the ROP (Read Only Printer) with the source and destination information.

When the PCF detects the recovery of the link (if the PCF receives the Ping Response from the PDSN) PING STATE is marked as "IS-PING" and is reported to the ROP. After the PDSN OOS timer expires, the PDSN STATUS is marked as "UNKNOWN" and is included in the PDSN Selection.

Based upon the results of the Ping requests from the PCC to the PDSN, upon receiving an "IS-PING" response back from a PDSN that was "OOS-PING" at the previous reporting interval, the PDSN PINGSTATE is marked "IS-PING" by the PCF.

When all the PDSNs assigned to a PCF are found to be ALL OOS-PING, this event is reported to the ROP, the Source IP Address (PCF IP address) is printed, and the PCF trunks are marked "OOS-PING" in

the supplemental information for the IS PCF trunks. In addition, this PDSN ALL OOS-PING event causes an alarm on the MCC (Master Control Centre) SM (Switching Module) summary page. However, there can be a number of reasons why there was not a response back from PDSNs. This includes incorrect data between the switch and the PDSNs. When this happens, no new session registrations will be allowed. Re-registrations are to be attempted. Reactivations are not allowed.

1.1.1 TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFOPT	5996-1	5	3T	34.1

PCFOPT Form (5996-1 Record) - This form is used to assign office-wide PCF parameters. . Added the AUTO PING ENABLE, BYTES PING MSG, TIMEOUT REPLY, and REPEAT MESSAGE fields.

1.2 PDSN Selection Algorithm

When the global field "PDSN SELECT ALG" is set to "CUSTOM0", the base PCF Lucent PDSN Selection Algorithm, is implemented by all PCFs in the office. With the PDSN Selection Algorithm set to CUSTOM1, the PCF maintains two PDSN tables to choose a PDSN and contains the IP address and status of each PDSN assigned to the PCF.

The first table, the PDSN ALL Table, contains all PDSNs provisioned to the PCF regardless of their PDSN STATUS, their IP address and status. The second table, the PDSN IS Table, contains the IS and Unknown PDSNs.

The PCF will first choose a PDSN from the ALL table, if it is IS or Unknown the the registration will continue with this PDSN. If it is other than IS or Unknown, e.g. OOS, the PCF will then choose a PDSN from the second table, the IS table.

This feature is set up by assigning each PDSN with an ORDER NUMBER on the PDSNCNFG (5997 Record) form or RCV (Recent Change View) 34.3, then set the global PDSN SELECT ALG field to "CUSTOM1" on PCFOPT (5996-1 Record) or RCV 34.1.

1.2.1 TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFOPT	5996-1	5	3T	34.1
PDSNCNFG	5997	5	3V	34.3

PCFOPT Form (5996-1 Record) - This form is used to assign office-wide PCF parameters. Added the PDSN SELECT ALG field.

PDSNCNFG Form (5997 Record) - This form is used to assign PDSN configuration parameters. Added the ORDER NUMBER field.

1.3 Reverse Buffering

The PCF On PHE2 base feature provides buffering in the Forward (towards the MS) direction but not in the Reverse (from the mobile) direction. The PCF Reverse Buffering feature provides buffering in the Reverse direction in order to not lose the initial packets from the MS during the initial setup of a new PCF session

registration or MS reactivation. This reduces the time for the mobile and the PDSN to establish a PPP session.

The MS (Mobile Service) can send PPP frames. However, the PCF can not allow A10 traffic until a PDSN has registered this new session by the receipt of an A11 RRP with registration accepted. Only then, will the A10 traffic be allowed to flow between the MS and the PDSN.

When Reverse Buffering is enabled by Recent Change, the size of a PCF session Reverse buffer shall be no more than 8 K. When there is a buffer overflow, the oldest data shall be discarded first. Total Reverse buffer size shall be no more than 8 Mbytes.

1.3.1 TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFOPT	5996-1	5	3T	34.1

PCFOPT Form (5996-1 Record) - This form is used to assign office-wide PCF parameters. Added the REVERSE BUFFERING field.

1.4 PCF on PHE2 (Protocol Handler Ethernet 2) Standards Enhancements

The PCF (Packet Control Function) on PHE2 (Protocol Handler Ethernet 2) Standards Enhancements feature (99-5E-86041) is made available with the 5E19(1) and later Software Releases. This feature is a NAR (North American Region) RC (Recent Change) only feature. It builds upon the base PCF on PHE2 feature. For more information on the base feature see, Division 2, Section 8AC.

This feature updates the base PCF on PHE2 feature (99-5E-7868). The following updates are driven by the IS-835-B (3GPP2 P.S0001-B) and the 3GPP2 A.S0017-0 documents. The standards introduce the NVSE (Normal Vendor/Organization Specific Extension), and have renamed the VOSE (Vendor/Organization Specific Extension) as the Critical VOSE. The recent standards have changed the Active Time parameter Type/Sub-Type values and the Cell Identifier (type 2) parameter field meaning.

To allow the PCF PHE2 to be compatible for the current standard version and the previous version, two new global fields are added. These are the CELL INFO ORDER and the ACT TIME PARM (Connection Time In Seconds) fields. The setting of these fields allow sending the Active Time parameter Type/Sub-Type as per IS-835 or as per IS-835-B. This also allows sending the BSID (Base Station Identification Number) parameter Cell Identifier (type 2) as per IS-835 or as per IS-835-B.

The CELL INFO ORDER field setting determines the placement of the Cell_Id and the Cell_Face fields in the BSID parameter. The ACT TIME PARM (Connection Time IN Seconds) field setting determines the Type and Sub-Type fields used to send the Active Time (Connection Time In Seconds) parameter.

For further provisioning information for this feature see base feature at Division 2, Section 8AC.

1.4.1 TRANSLATION REQUIREMENTS

New or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC Viewm
PCFOPT	5996	5	3T	34.1

PCFOPT form (5996 Record) - This form is used to assign office-wide PCF parameters.. Added the CELL INFO ORDER and ACT TIME PARM fields.

1.5 PDSN Tier

This feature allows per PCF the designation of a PDSN with one of 10 priority levels or Selection Groups (SG). Up to 10 SG can be assigned to a PCF.

Per PCF, assign each PDSN to a SG. Then assign a priority of 1 to 10 to each SG, the lowest number selection group represents the highest priority.

The SG with the highest priority is selected first then the PCF Selection Algorithm is used to select a PDSN from the selected SG.

If the selected PDSN is OOS or degraded the PCF PDSN Selection Algorithm selects another PDSN from same SG until all PDSNs are marked OOS or degraded. If all PDSNs in the SG are OOS or degraded, then a PDSN from the next highest priority selection group is chosen.

The feature will be present when:

- the CDMA Packet Mode feature is present and the PCF On PHE2 feature is operational.

- Each PCF has its own set of SGs

- Recent Change allows assignment of the SG (Service Group) in any selection order.

- Each PDSN provisioned to a PCF can only be in one SG belonging to a PCF.

- Each provisioned PDSN can be in a SG of different PCFs.

- Each provisioned PDSN can be assigned to one or more PCFs. Then, each provisioned PDSN can be assigned to more than one PCF SG.

- Each PCF shall have a SG selection order.

- Each PCF SG can be placed Active or In-active by Recent Change.

- SG assignments to a PCF can be in any order. That is, the SG assignments can be consecutive or non-consecutive.

- SG removal (Recent Change deletion) from a PCF does not have to be done in any order.

1.5.1 TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFPDSN	5996-2	5	3U	34.2
PCFSG	6924	5	3AP	34.4

PCFPDSN Form (5996-2 Record) - This form provides the capability to provision a PDSN (Packet Data Serving Node) IP address to PCF. It was created to support the PCF on PHE2 (PH30 with Ethernet Link) feature. For more information on this feature see Division 2, Section 8AC. Added the SELECTION GROUP field.

PCFSG Form (5614-3 Record) - This form provides the ability to change the selection group order number. This is a new form that supports the PCF OA&M Enhancements feature.

1.6 PCF PDSN OOS Status Marking Override

PCF PDSN OOS Status Marking Override feature provides a switch global which when set, overrides the PCF marking a PDSN OOS for return codes received in A11 RRP. Instead of the PCF marking a PDSN OOS, the PCF marks the PDSN Degraded.

- **NOTE:** This override to mark PDSNs OOS will not take place for receiving timeouts waiting for RRP.

When set to "Y", the PCF marks a PDSN Degraded instead of OOS. When the field is set to "N", there is no change in the PCF marking a PDSN OOS. The field default value is "N".

1.6.1 TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFOPT	5996-1	5	3T	34.1

PCFOPT Form (5996-1 Record) - This form is used to assign office-wide PCF parameters. Added the PDSN OOS OVRD field.

1.7 PDSN OOS Timer on a Per PDSN Basis

PCF Per PDSN OOS Periodic Interval feature allows the PDSN OOS Periodic Interval timer to be provisioned and operate on a per PDSN basis. In the base PCF PHE2 feature, the PDSN OOS Interval PDSN OOS INTRVL (5996-1) setting is a switch global. With this feature, the PDSN OOS Periodic Interval 'PDSN OOS INTRVL' (5996-2) can be set for each PCF to PDSN pair.

When the PDSN OOS INTRVL (5996-2) field is blank, the PDSN OOS Periodic Interval switch global value (5996-1) is used for this PDSN. However, when PDSN OOS INTRVL (5996-2) is provisioned for a PDSN, this value overrides the PDSN OOS Periodic interval switch global (5996-1) setting for this PDSN.

1.7.1 TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFPDSN	5996-2	5	3U	34.2

PCFPDSN Form (5996-2 Record) - This form provides the capability to provision a PDSN (Packet Data Serving Node) IP address to PCF. It was created to support the PCF on PHE2 (PH30 with Ethernet Link) feature. For more information on this feature see Division 2, Section 8AC. Added the PDSN OOS INTRVL field.

1.8 PCF PHE MEID on FPS

The PCF (Packet Control Function) PHE (Protocol Handler with Ethernet) MEID (Mobile Equipment Identifier) on FPS (Flexent Packet Switch) feature (97-5E-8728) is available with the 5E20(1) and later Software Releases.

The MEID feature impacts the mobile, the Cell, the ECP (Executive Cellular Processor), and the PCF PHE to support MEID. The PDSN (Packet Data Service Node) must be able to handle receiving an A11 RRQ message Connection Setup airlink record.

Since the introduction of the MEID feature, the ESN (Electronic Serial Number) of mobiles will no longer uniquely identify the mobile. In fact, mobiles with MEID no longer have a unique ESN associated with it. It is now associated with a pseudo ESN (pESN). Additionally, with this feature, the PCF PHE switches from using the mobile ESN to MSID (Mobile System Identification Number), to uniquely identify and access PCF sessions. The PCF sends the MEID to the PDSN in 2 cases:

if the MEID is received from the ECP and the field MEID ENABLE = , or

if the MEID is not received from the ECP and the field MEID ENABLE = Y and SEND MEID DEFAULT, MEID of zero is sent to the PDSN.

1.9 TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PDSNCNFG	5997	5	3V	34.3

PDSNCNFG Form (5997 Record) - This form is used to assign PDSN configuration parameters. Added the MEID ENABLE and SEND MEID DEFAULT fields.

SEC. 8AR: PCF PHE2 INITIATED REACTIVATION RETRY ENHANCEMENTS

1. FEATURE DESCRIPTION

The PCF (Packet Control Function) PHE2 (Packet Handler for Ethernet 2) Initiated Reactivation Retry Enhancements feature (99-5E-8715) is made available with the 5E18(1) FR 1 and later Software Releases.

This feature allows the customer to use RC/V (Recent Change/Verify) to set the number of times, the PCF PHE2 will retry PCF initiated reactivation attempts (1-11, default 4) for a PCF session, before flushing the Forward Dormancy Buffer for the session. Currently, this number is hard coded to 4.

2. FEATURE ASSIGNMENTS

In order to use this feature set the REACT RETRY field on the PCFOPT form (5996-1 Record).

3. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PCFOPT	5996-1	5	3T	34.1

PCFOPT Form (5996-1 Record) - This form is used to assign office-wide PCF parameters. Added the REACT RETRYfield.

SEC. 8AS: IP SOFT HANDOFF

1. FEATURE DESCRIPTION

The IP (Internat Protocol) Soft Handoff feature is available in 5E20(1) BMI (Beginning of Management Introduction) and later Software Releases, that is associated with feature number 99-5E-8688.

IPS (Intelligent Packet Switch) is a PSU2e (Packet Switch Unit 2 for Ethernet) where one of the shelves is replaced with a PSU shelf having a high speed backplane, CF4, and PF4 (Packet Fanout 4). High-speed shelf allows PHs (Protocol Handlers) to connect to packet bus fabric using 1Gb/s Packet Bus connections. The PF4 interconnects up to 16 PHS at 1Gb/s per PH, interfaces with CF4 using 4-Gb/s PIB (Packet Interface Bus) links, and supports one PCT (Peripheral Control and Timing) link to provide 8KHz timing source.

The PHE4 (Protocol Handler for Ethernet version 4) is based upon PH40 architecture. PH40 architecture is based upon upgraded PH30 architecture (newer/larger FPGA (Functional Programmable Gate Array), memories, etc). IP SHO (IP Soft Handoff) is the first PHE4 application for the NAR (North America Region) market. PHE4 architecture uses Ethernet interfaces and UDP/IP (User Datagram Protocol/Internet Protocol) protocol stack. PHE4 IP SHO architecture is based upon PHE3 IP Backhaul architecture.

2. FEATURE ASSIGNMENTS

In order to provision this feature:

EQPSUPH form (5742 Record); RC/V 22.4 (22.41 (5876 Record));

Insert PH CLI to 100000.

PHGRP form (5892 Record); RC/V 22.32:

Create a PH GRP and assign the PH information.

IPPROC form (5987 Record); RC/V 33.1:

Assign IP procesor addresses to PHs on PHGRP.

ETHIP form (5995 Record); RC/V 33.4:

Create PHE LINK and INTERFACE NAME for PHs from the PHGRP form.

IPROUT form (5989 Record); RC/V 33.3:

Add routing data for the INTERFACE NAME from the ETHIP form.

PHGRP form (5892 Record); RC/V 22.32:

Assign PHE4 POSITION in PH LIST.

IPADRMG form (5895 Record); RC/V 22.33:

Define IP or ATM CA routing information.

IPATMRTG form (5896 Record); RC/V 22.34:

Define mapping between CA and IP.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CA2IPMAP	5897	5	3AU	22.35
CDMAOPT	5599	8	80	8.75
CLSIDX	5899	5	3AW	22.37
EQPSU	5741	8	22	22.2
				22.40
EQPSUPH	5742	8	23	22.3
				22.4
				22.41
ETHIP	5995	5	3S	33.4
IPADRMG	5895	5	3AS	22.33
IPATMRTG	5896	5	3AT	22.34
IPPROC	5987	5	3N	33.1
IPROUT	5989	5	3P	33.3
IPSHOPT	5898	5	3AV	22.36
MEASSUM	5563	3	5BG	13.9
PHGRP	5892	5	3AO	22.32
PSUGP	5949	5	3J	22.16
PSULNK	5057	7	2A	22.22
PSUNWK	5992	5	3X	22.29

CA2IPMAP form (5897 Record) - This form is used allows a user to define either IP (Internet Protocol) or ATM (Asynchronous Transport Mode) routing for each possible CA (Community Address). This is a new form that supports this feature.

CLSIDX form (5899 Record) - This form is used to define a network cluster. This is a new form that supports this feature.

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. Added a data rule to the SUBNET ID field.

EQPSUPH form (5742/5876 Record) - This form is used to define the Packet Switching Unit Protocol Handlers equipped in the 5ESS Switch. Added a new value and a data rule to the PH CLI field.

ETHIP form (5995 Record) - This form provides the capability to provision IP addresses, subnet masks, and associated IP parameters to an ethernet interface. Added a data rule to the PHE LINK field and modified a data rule under the SM field.

IPADRMG form (5895 Record) - This form is used to define all offices and PHs in an IP network. Only PHE4 that interface with the IP address manager can be defined on this form. This is a new form that supports this feature.

IPADRMG form (5895 Record) - This form allows a user to define either IP (Internet Protocol) or ATM (Assynchronous Transfer Mode) routing for each possible Community Address. This is a new form that supports this feature.

IPPROC form (5987 Record) - This form provides the capability to provision up to five IP addresses and subnet masks, and associated default values for IP, TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) parameters to a processor (SM or PH).

IPROUT form (5989 Record) - This form provides the capability to provision an IP gateway between an external IP destination and a local IP interface. Added data rules to the DEST IP ADDRESS field.

IPSHOPT form (5898 Record) - This form defines IP Soft Handoff parameters that are defined on an office wide basis. This is a new form that supports this feature.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the IPSHO, IHSOSUP, and IPSHOCA values to the SECTION NAME table and added ten data rules to these values under the SECTION NAME field. also added values to the START1COMP, START2COMP, and STARTCOMP fields and reorganized the tables for these fields.

PHGRP form (5892 Record) - This form allows the user to define and specify parameters for a group containing two PH (Protocol Handler). Added the PHGRP, APP TYPE, PH TYPE, L1 OVRLD THRESHOLD, L2 OVRLD THRESHOLD, CONN CHK INTRVL HIGH, CONN CHK INTRVL LOW, ICMP THRESHOLD, EXT L1/L2 OVRLD THRESHOLD, HIGH DSCP, LOW DSCP, DAM DSCP, AVG DELAY, 95 PCT DELAY, ENABLE HEART BEAT, HEART BEAT FREQ, and HEART BEAT LDI fields, added data rules to the PROTOCOL HANDLER list, SM, and APP TYPE fields, and added the PVA and IPSHO values to the APP TYPE field.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Added the AVAILABLE PHE4 field and added some values to the PH TYPE table that had inadvertently been left out.

PSULNK form (5057 Record) - This form is used to define links between packet switch units using PHAs (Protocol Handlers for Asynchronous Transfer Mode). Added data rule to the NEAR COM ADDR field.

PSUNWK form (5992 Record) - This form allows a user to define and specify parameters needed for intra network PSU (Packet Switching Unit) connectivity. Added a data rule to the SM field.

SEC. 8AT: TRFO/RTO

1. FEATURE DESCRIPTION

The TrFO(Transcoder Free Operation/RTO(Remote Transcoding Operation) feature (99-5E-8663) is made available with the 5E20(1) and later Software Releases.

This feature provides the ability to support TrFO and RTO for CDMA (Code Division Multiple Access) voice calls on the FPS (Flexnet Packet Switch).

This feature also provides efficient transmission of voice calls within a service provider's network and a perceptible improvement in voice quality for mobile-to-mobile voice calls. This is accomplished by eliminating unnecessary voice encoding and decoding that is part of the existing wireless systems. Digital mobile phones use standardized coding algorithms to compress digital voice streams over the air interface into a compressed 8/13 KHz data stream, which maximizes the efficiency of the wireless spectrum. Traditional MSCs (Mobile Switching Centers) convert the compressed voice back to a 64KHz PCM (Pulse Code Modulation) stream. The TrFO/RTO feature allows the compressed data stream to be passed through the network by keeping the voice in the wireless encoded format to send to either another mobile, or to the edge of the service provider's network. The usage of TrFO/RTO in the network is transparent to the subscribers. It is invoked based on the networks.

2. FEATURE ASSIGNMENTS

In order to provision this feature:

EQPSUPH form (5742 Record); RC/V 22.4:

Provision new PHV5/PHV6; PHV5's CLI=20, PHV6'S CLI=40.

PSUGP form (5949 Record); RC/V 22.16:

Provision PHV5/PHV6 to an empty Channel Group.

TKGRP form (5202 Record); RC/V 5.1:

Create a separate Trunk group for PFS, CV, and PV.

On the PFS Trunk group, Set TRKCLS=PFS,SERV TYPE=PFS.

On the CV Trunk group, Set TRKCLS=CV,SERV TYPE=CV.

On the PV Trunk group, Set TRKCLS=PV,SERV TYPE=PV.

TRUNK form (5204 Record); RC/V 5.5:

Create three separate Trunk members one for PFS, one for CV, and one for PV, and assign these trunk members to a channel group which is specified in the second bullet.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms

Form Name	Record Number	Division	Section	RC View
AUTO	5505	3	5E	14.1
BEARER NET	5935	5	3AM	33.15
CDMAOPT	5599	8	80	8.75
EQOIUP	5761	8	86	20.28
EQPSU	5741	8	22	22.2
IPROUT	5989	5	3P	33.3
MEASSUM	5563	3	5BG	13.9
PHGRP	5892	5	3AO	22.32
PKTGRP	5219	5	3Z	5.71
TKGRP	5202	3	2A	5.1
TRFOPARM	5593	3	5CI	8.76
TRUNK	5204	3	2C	5.5
UDPPATH	5891	5	3AN	33.24

AUTO form (5505 Record) - This form is used by both the Trunk Automatic Progression Testing program and manual testing initiated at the 5ESS Switch as a record of the outpulsing information necessary to reach certain test lines in the terminating office. Added the PVELBK value to the AUTOMATIC PROGRESSION TEST TYPE field. Modified data rule under the AUTOMATIC PROGRESSION TEST TYPE field.

BEARER NET form (5935 Record) - This form is used to insert, review, update, and delete bearer networks. Added the BEARER TYPE and SUPPORTED CODEC LIST fields. Added data rules to the CODEC and SILENCE SUP fields.

CDMAOPT form (5599 Record) - This form is used to control the parameters for the Echo Cancellation for CDMA (Code Division Multiple Access) feature. Added a data rule to the SUBNET ID field. Added the PFS OVERRIDE, PFS REV LEN ON, and PFS REV LEN OFF fields.

EQOIUP form (5761 Record) - This form is used to insert, review, update, and delete OFI (Optical Facility Interface) packs. Added a data rule to the BNID field.

EQPSU form (5741 Record) - This form is used to define the PSUs equipped in a 5ESS Switch. Modified a data rule under SG 0 TYPE.

IPROUT form (5989 Record) - This form provides the capability to provision an IP gateway between an external IP destination and a local IP interface. Modified a data rule under the DEST IP ADDRESS field.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added values (NPH, NPHSUP, RTP, PVTGTT, CVTGTT, PFSTGTT, and BNID) to the SECTION NAME field. Added values to the tables for START1COMP, START2COMP, and START3COMP. Also added or modified data rules under the SECTION NAME field.

PHGRP form (5892 Record) - This form allows the user to define and specify parameters for a group containing two PH (Protocol Handler). Added data rules under the APP TYPE and the UDP START PORT fields.

PKTGRP form (5219 Record) - This form is used to insert, update, review, and delete ATM or IP (Internet Protocol) packet groups. Added the TONE field and added a data rule to the BEARER NET ID field.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added the CV, PV, and PFS values to the TRKCLS table, added data rules to the TRKCLS field, added the CV, PV, and PFS values to the SERV TYPE table, added data rules to the SERV TYPE field, and added a data rule each to the PKT GRP and TRK DIR fields.

TRFOPARM form (5593 Record) - This form is used to provision parameters for Packet Frame Selector, Circuit Vocoder, and packet Vocoder. This is a new form that supports this feature.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch Office. Added data rule to TRKOE field.

UDPPATH form (5891 Record) - This form is used to insert, review, update, and delete the UDP Path used to identify the near and far IP addresses and UDP ports to be used for IP transport of SIP-T (SIP for Telephony) signaling messages. Changed the Valid Values for the key field (UDP PATH).

SEC. 8AU: EVRC-B (ENHANCED VARIABLE RATE CODER - VERSION B)

1. FEATURE DESCRIPTION

The EVRC-B feature (99-5E-8760) is made available with the 5E20(1) and later Software Releases.

EVRC-B is a new state of the art proprietary voice codec designed for CDMA (Code Division Multiple Access) 3G1X, which uses the same 9.6K rate-set as EVRC (Enhanced Variable Rate Coder). Compared to EVRC, EVRC-B provides a wide range of tradeoffs between voice quality and RF (Radio frequency) capacity. As capacity is added, voice quality degrades gradually instead of abruptly. Unlike SMV (Selectable Mode Vocoder), which had only three vocoder operating modes, EVRC-B has eight operating modes. The lower the mode, the higher the quality and the lower the RF capacity. The higher the mode, the lower the quality and the higher the RF capacity.

The type of EVRC-B that is used with this feature is the EVRC-B NB (Narrow Band):

1.1 EVRC-B NB (Narrow Band)

EVRC-B NB operates as a rate set 1 codec in the range of 300-3400 Hz and is intended to ultimately replace QC13K and EVRC. By allowing the network the ability to control the mode, it has the ability to tradeoff capacity for quality. It also has the ability to increase the voice capacity by 20-40%. As one dials for more capacity, voice quality is degraded gracefully rather than abruptly. Initial studies have shown EVRC-B NB in its highest quality mode has higher capacity than EVRC, and slightly better voice quality than EVRC.

2. FEATURE ASSIGNMENTS

In order to provision this feature, set the following fields accordingly:

EQPSUPH form (5742 Record); RC/V 22.4:

Provision new PHV5/PHV6; PHV5 CLI=20, PHV6 CLI=40.

PSUGP form (5949 Record); RC/V 22.16:

Provision PHV5/PHV6 to an empty Channel Group.

TKGRP form (5202 Record); RC/V 5.1:

Create a separate Trunk group for EVRCB/EVEVB

Set TRKCLS=SPCHNDLR and SERV TYPE=EVRCB/EVEVB.

TRUNK form (5204; RC/V 5.5:

Create EVRCB/EVEVB trunk member and assign this trunk member to a channel group that was earlier provisioned using the PSUGP form.

OFCOPT form (5509 Record); RC/V 8.1.

Set the SEC VOC ALG field to specify the default vocoder algorithm for the first data trunk group

member on a PHV5 where no voice trunk has been assigned on the same Channel Group.

ATSPARM (5053 Record); RC/V 14.10

Specify the parameter used to control an ATTS (Automatic Trunk Test Scheduler) test session.

ATSDATA form (5052 Record); RC/V 14.9:

Define the test session data to be invoked by the ATTS.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ATSDATA	5052	7	1C	14.9
MEASSUM	5563	3	5BG	13.9
OFCOPT	5509	3	5I	8.1
PSUGP	5949	5	3j	22.16
TKGRP	5202	3	2A	5.1

ATSDATA form (5052 Record) - This form is used to provide data that defines a test session in a certain test schedule to be invoked by ATTS (Automatic Trunk Testing Scheduler) for the purpose of performing automated trunk testing over a specific range of equipped members of a specified trunk group. Added the PVEBLK ALGOR field with associated data rule.

MEASSUM form (5563 Record) - This form is used to identify "components" selected for traffic measurements reported on the "30-minute" measurement report. Added the SHTG value to the SECTION NAME table. Also added a data rule to the SECTION NAME field.

OFCOPT form (5509 Record) - This form is used to supply various miscellaneous office options and parameters. Added the EVRCB and EVEVB values to the SOC VOC ALG table.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Modified a data rule under the SM field.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added the EVRCB and EVEVB values to the SERV TYPE table, added a data rule to the TRKCLS field, and added data rules to the SERV TYPE field.

SEC. 8AV: CSCP-SAS REPLACEMENT

1. FEATURE DESCRIPTION

The CSCP-SAS Replacement feature (99-5E-8314) is made available with the 5E16(2) and later Software Releases.

The CSCP (Common Service Circuit Platform)-SAS (Service Announcement Systems) hardware is intended to replace the TN1841 SASDSC/ TN1842 SASMEM circuit packs. The hardware is intended for the SAS, LDSF (Local Digital Services Function), and GDSF (Global Digital Services Function) functionalities of the 5ESS-2000 Switch. This feature provides a single hardware platform and the software needed for the SAS functionality. The SAS provides RA (Recorded Announcements), REC (Real Time Record), and various digit receivers. The existing SAS can be equipped in either a DSU2 (Digital Service Unit-Model 2) unit or a CSU (Combined Services Unit) shelf. The CSCP-SAS is a UN750 board code and is equipped only in an SM2K, SMPU5 or a DSU3.

The CSCP-SAS is functionally equivalent to the original SAS so the interfaces to the SM will not change

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDSC3	5852	8	54	19.18
EQRA	5821	8	35	19.10
EQSASP	5859	8	61	20.26

EQDSC3 form (5852 Record) - This form is used to define the DSC3 unit to provide the LDSUF (Local Digital Services Unit Function) to expand tone generators and decoders required for the expanded capacity of the SM-2000. Modified a data rule under the SM field.

EQRA form (5821 Record) - This form is used to define the RAF (Recorded Announcement Function) and SAS (Service Announcement System) services units. Added data rules to the UNIT TYPE field.

EQSASP form (5859 Record) - This form is used to define the equipage information for the SAS (Service Announcement System) memory packs and the cards within the memory pack. Added data rules to the CLI field.

SEC. 8AW: PF3 ONE GIG PACKET BRIDGE ENHANCEMENT

1. FEATURE DESCRIPTION

The PF3 One Gig Packet Bridge Enhancement feature (97-5E-8758) is made available with the 5E20(1) and later Software Releases.

This enhancement provides FPGA (Functional Programmable Gate Array) and firmware changes to modify the layer 2 switch to packet bridge interface on the PF3 (UN398) from 100 Mbps to 1 Gbps. This increase allows the population of a full shelf of 16 "high speed" PHs (Protocol Handlers). The current restriction allows only two "high speed" PHs per half shelf, limiting the total number to four per shelf.

SEC. 8AX: TRFO/RTO SUPPORT FOR EVRC-B

1. FEATURE DESCRIPTION

The TrFO/RTO (Transcoder Free Operation/Remote Transcoder Operation) Support for EVRC-B (Enhanced Variable Rate Codec-B) feature (99-5E-8760.A) is made available with the 5E21(1) and later Software Releases.

EVRC-B is a new vocoder technology that provides a scalable low complexity codec, which improves quality of audio services in an end-to-end application.

EVRC-B provides the service provider with the ability to increase capacity by trading off voice quality. This is done by introducing modes, which define specific average data rates for each specific mode. The higher the mode (eg. Mode 3 vs. mode 0), the higher the air interface capacity, and the lower the voice quality. One of the advantages of EVRC-B is that the voice quality degrades gradually rather than abruptly as we move from one mode to a higher mode.

2. FEATURE ASSIGNMENTS

There are provisioning impacts for this feature. For CV/PV (Circuit Vocoder/Packet Vocoder) Conversion, Growth and Degrowth procedures, please refer to *235-200-100 Flexent Autoplex Wireless Networks Applications OA&M Manual*.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ATSDATA	5052	7	1C	14.9
ATSPARM	5053	7	1D	14.10
BEARERNET	5935	5	3AM	33.15
PSUGP	5949	5	3j	22.16
TKGRP	5202	3	2A	5.1
TRFOPARM	5593	3	5CI	8.76

ATSDATA form (5052 Record) - This form is used to provide data that defines a test session in a certain test schedule to be invoked by ATTS (Automatic Trunk Testing Scheduler) for the purpose of performing automated trunk testing over a specific range of equipped members of a specified trunk group. Added a data rule to the PVELBK ALGOR field.

ATSPARM form (5053 Record) - This form is used to define parameters and options that control ATTS (Automatic Trunk Test Scheduler) test sessions on a per schedule basis. Added the PVELBK value to the TEST TYPE field that was previously mistakenly left out.

BEARERNET form (5935 Record) - This form is used to insert, review, update, and delete bearer networks. Added a new enumeration value (LUEVRCB0) to the CODEC field. Also modified description for the PKT INTERVAL field.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf. Added two new enumeration values (CVEVB and PVEVB) to the GRP TYPE field with associated data rules.

TKGRP form (5202 Record) - This form is used to define each Trunk Group in a 5ESS Switch. Added two new enumeration values (CVEVB and PVEVB) to the SERV TYPE field with associated data rules.

TRFOPARM form (5593 Record) - This form is used in offices equipped with IMLT-2 (Integrated Mechanized Loop Testing System Two) if those offices have the optional PGTC (Pair Gain Test Controller). The PGTC is the interface between the IMLT-2 and a USLC-96 (Universal SLC-96) and is only required if IMLT-2 will be used to test USLC-96. Added the DEFAULT MODE, DEPLOY EVRC-B, ORIG MOBILE SOC, EVRCB0 SILENCE SUP TH, and EVRCB0 SILENCE SUP INTERVAL fields with associated data rules.

SEC. 8AY: UDP PATH SET

1. FEATURE DESCRIPTION

The UDP (User Datagram Protocol) Path Set feature (99-5E-8830) is made available with the 5E21(1) and later Software Releases.

Currently, the association between Packet Group and Processor Group is one-to-one, and the association between Packet Group and UDP Path is also one-to-one. In other words, currently, if a certain UDP Path becomes unavailable, the associated Packet Group also becomes unavailable. With the introduction of the UDP PATH SET feature, a UDP PATH SET and the associated UDP Paths are allowed to span multiple Processor Groups leading to multiple available paths through the IP network. If one of the Processor Groups or one of the UDP Paths were to become unavailable, GQPH (Global Quad Protocol Handler) could avoid the point of failure and find another Processor Group and UDP Path to still complete the SIP (Session Initiated Protocol) call.

2. FEATURE ASSIGNMENTS

There are provisioning impacts for this feature. For CV/PV (Circuit Vocoder/Packet Vocoder) Conversion, Growth and Degrowth procedures, please refer to *235-200-100 Flexent Autoplex Wireless Networks Applications OA&M Manual*.

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
PKTGRP	5219	5	3Z	5.71
UDPPATH	5891	5	3AN	33.24
UDPPTSET	5879	5	3BA	33.25

PKTGRP form (5219 Record) - This form is used to insert, review, update, and delete IP packet groups. Replace the UDP PATH field name with UDP PATH SET NAME. Also added data rules to the UDP PATH SET NAME and the SIP-T GSM fields.

UDPPATH form (5891 Record) - This form is used to identify the UDP (User Data Protocol) Path in an office. Modified a data rule under the PCR GRP field.

UDPPTSET form (5879 Record) - This form is used to define UDP Path Sets that can associate at most 64 UDP paths. This is a new form that supports this feature.

SEC. 9: SM-2000 FEATURES

SEC. 9A: 5ESS-2000 SWITCH

1. FEATURE DESCRIPTION

1.1 SM-2000 Architecture

The feature number for the SM-2000 is 99-5E-1433. This feature is available for 5E9(2) and later Software Releases as part of SN-2000 (Service Net 2000).

The main characteristics of this platform are high bandwidth networking, distributed intelligence with unified control, and flexible upgrade and service provisioning. The designation "2000" indicates compatibility with SONET (Synchronous Optical NETwork), or SDH (Synchronous Digital Hierarchy), the international version of SONET.

The SM-2000 architecture introduces a higher capacity/faster TSI. This allows for more LUs (Line Units) to be connected to a single SM (e.g., from 8 LUs for an SM to 43 LUs for an SM-2000).

The SM-2000 is configured with and operates with existing SMs. Figure 1 provides a high level view of the SM-2000 architecture.

The SM-2000 has a fixed floor plan arrangement with the SMC (Switching Module Controller) numbered 000, and the LTPs (Line Trunk Peripherals) numbered 001 to 014, 100 to 104, and 200 to 208. An SM-2000 and an SM cannot be mixed in the same aisle as the cabinets are different heights. See Figure 2.

1.2 SM-2000 Supported Units

Following are the SM-2000 supported units for the domestic customer:

- ASU
- DCTU
- DLTU2
- DNU-S
- DSU3-DSC3/LDSF
- LU3
- MMSU
- PGTC
- TRCU2
- Analog Trunk (5E10)
- GDSC3 (5E10)
- RAF (5E10)

These peripheral units can mount in LTP cabinets 001 to 014, 100 to 104, or 200 to 208. They cannot be equipped in the SMC cabinet (bay 000) of an SM-2000. As shown in Figure 2, an SM-2000 consists of an SMC cabinet and a maximum of 28 LTPs. As shown in Figure 3, the SM-2000 SMC cabinet introduced the following new units:

- Modular Fuse Filter Unit
- TSIU4 (Time Slot Interchange Unit Model 4)
- Fan Unit

- SMPU4 (Switching Module Processor Unit Model 4)
- DSU3 (Digital Services Unit Model 3)

Provided below is an overview of each of these new units (excluding the Fan and Modular Fuse Filter units). Also discussed are associated new features including the QLPS (Quad Link Packet Switch), the optically remote EXM-2000 (EXtended SM-2000), DNUS (Digital Networking Unit - SONET), and related support peripherals. Figure 6 provides a basic data flow of the translations required for the SM-2000 and the EXM-2000. The respective sections below provide reference for more detailed information.

1.3 TSIU4 (Time Slot Interchange Unit Model 4)

The TSI in an SM has a fixed allocation of 512 peripheral-side TSs and 512 network-side TSs. When the number of peripheral-side time slots is equal to the number of network-side time slots, the TSI is described as a square TSI. The SM is equipped with, and engineered as, a square TSI that allows for square and non-square engineering.

The TSI section of TSIU4 is divided into sections, called "Slices" (i.e., TSIS). Each module controller can be equipped with a minimum of 1 and a maximum of 10 TSIS circuit packs. Each TSIS can process 3,072 time slots. Refer to the EQTSI form (5850 Record), Division 8, Section 52, and the EQDI form (5849 Record), Division 8, Section 51 for more information.

1.4 Time Slot Interchange

The TSI provides a maximum of 40 TSI ports of 768 TS each. Not all of these time slots may be used due to constraints on the link interfaces. All interfaces to the TSI are via the TSI links. No special "side ports" such as the LDSU Bus reside in the existing TSI. All TSI links are treated identically by the TSI hardware, with the exception of three of the TSI links on the first TSIS (TSI Slice) circuit pack. These TSI ports receive special attention for the extraction and insertion of the CTSs (Control Time Slots). These TSI links are assigned as the primary links to the CM (Communications Module) and the MCP (Messaging Control and Pump) link to the SMP. The internal organization of the TSI breaks down into the TSICOM (TSI COMmon) circuit pack and up to 10 TSIS circuit packs. The TSICOM provides the control interface to the SMP and is responsible for the synchronization timing for the SM. Each TSIS circuit pack can terminate 4 TSI ports. The modular construction of the TSI permits the TSI to be partially equipped initially and later expanded (by adding TSISs) when the need for additional time slots occurs. The three types of hardware which the TSI Links interface to are:

- network side interfaces
- peripheral side interfaces
- the SMP

At least one TSIS board is required for each SM-2000. Each TSI board equipped must be grown sequentially.

1.5 Data Expansion (DX)

The DX (Data EXpansion), the equivalent of the DI for the SM-2000, connects Peripheral Units, terminates 24 PIDBs, and provides a connection to the TSI. Unlike the DI boards, the DX is a standard board which inserts through the front of the TSI unit. These boards are part of the TSI failure group and are not cross-coupled to the two sides of the TSI. A maximum of six DX boards may be equipped in each module controller, providing

a total of 144 (6 x 24) duplicated data ports (PIDB terminations) per SM.

1.6 SMP40 Processor/SMPU4 Unit

The SMP40 Processor (Switching Module Processor MC68040), located in the SMPU4 Unit, is the primary intelligence of an SM. It controls the TSIU (Time slot Interchange Unit), the peripheral units, and all communications with the rest of the 5ESS-2000 Switch. It is equipped to accommodate the expanded capacity provided by the SM-2000 configuration. It is a two-shelf unit consisting of two MCs (Module Controllers)—MC 0 and MC 1 (also known as Side 0/1 or Service Group 0/1)—both located in the SMC cabinet. The circuit packs equipped in MC 0 are duplicated in MC 1. The module controllers operate in an active/standby mode.

The software designation for the SM-2000 is "SM2000". Switching modules are defined on the EQIM form (5700 Record). The SM USAGE on the EQIM form is used to define whether the SM or SM-2000 is a local, host, remote, optical, or two-mile optically remote SM. An optically remote SM-2000 is referred to as "EXM-2000", but its usage is defined on the EQIM form as "ORM" the same as defining an optically remote SM. With SM-2000, there are now four 5ESS software configurations: Basic, Standard, Loaded and SM-2000, also defined on the EQIM form.

The memory boards for the SM-2000 SMP40 are 32 MB each, with space for 4 boards in the unit (and room for growth). The APC (Application Controller) provides the Sub Unit Interface Bus and the Serial TSI Control Link. This APC board also interfaces to a TSI link (the MCP link) and distributes its data to the MHs (Message Handlers). Since the TSI, APC, and MHs on a given side of the SMP are always in the same failure group, there is no need to cross couple between them. Refer to the EQIM form (5700 Record), Division 8, Section 2, for all SMPU translation information.

1.7 Digital Services Circuit 3 (DSC3)

The DSC3 is a new LDSUF (Local Digital Service Unit Function) equipped in the SM-2000 configuration to provide more tone generators and decoders. This is accomplished by equipping several service groups of the DSC3 in the SM-2000, providing approximately four times more service circuits. Each DSC3 circuit pack comprises a service group and has four duplex PIDBs for a total of 128 time slots of data and a duplex PICB for control. Comparably, the DSC handles 32 time slots.

The growth of DSC3s may be done individually. A minimum configuration consists of 2 DSC3s. The DSU3 shelf can support up to 18 DSC3s. The DSC3 uses PIDBs that occupy the same time slots as do existing peripheral time slots. Each circuit pack is powered separately via an on-board power converter. The DSC3 unit does not support DSC circuit packs.

The DSC3 processes the incoming data from the four PIDBs. The control interface from the SMP is provided by the PICB.

Refer to the EQDSC3 form (5852 Record), Division 8, Section 54.

1.8 Quad-Link Packet Switch (QLPS)

An SM communicates with the AM (Administrative Module), the CMP (Communications Module Processor) and other SMs through the CTS (Control Time Slots). In an SM-2000 the messaging capacity of the CTSs may not be sufficient to handle all of the messages between the SM-2000 and the AM, CMP, SMs, and other SM-2000s. If the CTSs to an SM-2000 are not sufficient to handle all message traffic, an optional QLPS network may be equipped in the 5ESS-2000 Switch. Up to 64 SM-2000s can be defined per QLPS network. Figure 4 provides a sample QLPS-SM-2000 configuration. For more information on QLPS, see Division 2, Section 9D and Division 3, Section 5AT.

1.9 Digital Networking Unit - SONET (DNU-S)

The Digital Networking Unit - SONET is a new SM-2000 hardware peripheral designed to take advantage of the large time slot capacity of the SM-2000. It resides in the 5ESS-2000 and is controlled entirely from the 5ESS-2000 switch.

The primary function of the DNU-S is to terminate SONET facilities and to convert data and signaling information between the SONET format and the SM-2000 PCT (Peripheral Control and Timing) link format. Figure 5 provides an illustration of the SM-2000 links to the DNU-S. For more information on DNU-S, see Division 2, Section 9C.

1.10 EXM-2000

The EXM-2000 (EXtended SM-2000), is an optically remoted SM-2000 that provides the capability to deliver SM-2000 functionality at a remote location, similar to the functionality provided by the ORM (Optically Remote Module) for the SM. It is remoted from a CM2 using QLIs (Quad Link Interfaces), NCT (Network Control and Timing) link-formatted fiber optics, and existing TRCU2 (Transmission Rate Converter Unit Model 2) equipment. Consistent with Release 1 of SM-2000, EXM-2000 supports analog lines (LU3), digital trunks (DLTU2 for low speed interfaces, and DNU-S for SONET high speed interface), and DSC3. Metallic testing, scanning and distribution functions are provided by the MMSU/DCTU systems which are needed for the normal operation of the EXM-2000. If an EXM-2000 is isolated from the host switch, Stand Alone call processing functionality is an option. An EXM-2000 accommodates up to 6 TRCU2 shelves. See the EQTMSLINK form (5851 Record), Division 8, Section 53.

1.11 NCT/NCT2 Links

An NCT link is used to connect an SM and the EXM-2000 to the CM2. The NCT2 (Network Control and Timing Link 2) link is used to connect an SM-2000 to the CM2 (CM1 is not allowed). An NCT2 link is a 64 MB optical link that carries 512 time slots between an SM-2000 and the CM2. The number of NCT2 links between an SM-2000 and the CM2 can be engineered, but are always engineered in pairs. A minimum of two duplicated NCT2 links between an SM-2000 and the CM2 is required. An NCT2 link is also used to terminate a QLI2 (Quad Link Interface Model 2) in the CM2. Refer to the EQNLI form (5853 Record), Division 8, Section 55, for translation information.

1.12 SM-2000 Capacities

The following summarize the capacities for the hardware components.

- The TSI may grow to a maximum size of one TSICOM and 10 TSI Slices.
- Four CI slots allow a maximum of 92 PICBs in the SM.
- Six DX slots allow a maximum of 144 PIDBs in the SM.
- Four memory slots allow a maximum of 128 MB RAM in the SM with 32 Mbyte boards.
- Two MH slots are allowed.

2. TRANSLATION REQUIREMENTS

New And Modified ODA Forms				
Form Name	Record	Division	Section	RC View

	Number			
ACOFRF	5968	6	11	12.6
EMRNM	5108	3	1H	4.9
EQCI	5848	8	50	18.2
EQCMTRCU	5812	8	32	17.18
EQCORE	5701	8	3	17.1
EQDCLP	5810	8	30	20.6
EQDCTU	5751	8	26	19.9
EQDI	5849	8	51	18.3
EQDSC3	5852	8	54	19.18
EQDU/ EQDUP	5730	8	17	19.4 20.4
EQGDSC3	5860	8	63	19.18
EQIM	5700	8	2	18.1
EQLU	5710	8	9	19.1
EQLUP	5711	8	10	20.1
EQMSU/ EQMMSP	5750	8	25	20.7 20.22
EQNLI	5853	8	55	18.16
EQPMU	5752	8	27	20.9
EQRA	5821	8	35	19.10
EQTMSLINK	5851	8	53	17.1
EQTU	5720	8	13	19.2
EQTSI	5850	8	52	18.17
LINE	5109	3	11	1.5
MDFTA	5502	3	5B	14.6
MEASLU	5539	3	5AM	13.6
MLHG	5110	3	1J	3.5
MLHLN	5111	5	1K	1.6
PFASFG	5609	4	10C	1.28
SREINC	5547	3	5AW	8.40
TKGRP	5200	3	2A	5.1

ACOFRF form (5968 Record) - The ISDN Control of Facilities Feature Attributes form was modified for the expansion of the Equipment Number format (from 0 - 7 to 000 - 042) for the LEN.

EMRNM form (5108 Record) - The Emergency TN (Remote Site/Local SM) form is used to define Remote Site or Local SM Stand Alone emergency Telephone Numbers. A data rule was added for an SM with more than 10 emergency TNs.

EQCI form (5848 Record) - The Equipment Control Interface form is used to define PICB assignments. The number of CIs are increased from two available in the SM to four available in the SM-2000. Each CI provides 23 PICBs for a total of 92 per SM-2000.

EQCMTRCU form (5812 Record) - The Equipment Transmission Rate Converter Unit form is used to define the physical location of the TRCUs for up to two ORMs. An SM field was added to define either a TRCU for the SM or a TRCU for the SM-2000.

EQCORE form (5701 Record) - The Core Units form was modified to add data rules for the CM VINTAGE field for SM-2000.

EQDCLP form (5810 Record) - The Digital Carrier Line Unit Pack Equipage form is used to terminate remote terminals. A FACILITY ID field was added to (optionally) provide a description for these units.

EQDCTU form (5751 Record) - The Directly Connected Test Unit form is used to provide metallic access testing capabilities. The EQLBAY field was expanded to define either an SM or an SM-2000.

EQDI form (5740 Record) - The Data Interface form is used to define additional PIDB assignments. The number of DIs are increased from two to six. Each DI provides 24 PIDBs for a total of 144 per SM-2000.

EQDSC3 form (5852 Record) - The Local Digital Service Circuit 3 form is used to define the DSC3 unit for the SM-2000.

EQDU/EQDUP (5730 Record) - The Digital Line/Trunk Unit/Digital Line/Trunk Unit Pack Equipage forms were modified to define an SM-2000.

EQGDSC3 form (5860 Record) - The Global Digital Service Circuit 3 form is used to define the position of the DSC3 on the DSU3 for the SM-2000.

EQIM form (5700 Record) - The Switching Module Equipage form is used to define SM assignments. The SMPU MODEL NUMBER field was changed to UNIT TYPE and an enumeration added to define the SM-2000. New CLI value fields were added for MH, TSICOM, TSIS, and memory boards for the SM-2000 and SM Memory Configuration values were added for SM-2000.

EQLU form (5710 Record) - The Line Unit number was expanded to define up to 43 line units. The CONTROL GROUP, CONTROL PORT, DATA GROUP, DATA PORT and EQUIPMENT BAY fields were expanded for SM-2000.

EQLUP form (5711 Record) - The Line Unit number was expanded to define up to 43 line units.

EQMSU/EQMMSP form (5750 Record) - The Metallic Service Unit Equipage form was modified to expand the CONTROL GROUP and EQUIPMENT BAY fields for SM-2000.

EQNLI form (5853 Record) - The Equipment Network Link Interface Growth (SM-2000) form is used to define optical link interfaces to the TSI (Time Slot Interchange) link.

EQPMU form, (5752 Record) - The Precision Measurement Unit form was modified to add the LO DPN field. A data rule for ORMs was added.

EQRA form, (5821 Record) - The Recorded Announcement Function form is used to define the RAF unit and the SAS (Service Announcement System) services unit. Capability to specify SM-2000 was added.

EQTMSLINK form (5851 Record) - The Time Multiplexed Switch Link Equipage form replaces the EQORMLINK form (5813 Record) for 5E9(2) and later for assignment of the ORM (Optical Remote Module) and EXM-2000 TMS link interfaces and associated TRCUs.

EQTU form (5720 Record) - The Trunk Unit Equipage form is used to define Trunk Unit Assignments. Capability to specify SM-2000 was added.

EQTSI form (5850 Record) - The Equipment Time Slot Interchange form was implemented to define the TSI unit to provide the duplex interface to a pair of NLIs and/or a simplex interface to a DX.

LINE form (5109 Record) - The Line form was modified to accommodate the expansion of the Equipment Number format (from 0 - 7 to 000 - 042) for the LEN.

MDFTA form (5502 Record) - The Main Distributing Frame Test Trunk Assignment Record form was modified for the expansion of the Equipment Number format (from 0 - 7 to 000 - 042) for the LEN.

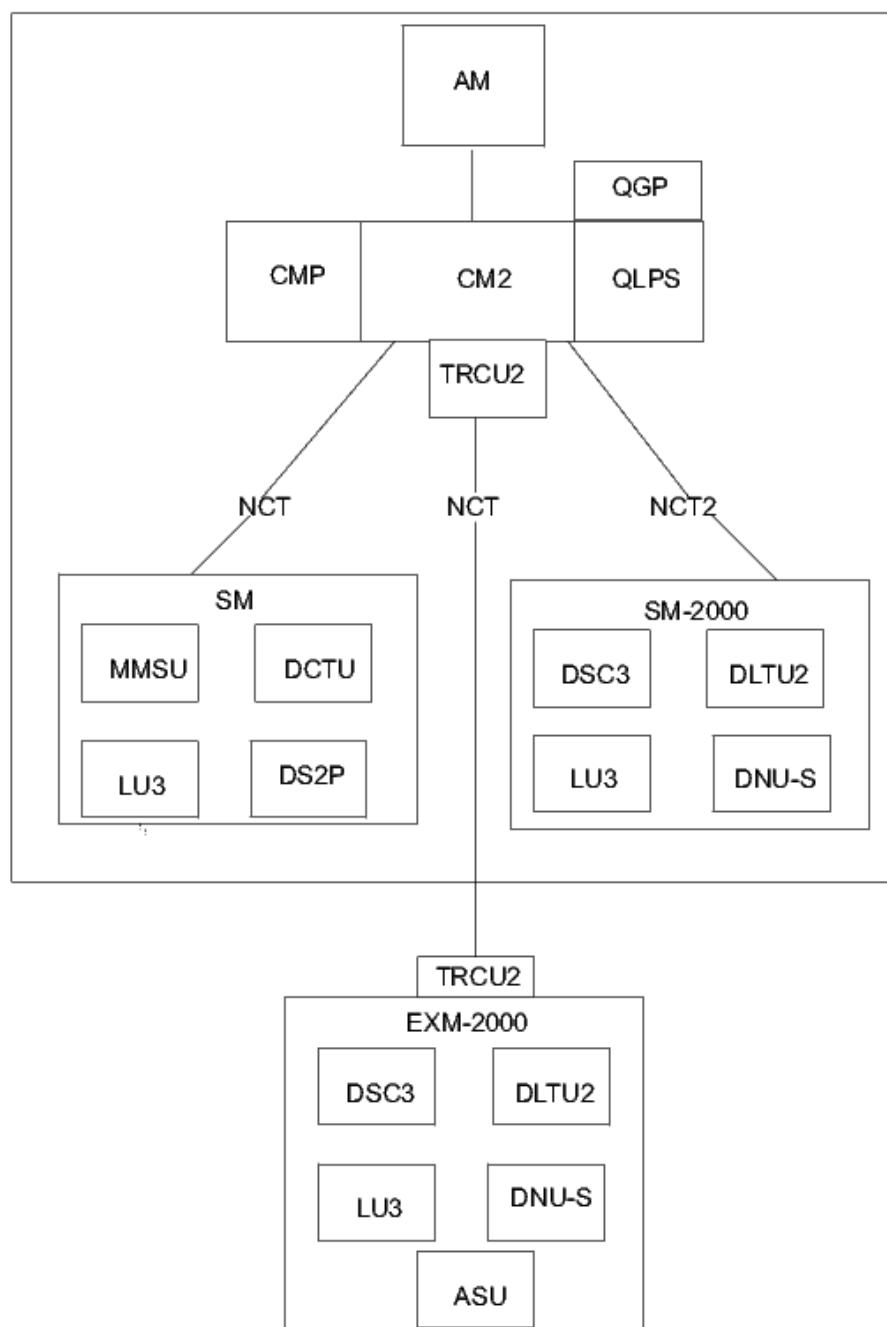
MEASLU form (5539 Record) - The LU/(R)ISLU Measurements form supports the Load Administration Measurements feature. The UNIT N0 field was expanded to accept up to 43 units.

MLHG form (5110 Record) - The Multi-Line Hunt Group form was modified to add data rules to restrict the QFEATURE size, except for SM-2000.

MLHLN form (5111 Record) - The Multi-Line Hunt Group Member form was modified for the expansion of the Equipment Number format (from 0 - 7 to 000 - 042) for the LEN.

PFAFG form (5609 Record) - The Simulated Facility Group Form is used to define SFGs which allow controlling access to physical groups such as lines, trunks, and special circuits. Added data rule to restrict QFEATURE size, except for SM-2000.

TKGRP form (5200 Record) - The Trunk Group form was modified to add data rules to restrict the QFEATURE size, except for SM-2000.



AM = Administrative Module

ASU = Alarm Status Unit

CM2 = Communications Module Model 2

CMP = Communication Module Processor

DCTU = Directly Connected Test Unit

DLTU = Digital Line/Trunk Unit Model 2

DNU-S = Digital Network Unit - SONET

DS2P = Digital Service Unit 2 Pack

DSC3 = Digital Service Circuit 3

LU3 = Line Unit Model 3

MMSU = Modular Metallic Service Unit

NCT = Network Control and Timing Link

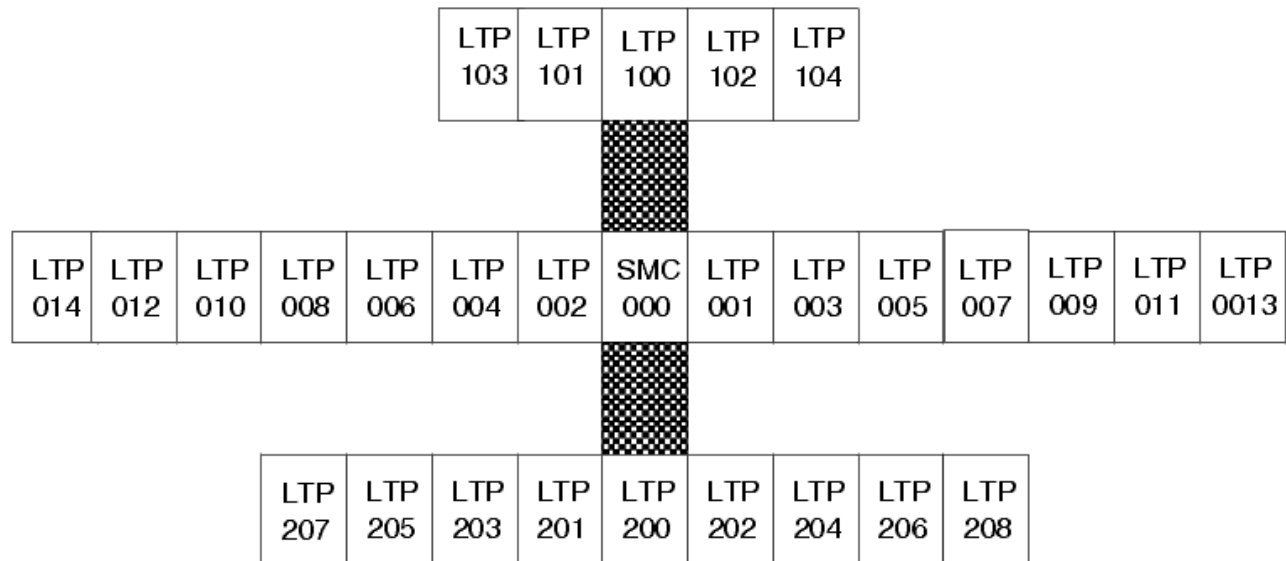
NCT2 = Network Control and Timing Link - Version 2

QGP = QLPS Gateway Processor

QLPS = Quad Link Packet Switch

TRCU2 = Transmission Rate Converter Unit Model 2

Figure 1 SM-2000 HIGH LEVEL ARCHITECTURE



SMC=SWITCHING MODULE CONTROLLER CABINET

LTP=LINE TRUNK PERIPHERAL CABINETS (28 MAXIMUM)

Figure 2 SM-2000 FLOOR PLAN (MAXIMUM)

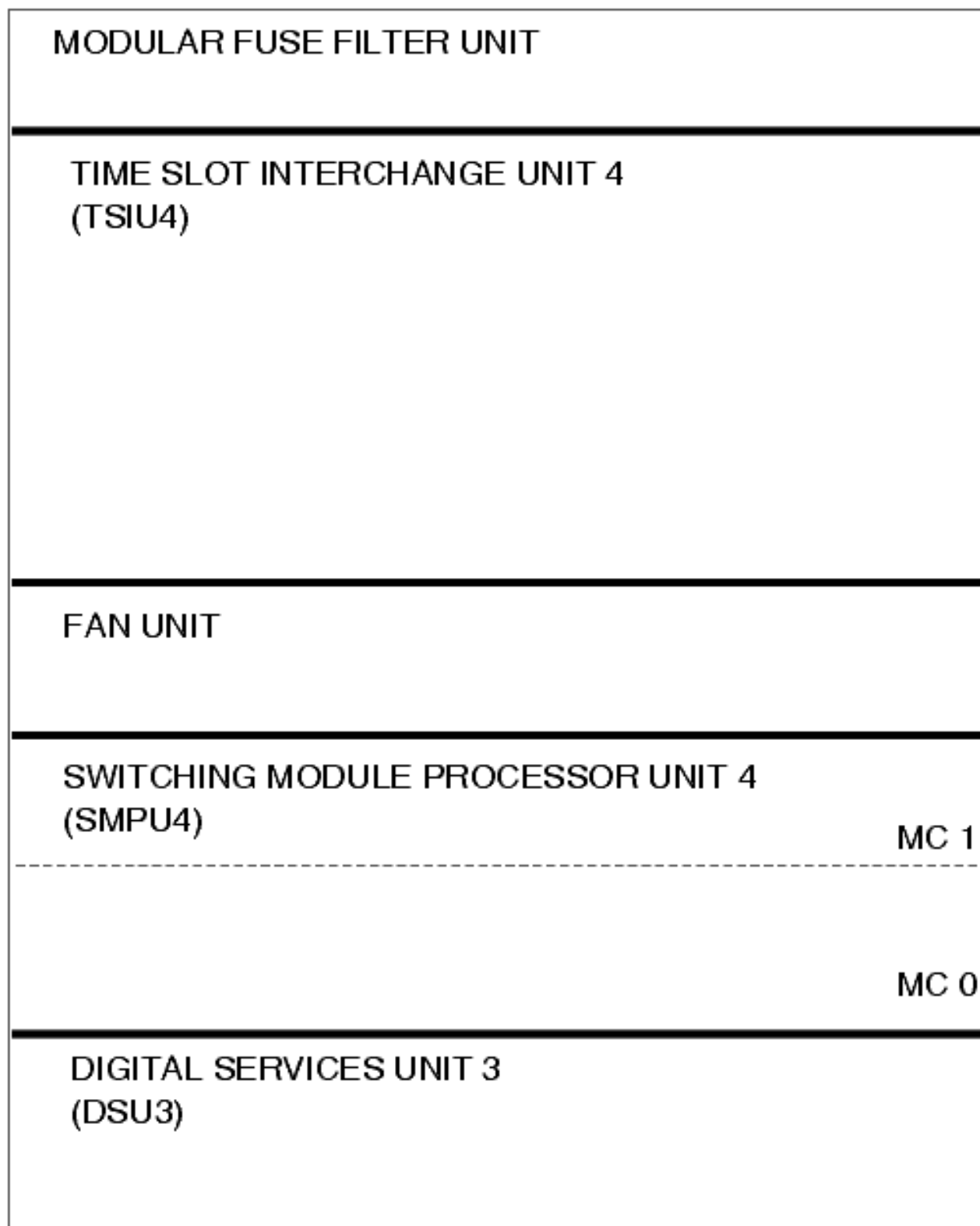


Figure 3 SM-2000 SMC CABINET UNIT

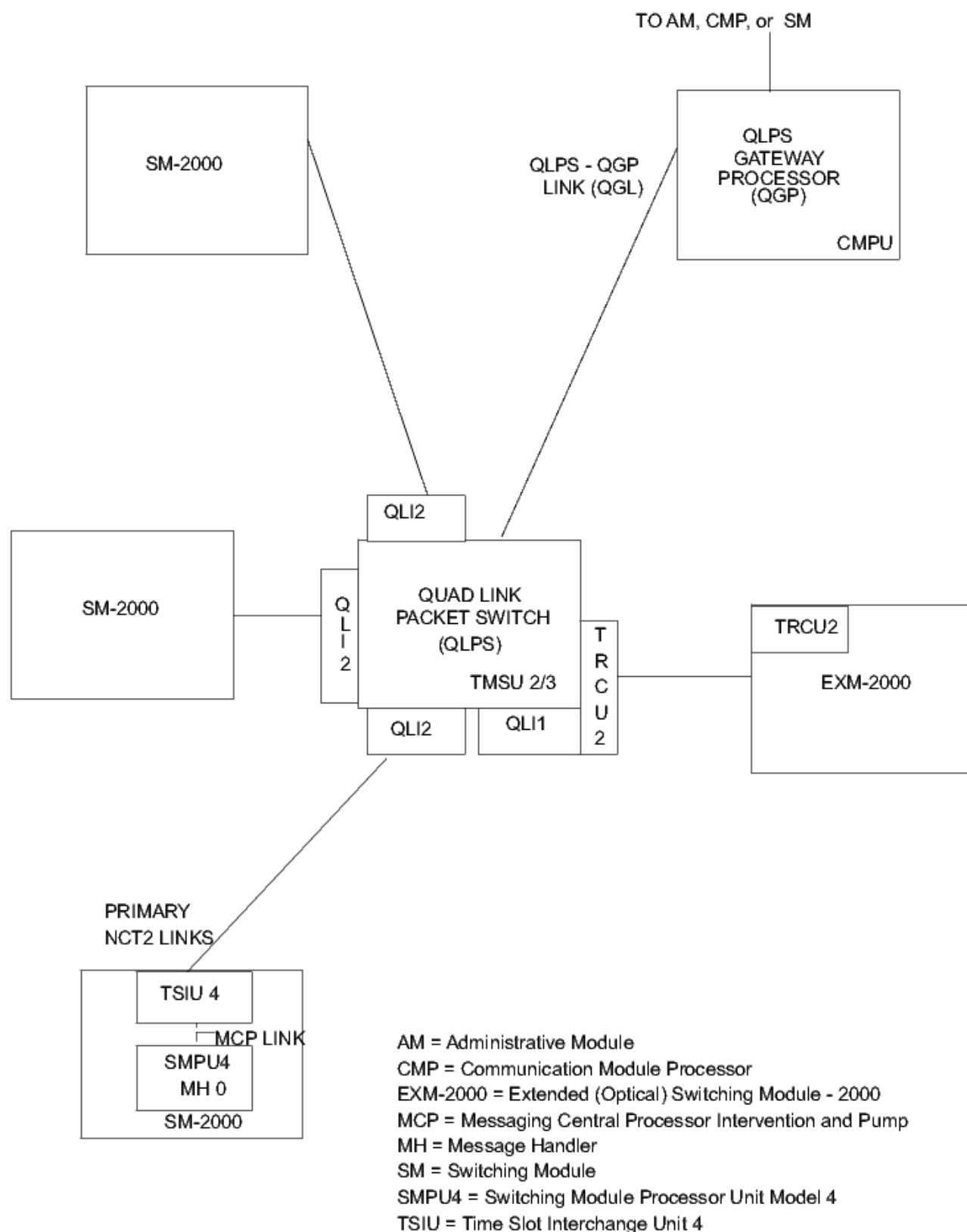
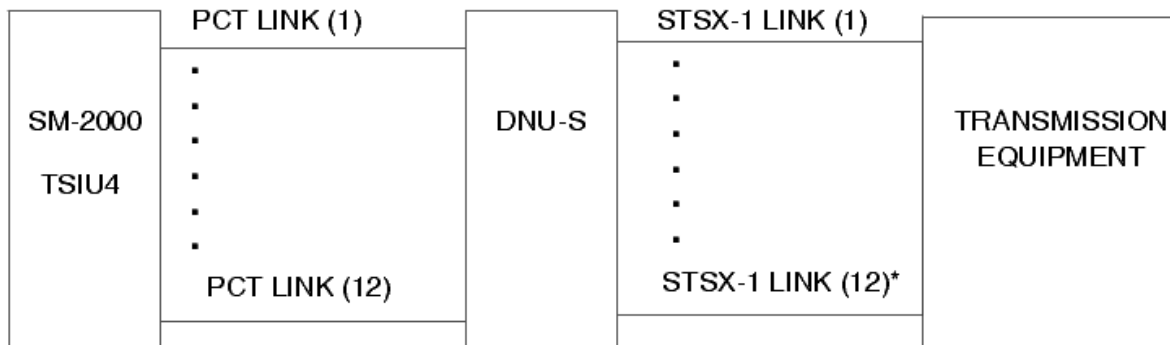


Figure 4 SM-2000 QUAD LINK PACKET SWITCH NETWORK

*NOTE: If a second DNU-S is added, 6 additional STSX-1 Links can be added for a maximum of 18.

Figure 5 SM-2000 LINKS TO THE DNU-S (MAXIMUM)

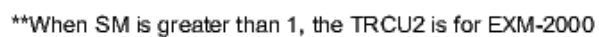


Figure 6 SM-2000 DATA FLOW WITH EXM-2000

SEC. 9B: INTEGRATED DIGITAL SERVICES NETWORK ON SM-2000

1. FEATURE DESCRIPTION

The Integrated Digital Services Network on SM-2000 feature (AT&T feature number 99-5E-1590) is available with the 5E10 and later software release.

This feature supports all operational capabilities associated with the Integrated ISDN (Services Digital Network) feature set on the SM-2000. Full ISDN functionality including BRI (Basic Rate Interface), PRI (Primary Rate Interface), and Packet support is provided. All Custom and National ISDN feature offerings are available on the SM-2000. This includes the wideband switching capabilities provided by the Fractional DS1 Switching via PRI Access feature (AT&T feature number 99-5E-1336).

2. FEATURE ASSIGNMENT

The operational characteristics of the ISDN features found on the SM do not change when they are migrated to the SM-2000 from a user's perspective.

The customer continues to be able to define BRI, PRI and Packet interfaces, as well as assign, update and delete ISDN features and capabilities to those interfaces through Recent Change.

The Integrated Digital Services Network on SM-2000 feature is dependent of the Switching Module - 2000 (SM-2000), Release 1 feature (AT&T feature number 99-5E-1427).

This feature requires the presence of the ISDN related hardware found on today's SM (ISLU, PSU...) as needed.

PRI and Packet trunking capabilities are available on the DNU-S (Digital Networking Unit - SONET) per this feature.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSLAP	5963	6	6a	24.7
EQDUP	5730	8	17	20.4
EQIM	5700-1/2	8	2	18.1
EQPSU	5741	8	22	22.2
EQVT	5858	8	60	20.24
MEASLU	5539	3	5am	13.6
MLHG	5110	3	1j	3.5
NAILUP	5207	3	2f	7.11
PRIGRP	5211	3	2m	5.2
PSCUG	5924	5	3e	23.10
PSUGP	5949	5	3j	22.16
RDTAPORT	5911A/B	5	1l	22.17
SREINCR	5547	3	5aw	8.4
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5
XAT	5909-1/2	5	1j	23.40

DSL form (5841 Record) - The 5907 Record series has two major purposes.

First, it is used to define the attributes of a DSL. A DSL is also referred to as a BRI (Basic Rate Interface). Second, it is used to define the attributes of the B1 and/or B2 channel of the DSL. if either or both of these channels are to be used on a Permanent Packet basis (dedicated to X.25 Packet Switching).

Changed Data Rule for the MTERM field so that it applies to 5E9(1) through 5E9(2).

DSLAP form (5963 Record) - This is used to define the data links connecting an AP (Application Processor) and the 5ESS Switch. Each AP is connected to one ISDN SM with DSL data links.

Increased the number of links from 10 to 30.

A data rule was added to the General Description and the DATA LINK field.

EQCORE form (5701 Record) - The 5701 Record is used to define Core Unit Assignments in a 5ESS Switch office. It is intended to be used as an Office Record for those 5ESS Switch offices that are not utilizing an Operational Support System (e.g., RMAS) for generation of Office Records.

A data rule was added to the VCDX OFFICE field.

EQDUP form (5730 Record) - The 5730 Record was split into two records: 5730-1 for the EQDU form and 5730-2 for the EQDUP form. These forms are used to define equipment location information for the Digital Line/Trunk Units.

A data rule was added to the SM field.

EQIM form (5700-1/2 Record) - The 5700-1/2 Records are used to define Switching Module Equipage Assignments.

A data rule was added to UNIT TYPE and PI SG0 & PI SG1 TYPE fields.

EQPSU form (5741 Record) - The Packet Switching Unit Equipage Record is used to define the PSUs equipped in a 5ESS Switch. It is also used to reserve a pool of dedicated peripheral timeslots for the exclusive use of the PSU equipped in a 5ESS Switch.

Data rules were added to the PSU TYPE, and DI1 PSU TSIU TIMESLOTS fields.

EQVT form (5858 Record) - The Digital Networking Unit SONET Virtual Tributary (SM-2000) form is used for the equipage of the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S. This form supports the DNU-S feature.

Added data rules to ZCS and VT EQSTAT fields.

MEASLU form (5539 Record) - This form supports the LU/ISLU Load Administration Measurements feature.

A data rule was added to the UNIT TYPE field.

MLHG form (5110 Record) - This form is used to define Multi-Line Hunt Group information.

Added data rules to the MLHG field.

NAILUP form (5207 Record) - The NAILUP form contains data to directly link ("nailup") two ports.

A data rule was added to the C OE field.

PRIGRP form (5211 Record) - This record is available for the 5E9(1) and later Software Releases. Prior to 5E9(1), the D-channel signaling entity only assigns calls to channels on the DS1 facility containing that D-channel. This is called FAS (Facility Associated Signaling) which supports 1 D-channel and up to 23 B-channels.

The 5E9(1) and later Software Releases continue to support this configuration (referred to as "AT&T Custom") which is CCITT and ANSI compatible but not compatible with Bellcore's expansion of these standards.

For 5E9(1) and later, National ISDN PRI is available which is compatible with Bellcore's current technical requirements (i.e., TR1268).

The DLTU, DFI and FAC fields are replaced with the EQUIPMENT field. This modification allows the assignment of DNU-S facilities to a PRI group.

The valid entries for the PRI GROUP field were changed.

PSCUG form (5924 Record) - The PSCUG form is used to assign DSLs (Digital Subscriber Lines), that have Packet Switching, to a Closed User Group.

A data rule is added to the PKT TN field.

PSUGP form (5949 Record) - This form is used to specify the PH (Protocol Handler) type for a defined logical channel group on a PSU (Packet Switching Unit) shelf.

Data rules are added to the PH TYPE, and PSU fields.

RDTAPORT form (5911A/B Record) - This form is used to set up the data for the RPA (Remote Protocol Access) feature at the Access Switch. The Access Switch is defined as a switch that is maintained by a CSC (Customer Service Center). The CSC is a work center where protocol analysis is done.

The valid entries and the data rules for the RDTA OE field were changed to include DNU-S OEs.

SREINCR form (5547 Record) - The SREINCR form is implemented to facilitate efficient utilization of memory per SM or SM-2000. A software resource is defined as a dynamic ODD (Office Dependent Data) data structure, or data block, required to provide the necessary memory to support various service requirements.

New entries were added to the SOFTWARE RESOURCE field.

Data rules were added to the SOFTWARE RESOURCE and INCREMENTAL VALUE fields.

TKGRP form (5202 Record) - The 5202 Records are used to define each Trunk Group in a 5ESS Switch. The trunk information that is entered on these records is information that is common to the entire group. Trunk information for an individual member is entered on a TRUNK form (5204 Record).

Data rules were added to the DATA RATE, TRKCLS, TGN, RDTA GRP, and WB RATE fields.

TRUNK form (5204 Record) - The trunk form defines each member of a Trunk Group in a 5ESS-2000 Switch Office. The NEN for digital trunks is assigned on this form.

Valid entries to the PRI GROUP field were changed.

Data rules were added to the PRI GROUP, NEN, MEMB, and DEN fields.

XAT form (5909-1/2 Record) - This form is used to provision T1 facilities (digital lines and trunks) with X.25 Packet Switching services on a subscription basis using Q.931 signaling.

The DEN field is replaced with the OE field to support the DNU-S capability.

Data rules were added to the OE, PKT TN, and RATE fields.

4. GLOSSARY

Acronyms used in this section are expanded below.

AP	Application Processor
CSC	Customer Service Center
DFI	Digital Facility Interface
DLTU	Digital Line And Trunk Unit
DNUS	Digital Networking Unit - SONET
DSL	Digital Subscriber Line
FAS	Facility Associated Signaling
ISDN	Integrated Services Digital Network
ODA	Office Data Assembler
ODD	Office Dependent Data
PH	Protocol Handler
PRI	Primary Rate Interface
PSU	Packet Switching Unit
RC	Recent Change Subsystem
RPA	Remote Protocol Access
VT	Virtual Tributary

SEC. 9C: DIGITAL NETWORKING UNIT - SONET

1. FEATURE DESCRIPTION

DNU-S (Digital Networking Unit - SONET) is available for 5E9(2) and later. The feature number for this capability is 99-5E-1427. A glossary of acronyms is provided at the end of this section.

The primary function of the DNU-S is to terminate SONET facilities to an SM-2000 and to convert data and signaling information between the SONET format and the SM-2000 PCT (Peripheral Control and Timing) link format. All data control information is passed between the DNU-S and the SM-2000 over PCT links. A PCT link is an optical TDM (Time Division Multiplexed) serial interface.

The DNU-S is a peripheral unit that may only reside on an SM-2000. It is a high capacity digital trunk termination vehicle which can support up to 8064 trunks via a SONET STS-1 interface. The STS-1 (Synchronous Transport Signal) is the basic SONET building block and implies a rate and a format. It is not a transmission medium.

The DNU-S interface to the SM-2000 TSI (Time Slot Interchange) is via optical PCT links. These links are 65.536 Mb/s and are used instead of the PIDB (Peripheral Interface Data Block) and the PICB (Peripheral Interface Control Block) interfaces currently utilized by SM-2000 peripherals.

The DNU-S interface to the network is via electrical STS-1 (STSX-1) links. (STSX-1 is defined as the STS-1 electrical interface.) This interface is a standard SONET interface and is compatible with transmission equipment that supports the STS-1 interface, including the DACS IV-2000 (Digital Access and Cross Connect System IV-2000) and the DDM-2000 (Dual Digital Multiplexer - 2000).

Initially, the DNU-S is capable of supporting 12 STSX-1 high speed trunk interfaces. Each STSX-1 can support 672 DS0s (Digital Signal Level 0).

DNU-S has two data groups. One data group is grown in first. The second group is only grown when more capacity is needed.

The STSX-1 interface is made up of the following layers:

- STE (SONET Termination Equipment) facility which combines the section and line layers. The STE represents the termination of the Section and Line on the DNU-S. The STSX-1 interface carries a single STS-1.
- STS-1 represents the termination of the STS-1 path on the DNU-S. The STS-1 carries up to 28 VT1.5s (Virtual Tributaries). VT1.5 is the Virtual Tributary version that is supported by DNU-S.
- VT1.5 is a 1.728 Mb/s facility which carries one DS1. The VT1.5 tributaries consist of asynchronous mapped DS1s in a floating mode of operation. The TMUX (Transmission Multiplexer) circuit pack maps the 28 possible VT entries into a SONET STS1 signal format of seven groups of four. The 28 VT entries in this field are organized into those groups. See the VT field on the EQVT form in Division 8, Section 60, for provisioning the VT1.5 tributaries.
- DS1S (Digital Signal Level 1 SONET) is similar to the existing DS1 facilities. It is a 1.544 Mb/s facility which carries up to 24 DS0s (64Kb/s).

The STE, STS-1, VT1.5 and DS1 can each be considered a separate "facility". Each of these facilities can have failures and thus have performance monitoring and alarms associated with them.

See Figure 1 for a simplified block diagram of DNU-S in relationship to 5ESS-2000 Switch components. See Figures 2 and 3 for simplified block diagrams of the DNU-S architecture.

The DNU-S architecture consists of the following:

- SLI (STS-1 Link Interface) - Each SLI terminates one STSX-1 link. The SLI paddle board is a passive circuit containing a splitting transformer for coupling the received STSX-1 signal to two SFI circuit packs and another transformer that couples the STSX-1 transmit signal from two SFIs to the facility.
- SFI (STSX-1 Facility Interface) - Two SFI packs are equipped in each DNU-S data group, which are designated as "mates". Each SFI pack pair implements a duplicated electrical interface for six STSX-1 links, directing each of the six STSX-1 links to either its service TMUX or the spare TMUX.
- TMUX (Transmission Multiplexer) - The DNU-S may be equipped with up to 14 TMUX packs (two of which are spares). The TMUX performs the format conversion of data between one STSX-1 link and 14 BPIDBs (Bi-Peripheral Interface Data Bus) structures, which includes the mapping of data time slots between the two formats and signaling bit format conversion.
- CD (Common Data) - The DNU-S is equipped with either two or four CD packs with two packs equipped in each data group. Two packs in each group are designated as "mates" or a pair. For example, CD00 and CD01 would be denoted as mates as would the CD10 and CD11 combination. The mate CDs in each data group operate in active/standby mode and are responsible for terminating up to six duplicated PCT links. Side 0 for each duplicated link terminates on one CD while side 1 terminates on the other CD. The CDs terminate PCT links and perform rate conversion. They also perform the selection and multiplexing/demultiplexing functions associated with passing data and control information between the PCT links and internal interfaces with other packs in the unit.
- COT (Common Optical Termination) - The COT terminates optical fibers for one side of the duplex PCT link and performs optical-to-electrical and electrical-to-optical conversion of data and control information after it has been received from the PCT link interface in the SM-2000.
- CC (Common Control) - The two CC circuit packs in the DNU-S implement a duplex unit controller that operates in active/standby mode. The CC circuit packs perform the following functions:
 - terminate messaging and control channels originating from the SMP (Switching Module Processor) via the PCT links and the CD circuit packs
 - supervise unit initialization, maintenance and diagnostics
 - implement and handle the control interfaces to all the circuits in the DNU-S
 - store CC and TMUX control programs in flash memory.

2. FEATURE ASSIGNMENT

See Figure 4 for feature assignment form flow for the DNU-S feature.

2.1 DNU-S Translation Forms

The five forms which support this feature to provision the MH, DNU-S, STE, VT, and performance monitoring for the STE, VT, and DS1S facilities are the following:

- Message Handler - The **EQMH** form allows the provisioning of an additional Message Handler on an SM-2000 SM. Both of the MH sides must be operational prior to the Message Handler's use by a DNU-S. The Message Handler provides communication to the DNU-S.
- DNU-S - The **EQDNUS** form enables the provisioning of the Digital Networking Unit SONET. Translations for the CC and CD, two Data Groups, PCT LINK, STSX-1 Facility Interface and the spare and service TMUX Boards are defined on this form. Note that the Message Handler 1 is not present on this form. It is allocated during the ODA and RC/V processes.
- STE - The **EQSTE** form is used to define the STE and STS facilities for the DNU-S. The STE on this form has a one-to-one correspondence with the TMX NUMBER on the EQDNUS form.
- VT (Virtual Tributary) - The **EQVT** form equips the VT, DS1S (Digital Signal Level 1 SONET) facility, and Digital Signal Level 0 channels on a DNU-S. The STS on this form has a one-to-one correspondence with the PCTLINK on the EQDNUS form.
- Performance Monitoring - The **DNUPM** form provides Performance Monitoring for the STE, VT and DS1S facilities. Standard data, the preconstructed performance monitoring groups, are provided by the ODA process for each installing 5E9(2) and later office, and also for all offices that retrofit to 5E9(2) and later Software Releases.
- TSI Board (Time Slot Interchange) - EQTSI form predefines the TSI board. The TSI Board must be predefined before it can be assigned on DNU-S.

2.2 Network Equipment Number

Once all the necessary hardware is defined and operational, NENs (Network Equipment Numbers) may be assigned to trunks on the TRUNK form (5204 Record). The NEN is made up of the following components:

- Switching Module
- DNU-S
- Data Group
- STS
- VT
- Digital Signal Level 0

NOTE: For 5E13 and later, the VT field was split into two fields, VT GROUP and VT MEMBER and the NEN OE expands from 10 to 11 digits. This change was made to comply with Bellcore generic requirements for SONET VT facilities. For more detailed information, see Division 2, Section 9Q.

The associated TKGRP must have one of the following TRKCLS values supported by DNU-S:

AIS
 ANNCMNT
 AUXTRNK
 BUSYVFY
 BVINTOLL
 BVTOLLCM
 CAMA
 CAMAANI
 CAMAONI
 CAMOPKEY

CAMOPTLK
 DIOR
 EISTRK
 FIOPR
 FOPRI
 IC
 LATA
 LTOLLCON
 PBXDID
 PF
 PFCPE
 PFITT
 PFLASH
 PRINTOLL
 RECCMPL
 RMSD3
 SCINTOLL
 SERVICE
 SES
 SPAB800
 SPAM800
 SPAMEG
 SPAWATS
 TOLLOPER
 TOPAS
 TTOLLCON

A QTY value up to 24, which is entered on the TRUNK form, is provided for the NEN for ease of insertion of multiple TRUNK members.

The NAILUP form was modified to include a type of "N" and an NEN for the CONTROLLING and NON-CONTROLLING OE type and OE number.

2.3 Carrier Group Alarm

The CGA (Carrier Group Alarm) is associated with the VT/DS1 and the STE/STS facilities. Included in the CGA data is a hash index into an internal terminal maintenance data structure. The hash index is automatically assigned during the RC/V and ODA processing. Many type of facilities use a hash index for facilities on IDCU, DLTU, DCLU, and DNU-S See Division 8, Sections 17, 30, 49, 59, or 60 for an explanation of the hash indexes.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
APHSS	5620-4	4	21D	24.12
DNUPM	5951	5	5L	20.25
EQDCLP	5810	8	30	19.6
				20.6
EQDI	5849	8	51	18.3
EQDNUS	5855	8	57	19.14

EQDUP	5730	8	17	19.4
				20.4
EQIFAC	5847	8	49	20.23
EQIM	5700	8	2	18.1
EQMH	5856	8	58	19.13
EQNLI	5853	8	55	18.16
EQSTE	5857	8	59	20.12
EQVT	5858	8	60	20.24
IMTRK	5210	3	2L	5.46
NAILUP	5207	3	2F	7.11
OFCOPT	5509	3	5I	8.1
				8.15
OSPSSMINF	5476	3	4CB	none
PMTHRESH	5948	5	5I	22.15
QUFD	5617-1	4	18A	12.40
QUGPA	5617-3/4	4	18B	3.40
TKGRP	5202	3	2A	5.1
TRUNK	5204	3	2C	5.5

DNUPM form (5951 Record) - This form is used to define the performance monitoring thresholds for DS1, VT, and STE facilities.

EQDI form (5849 Record) - This form defines the Data Interface for the SM-2000. The TSI BOARD and TSI SLOT entries cannot be duplicated on EQDNUS, EQNLI, or EQDI forms.

EQDNUS form (5855 Record) - This form is used to define equipage information for the DNU-S on an SM-2000.

EQIM form (5700 Record) - The form defines Switching Module equipage Assignments. UNIT TYPE must be "SM2000" for DNU-S.

EQMH form (5856 Record) - This form defines the equipage information for the message handler in an SM-2000 to communicate with the DNU-S.

EQNLI form (5853 Record) - This form defines the Network Link Interface for the SM-2000. The TSI BOARD and TSI SLOT entries cannot be duplicated on EQDNUS, EQNLI, or EQDI forms.

EQSTE form (5857 Record) - This form defines the STS and STE facilities on the DNU-S.

EQVT form (5858 Record) - This form defines the equipage of the Virtual Tributary and the Digital Signal Level 1 SONET on a DNU-S. Twenty DS0s are automatically equipped for DS1S.

NAILUP form (5207 Record) - This form is used to assign data to directly link two ports. The CONTROLLING or NON-CONTROLLING type should be "N" for DNU-S.

OFCOPT form (5509 Record) - This form is used to define the various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices. The FI SWITCH INT field supports the DNU-S feature. This field specifies the minimum interval in days that REX (Routine Exercise) is permitted to run without switching the STSX-1 Facility Interfaces. The MAX NO THR GRPS field refers to the sum of the number of DNUPM forms plus the PMTHRESH forms per office. The maximum number of DNUPM forms is 50 per SM. The PM TIME and FAC PM ENABLE fields applies to the DNU-S as well as DLTU and IDCU.

TRUNK form (5204 Record) - The trunk form defines each member of a Trunk Group in a 5ESS-2000 Switch Office. The NEN for digital trunks is assigned on this form.

3.1 NEN

The NEN was added to data rules involving DENs and TENs of the following forms:

Form	Record
APHSS	5620-4
IMTRK	5210
NAILUP	5207
OFCOPT	5509
OSPSSMINF	5476
QUFD	5617-1
QUGPA	5617-3/4
TKGRP	5202

3.2 Carrier Group Alarm Hash Index Forms

The Carrier Group Alarm hash index is constructed from the following forms:

- EQDCLP (not associated with DNU-S)
- EQDUP (not associated with DNU-S)
- EQIFAC (not associated with DNU-S)
- EQSTE
- EQVT

4. GLOSSARY

Acronyms used in this section are expanded below.

BPIDB - Bi-Peripheral Interface Data Bus

CC - Common Control

CD - Common Data

CGA - Carrier Group Alarm

COT - Common Optical Termination

DACS IV-2000 - Digital Access and Cross Connect System IV-2000

DDM-2000 - Dual Digital Multiplexer - 2000

DS0 - Digital Signal Level 0

DS1S - Digital Signal Level 1 SONET

NEN - Networking Equipment Numbers

PICB - Peripheral Interface Control Block

PIDB - Peripheral Interface Data Block

PLI - Peripheral Link Interface

REX - Routine Exercise

SFI - STSX-1 Facility Interface

SLI - STS-1 Link Interface

SMP - Switching Module Processor

STE - SONET Termination Equipment

STS-1 - Synchronous Transport Signal

STSX-1 - STS-1 Electrical Interface

TDM - Time Division Multiplexed

TMUX - Transmission Multiplexer

TSI - Time Slot Interchange

VT - Virtual Tributary

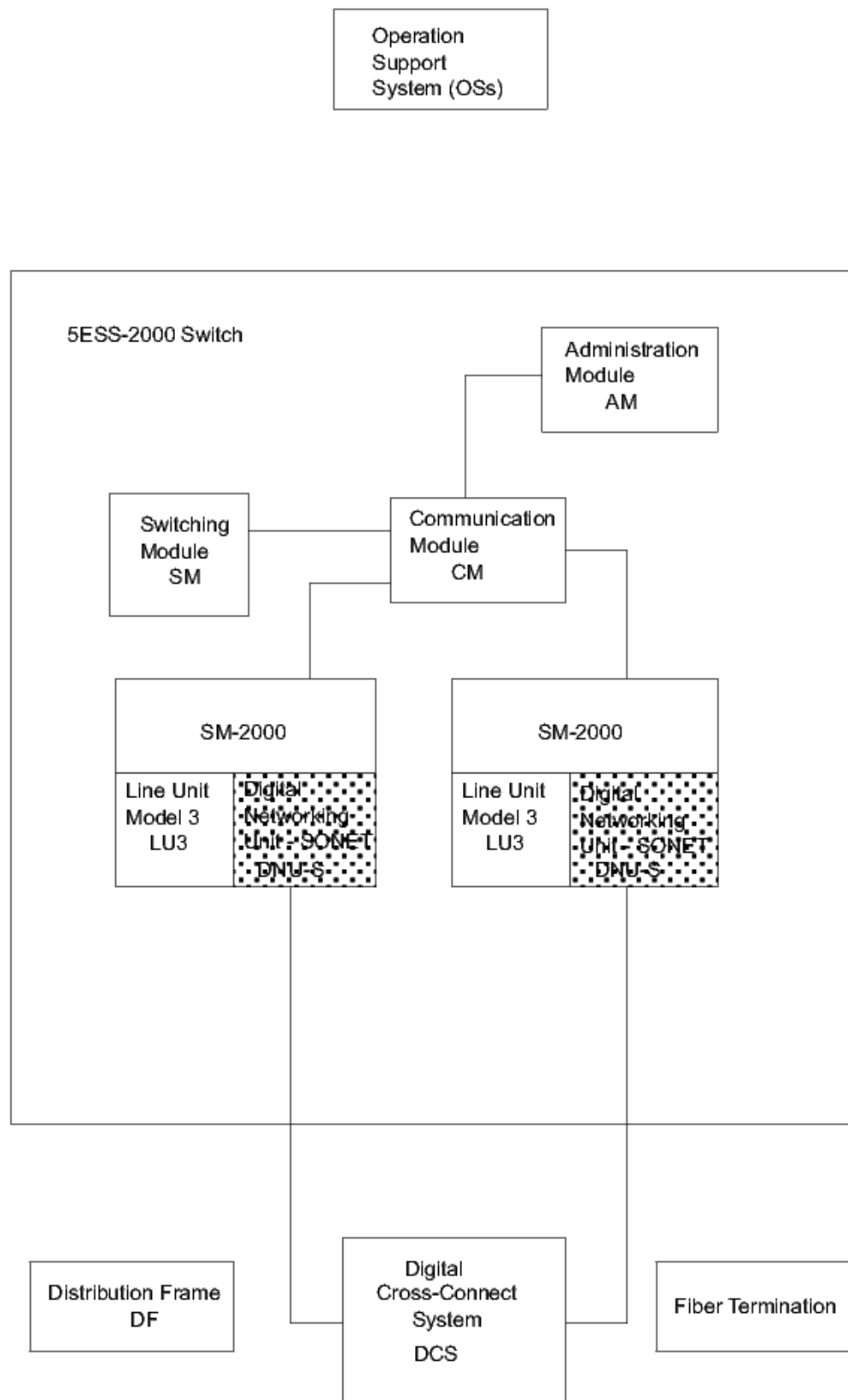
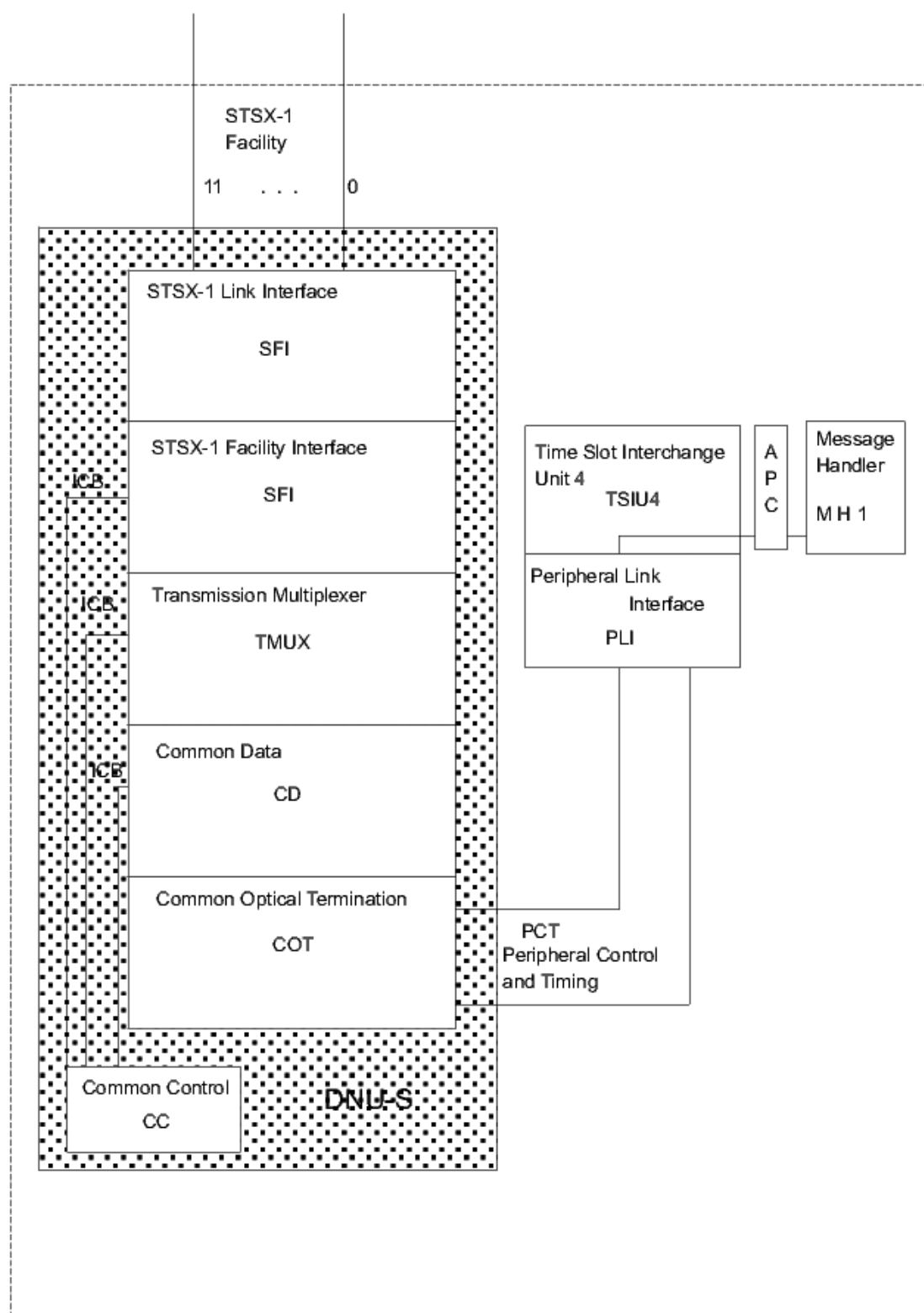


Figure 1 SIMPLIFIED BLOCK DIAGRAM OF DNU-S AND SM-2000 COMPONENTS



ICB (Internal Control Bus)

APC (Application Controller Board)

Figure 2 DIAGRAM OF DNU-S ARCHITECTURE

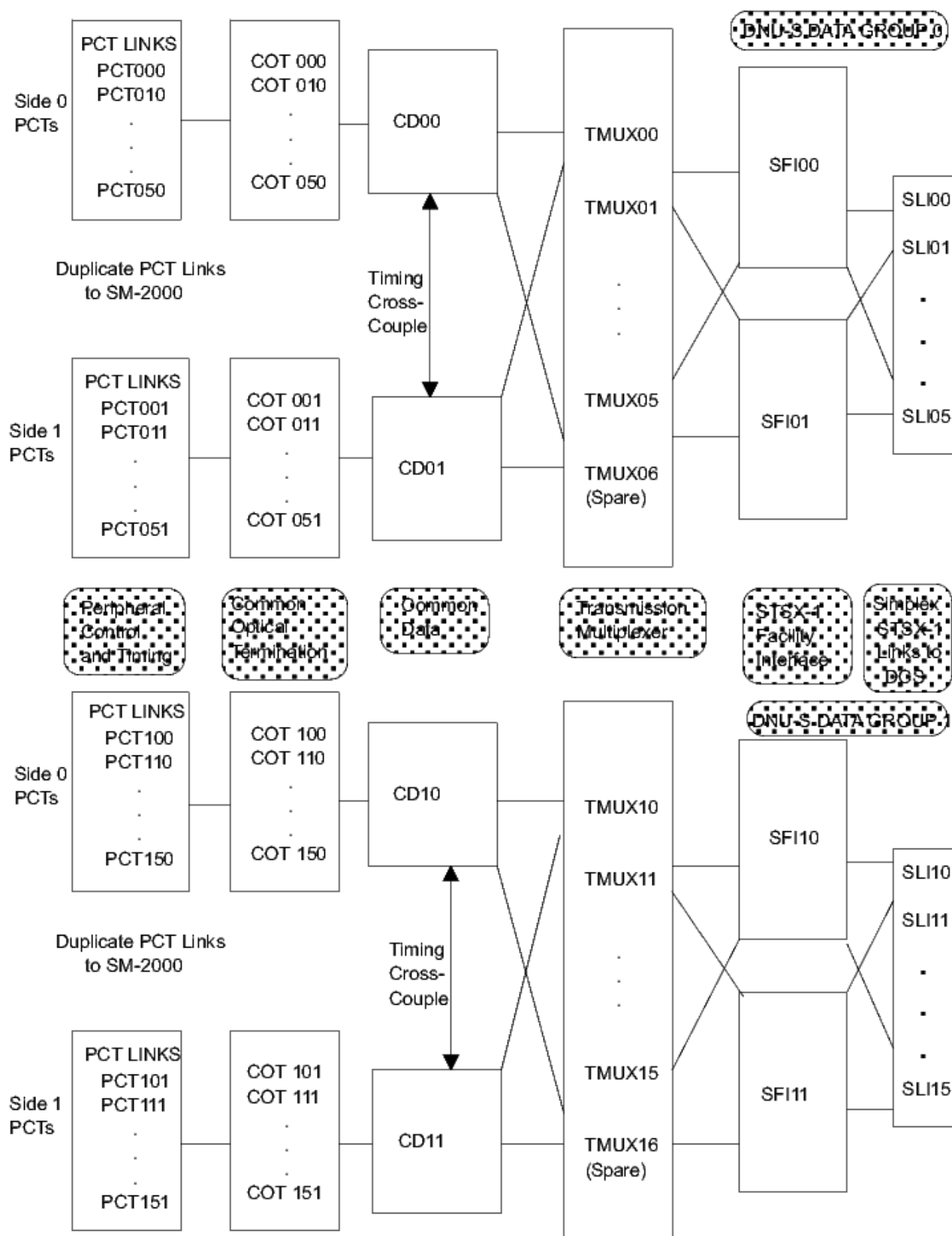


Figure 3 SIMPLIFIED BLOCK DIAGRAM OF DNU-S ARCHITECTURE



Figure 4 FORM FLOW FOR DNU-S

SEC. 9D: QUAD-LINK PACKET SWITCH NETWORK

1. FEATURE DESCRIPTION

The feature number for the QLPS (Quad-Link Packet Switch) Network feature is 99-5E-1475. This feature is available for 5E9(2) and later Software Releases as part of SN-2000 (Service Net 2000).

The QLPS Network is an optional hardware overlay that provides high bandwidth message transport between SM-2000s and between SM-2000s and existing processors — SMs, AM, FPC (Foundation Peripheral Controller), CMP (Communication Module Processor), and DLN (Direct Link Node). Figure 1 describes the architecture of the QLPS Network. (See the Glossary in this section for a definition of the hardware components.)

An SM-2000 Message Handler pipe is a high bandwidth path for message transport between a QLPS QTMSLNK (a port connection on the QLPS board of the TMS (Time Multiplex Switch)) and a given QLPS endpoint, that is, an MH (Message Handler) in an SM-2000. It is a physical path that sustains HDLC (High Level Data Link Control) traffic from the QLPS to the MH. When an SM-2000 Message Handler pipe is assigned, the operational software determines what resources are available for the pipe: QTMSLNKs, HDLC channels on the QTMSLNKs, and timeslots on the QTMSLNKs.

In the first release of the QLPS Network feature, the following characteristics apply:

- QLPS consists of two networks (0 and 1).
- Each network has exactly two QLPS boards, one board on each ONTC (Office Network and Timing Complex), also called TMS, side.
- Each board uses four TMS links (fabric ports) for the QLPS connection. These are referred to as QTMSLNKs. The QTMSLNKs for a network must be identical on the two ONTC sides.
- Each QTMSLNK has 256 timeslots through the TMS. 32 of the 256 timeslots are reserved for side ports. Thus, 224 timeslots are available for MH pipes on each of the four QTMSLNKs.
- Each QLPS has four side ports, one on each QTMSLNK. In Release 1, two side ports are used for metallic connections to QGPs (Quad-Link Gateway Processors); the other two are reserved for future use.
- QLPS pipes contain 14 timeslots to an SM-2000 MH.
- A pipe is assigned first to a QTMSLNK and then to an HDLC channel on that QTMSLNK. Each QTMSLNK has 32 HDLC channels (0 - 31); HDLC channel 0 is used by the hardware, and channel 31 is used for side ports, leaving channels 1 - 30 to be assigned to MH pipes.
- There are 30 channels per QTMSLNK for pipe assignment and four QTMSLNKs per QLPS, giving 120 channels or 120 pipes per QLPS. Thus, in Release 1, QLPS (MH) pipes may be established for a maximum of 120 endpoints. total of 128??> MH endpoints, allowed only for SM-2000s, may be assigned numbers 1 - 192. QGP endpoints are automatically assigned numbers 193 and 194 when the QGP is grown in.

In CM2 offices a new peripheral processor is available. Called a QGP (Quad-Link Gateway Processor), this processor connects to the QLPS to provide a high bandwidth message transport for SM-2000s. The QGP provides the interface between the QLPS and existing processors. For Release 1, an office may have 0, 2, or 4 QGPs.

1.1 QLPS Configurations

Four QLPS configurations are supported.

- No QLPS / No QGP
- 4 QLPSs / No QGP
- 4 QLPSs / 2 QGPs
- 4 QLPSs / 4 QGPs

2. FEATURE ASSIGNMENT

Office Data provisioned for this feature (Figure 2) supports the QGP and QLPS hardware and defines MH pipes, QLPS network endpoints, and inter-connectivity between endpoints.

2.1 QGP Definition

An office may have 0, 2, or 4 QGPs. Each QGP must be defined on an EQPC form with PC NO 32 or 33.

QGPs are equipped in pairs, one on each side of the MSGS (Message Switch). When the first pair is defined, PC NO. must be 32 for both SIDE 0 and SIDE 1; for the second pair, PC NO. must be 33 for both sides.

2.2 QLPS Definition

The QLPS configurations supported in Release 1 of this feature allow an office to have 0 or 4 QLPS boards. Each must be defined on an EQQLPS form (5854 Record) which assigns the board to a QLPS Network. Additionally, this form assigns the board to an ONTC (TMS) side and determines the TMS Links the board will use for message transmission.

2.3 MH Pipe and Endpoint Definition

Each MH (Message Handler) pipe is defined on an EQPIPE form (5544 Record), which assigns the pipe to a QLPS network and identifies the SM-2000 endpoint.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQPC	5703	8	5	17.2 17.14
EQPIPE	5544	3	5AT	17.20
EQQLPS	5854	8	56	17.19

EQPC form (5703 Record) - This form is used to define Peripheral Controllers. For 5E9(2) and later, the PC NO values 32 and 33 were added to define QLPS Gateway processors.

EQPIPE form (5544 Record) - This form is new for 5E9(2) and later. It is used to assign QLPS MH (Message Handler) pipes in an SM-2000 office.

EQQLPS form (5854 Record) - This form is new for 5E9(2) and later. It is used to define a QLPS board.

4. GLOSSARY

HDLC — High Level Data Link Control.

MH — The MH (Message Handler) resides in an SM-2000 and provides for message transfer between an SM-2000 and the QLPS hardware.

NCT — An NCT (Network Control and Timing) link has 256 time slots and runs at a rate of 32.768 Mb/s. The number of NCT links required can vary from two to four in groups of two (00 - 03).

NCT2 — An NCT2 link has 512 time slots and runs at a rate of 65.536 Mb/s. The number of NCT2 links required can vary from two to twenty-four in groups of two (00 - 23).

NLI — The NLI (Network Link Interface) manages the interfaces between an SM-2000 and the NCT2 links. They are optionally equipped in groups of two, from two to eight for Release 1. Each NLI provides for one NCT2 link connection.

ONTC — Office Network and Timing Complex, also known as the TMS.

Pipe — A pipe is a high bandwidth path for message transport between a QLPS QTMSLNK and a given QLPS endpoint (an MH in an SM-2000). It is a physical path capable of sustaining HDLC traffic from the QLPS, through the TMS, the NLI, the TSI and the APC, to the MH.

QGL — A QGL (QLPS/QGP Link) is an electrical connection between a QGP and QLPS. Each QGP on an MSGS has four QGL connections, one to each QLPS.

QGP — The QGP is an MSGS (Message Switch) subdevice that provides for message transport between the MSCU (Message Switch Control Unit) and QLPS hardware. None, one, or two QGPs may be equipped per MSGS, depending on office traffic characteristics.

QLI2 — The QLI2 (Quad-Link Interface Model 2) circuit pack plugs into the CM2 (Communications Module Model 2) and provides the NCT2 interface between the CM2 and SM-2000. QLI2s plug into any existing QLI slot in the TMS except for the FLI (Foundation Link Interface) slot. CM2s equipped with QLI2s support both Single Fabric and Dual Fabric configurations.

QTMSLNK — A port connection on the QLPS board of the TMS. Each QLPS board has four QTMSLNKs.

SMP — Switch Module Processor.

TMS — Time Multiplex Switch, also known as the ONTC.

TMSLINK — Time Multiplex Switch Link.

TSI — Time Slot Interchanger.

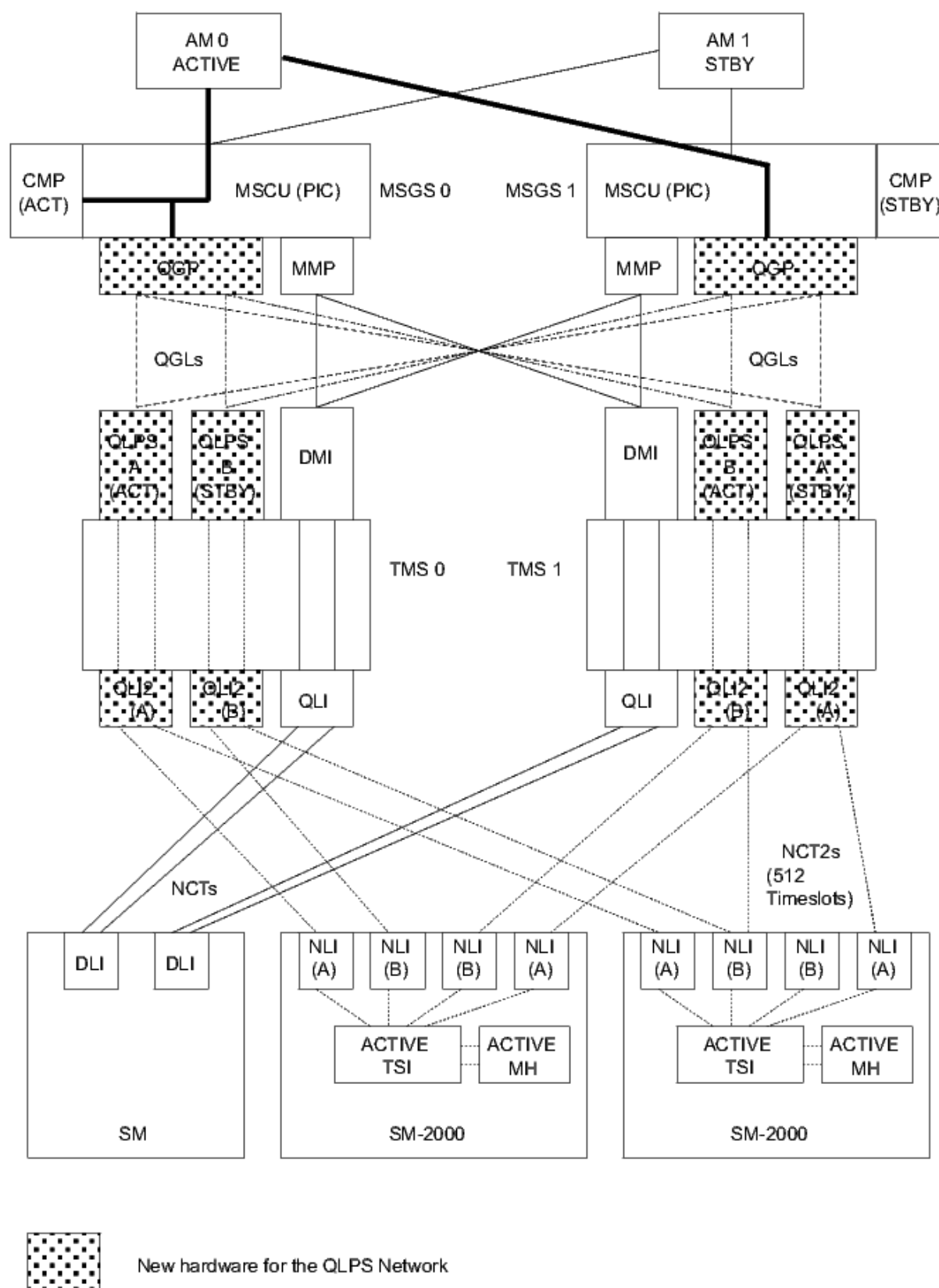


Figure 1 QLPS NETWORK ARCHITECTURE (TWO QGP CONFIGURATION)

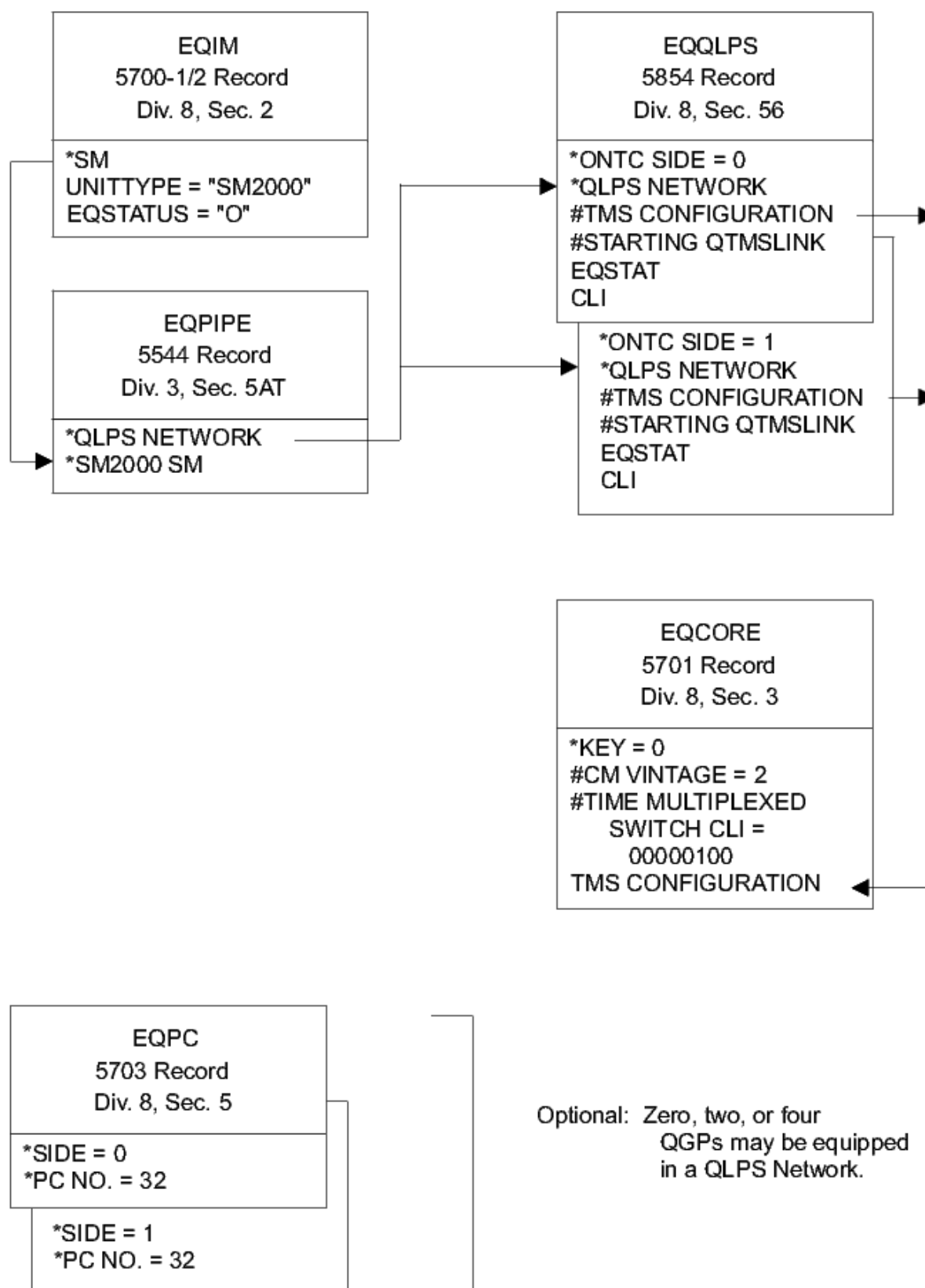


Figure 2 QLPS FORM FLOW

SEC. 9E: INTEGRATED DIGITAL SERVICES NETWORK HARDWARE ON SM-2000

1. INTEGRATED DIGITAL LOOP CARRIER (IDLC) ON THE SWITCHING MODULE - 2000 (SM-2000)

1.1 Feature Definition

The IDLC (Integrated Digital Loop Carrier) on the Switching Module - 2000 (SM-2000) has an AT&T feature number 97-5E-1614 and is available with 5E10 and later Software Releases.

This feature provides the ability to groom DS0s (One 64 Kilobit Per Second Channel Of A T1 Line) between the TR-008, TR-303, and PUB43801 interfaces on the SM-2000. The TR-008 Interface provides POTS (Plain Old Telephone Service) and other switched services via SLC (Subscriber Loop Carrier) 96 carrier systems, SLC Series 5 carrier systems Feature Package B, and the SLC 2000 Access System. The PUB43801 Interface allows the routing of non-switched and non-locally switched services towards D4/D5 channel banks or towards DACS (Digital Access And Cross Connect System) 1, II, or IV. The TR-303 96 Line RT (Remote Terminal) Interface provides POTS and other switched services, and ISDN capabilities to customers terminating on SLC Series 5 carrier systems FP303 RTs. The TR-303 Large RT Interface provides the same functions as the TR-303 96 Line RT, but expands the number of allowed lines on the interface from 96 to 2048.

1.2 User Operation

This feature provides the same IDCU functionality and operations on the SM-2000 that are found on the SM. From the user perspective, IDCU oriented services will operate the same as on an SM.

Assignment of the IDCU hardware on the switch is made through Recent Change. No new IDCU hardware is required for this unit to operate on the SM-2000.

1.3 Other Features Required

The Integrated Digital Loop Carrier on the SM-2000 feature is dependent on the Switching Module - 2000 (SM-2000), Release 1 feature (AT&T feature number 99-5E-1427).

1.4 Specific Hardware Requirements

This feature requires an IDCU unit on the SM where the service is desired.

2. ISLU2 ON THE 5ESS-2000

2.1 Feature Definition

The ISLU2 on the 5ESS-2000 feature (AT&T feature number 97-5E-1614) is available with 5E10 and later Software Releases.

The ISLU2 feature is a new 5ESS 2000 Switch line unit which supports digital (U) and (T) interfaces on an SM and an SM-2000. The ISLU2 line packs do not fit in the ISLU shelf but are functionally equivalent. ISLU line packs do not fit in the ISLU2 line shelf. The hardware for the ISLU2 includes a new wide line shelf and new wide common shelf. Other unit hardware needed are a new wide fan unit and a wide "blank" air plenum.

The ISLU2 also supports exchange technician-initiated enhanced-sparing of individual digital (U) 2-wire line circuits. Digital T line circuits can not be spared. Four circuits can be actively spared per unit.

There are 8 separate line circuits per U & T line pack. Each line circuit can be assigned to a customer separately. Failures on a single line can be isolated and spared independently of the other line circuits within the pack. The exchange technician will be able to perform operations both on a pack level affecting all 8 assigned lines or individual circuits affecting just one line circuit.

An ISLU2 can physically terminate up to 1024 digital (U or T) interfaces. Traffic and blocking considerations must be engineered and will limit the maximum physical configuration. Preliminary engineering studies indicate that the practical maximum for domestic calling patterns is around 768 line circuits per ISLU2 unit.

2.2 User Operation

User operations change from those used with today's ISLU due to the repackaging of the line circuits onto packs of 8. The exchange technician can perform operations both on a pack level affecting all assigned lines, or individual circuits on the pack affecting just one line circuit.

For pack replacement, all line circuits on the pack must be removed from service and placed into an out-of-service state. In general, one line circuit will be determined to be faulty and marked out of service. When the line pack is to be physically replaced, the other seven circuits must be removed from service also. The removals can be performed individually with seven additional line circuit removals followed by a pack removal request OR a single line pack removal request can be performed which will remove the remaining active line circuits and the line pack. These requests can be done either conditionally or unconditionally.

Once a line circuit has been denoted as faulty and line pack replacement cannot be performed immediately, the exchange technician has the ability to perform a line circuit spare operation on U type circuits. Up to 4 active spares may be simultaneously active in a ISLU.

2.3 Other Features Required

The predominate usage of the ISLU2 occurs on the SM-2000. The nature of an ISDN line requires that a packet switch unit be available on the same SM. Therefore, using the ISLU2 on an SM-2000 requires the ISDN on the 5ESS-2000 Using the PSU2, PI2, and PH4" feature (AT&T feature number 97-5E-2215). This feature provides the SM-2000 with a new packet switching unit.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ACOFRF	5968	6	11	12.6
DSL	5907	5	1H	23.2, 23.8
DSLAP	5963	6	6A	24.7
DSLUSR	5908	5	1I	23.2, 23.8
EMRNM	5108	3	1H	4.9
EMROFC	6116	3	1P	4.9
EQIDCU	5846-1/2	8	48	19.12
EQISAP	5824	8	24	22.8
EQISLU	5731	8	18	22.5
EQRA	5821	8	35	19.10
EQRISLU	5732	8	19	22.9
ISLULB	5952	5	5M	22.21
LCC	5306	3	3S	4.1
LINE	5109-1/2/3	3	1I	1.6
MDFTA	5502	3	5B	14.6
MLHG	5110	3	1J	3.5
MLHLN	5111	3	1K	3.2
NAILUP	5207	3	2F	7.11
ODBTS	5905	5	1F	23.13
OFCOPT	5509	3	5I	8.1, 8.15

RDTAPORT	5911A/B	5	1L	22.17
RTERM	5174-1/2/3/4	3	1S	18.15
TRUNK	5204	3	2C	5.5

ACOFRR form (5968 Record) - The 5968 Record is used to assign the Controlling Line for an Attendant Control of Facility Restriction.

The Equipment Number field is expanded to 11 digits for ISDN Network Hardware on an SM-2000.

DSL form (5907 Record) - The 5907 Record series has two major purposes.

First, it is used to define the attributes of a DSL. A DSL is also referred to as a BRI (Basic Rate Interface). Second, it is used to define the attributes of the B1 and/or B2 channel of the DSL, if either or both of those channels are to be used on a Permanent Packet basis (dedicated to X.25 Packet Switching).

DSL OE Type of "M" is no longer supported. DSL OE Type of "K" was added and allows for 10 digits, G type was increased to 11 digits

Data Rules are added to the DSL OE, D TIMESLOT, and QTR TS fields.

DSLAP form (5963 Record) - The 5963 Record is used to define the data links connecting an AP (Application Processor) and the 5ESS Switch. Each AP is connected to one ISDN SM or SM-2000 with DSL data links.

The LCEN field is no longer supported and is replaced by the OE field.

DSLUSR form (5908 Record) - The 5908 Record has four major purposes: 1) defines the associated TN and status of a DSL user, 2) defines the circuit switching attributes of a DSL user, 3) defines the D-Channel packet switching attributes of a DSL user, and 4) defines the On Demand B-channel packet switching attributes of a DSL user.

OE Type of "M" is no longer supported. DSL OE Type of "K" was added and allows for 10 digits, G type was increased to 11 digits

EMRNM form (5108 Record) - The 5108 Record is used to define Remote Site or Local SM Stand-Alone emergency Telephone Numbers. For 5E5 and later, Remote Site refers to an RSM, ORM (Optically Remote Module), TRM (Two-Mile Optically Remote Module), and for 5E9(2) and later, an EXM-2000 (Optically Remote SM-2000).

Data rules were added ALT TN field.

EMROFC form (5116 Record) - For 5E5 and later, the AM can reroute up to 500 emergency calls that terminate on any SM or Remote Module that has gone into Stand-Alone mode. Calls originated outside an isolated module to an Emergency TN within the module is rerouted using the data on this form.

For 5E6 and later, the rerouting is accomplished in the CMP (Communication Module Processor) rather than in the AM.

Data rules were added ALTERNATE TN field.

EQIDCU form (5846-1/2 Record) - This form is used to define the IDCU (Integrated Digital Carrier Unit) and the LSI (Loop Side Interface) packs, ELI (Electric Line Interface) packs, and the PIDBs (Peripheral Interface Data Buses) associated with the IDCU.

Valid entries for EQL BAY, CTRL GROUP, DI/PSU SHLF, and PIDB/DFPOS fields were changed.

EQISAP form (5824 Record) - This form is used to define ISLU (Integrated Services Line Unit) or RISLU (Remote Integrated Services Line Unit) analog circuit packs. The circuit packs that can be defined using this form are MAN (Metallic Access Network), RG (Ringing Generator) and HLSC (High Level Service Circuits). If the ISLULC (ISLU Line Card Assignment) form (5942 Record) is equipped with analog Z-Cards or digital U-Cards, the EQISAP form must be assigned with ISMAN (Integrated Services Metallic Access Network) and ISHLSC (Integrated Services High Level Services Circuit) Circuit Pack Types.

Valid entries for (R)ISLU TYPE and (R)ISLU NUMBER were changed to support the ISLU2.

EQISLU form (5731 Record) - The 5731 Integrated Service Line Unit Equipage Record and EQISLU form are available with the 5E3 and later Software Releases. They are used to define ISLU (Integrated Services Line Unit) assignments in a 5ESS Switch.

For every unique combination of Switching Module and PSU Shelf on the EQISLU form (5731 Record), there must be an EQPSUPH form (5742 Record) with a corresponding Switching Module and PSU Shelf.

The UNIT TYPE field was added to support the ISLU2.

Valid entries for ISLU NUMBER, CONTROL GROUP, EQUIPMENT BAY, and DATA GROUP were changed.

EQRA form (5821 Record) - The Recorded Announcement Function Capability performs independent playback of pre-recorded, variable length and variable content announcements. The dial-through capability receives and detects Touch-Tone signals.

The EQRA form defines the RAF (Recorded Announcement Function) unit, and the SAS (Service Announcement System) services unit. If a RAF unit is defined on this form, then a corresponding EQRAP form (5822 Record) must be defined for the RAF circuit packs.

Valid entries for CONTROL GROUP, DATA GROUP, DATA PORT, and EQUIPMENT BAY were changed.

EQRISLU form (5732 Record) - The EQRISLU form (Remote Integrated Services Line Unit Equipage (5732 Record)) is used to define Remote Integrated Services Line Unit assignments in a 5ESS Switch.

Data rules are added to the GENERAL description and the EQUIPMENT BAY field.

ISLULB form (5952 Record) - The 5952 Integrated Services Line Unit 2 Line Board Record is used to define the Line Boards equipped in an ISLU-2.

This form supports the ISLU2.

LCC form (5306 Record) - The 5306 Record is used to define each LCC (Line Class Code) in a 5ESS Switch. A Telephone Number and a Line Equipment Number provide an LCC and Rate Area number. These two inputs are used to access routing and service information contained on this form.

Data rules were added to the CLASS OF SERVICE field.

LINE form (5109-1/2/3 Record) - This form defines the Office Equipment Number and features for each TN (Telephone Number) in a 5ESS Switch.

Changed the Valid OE TYPE and NUMBER entries. OE TYPE of "M" is no longer supported. The "G" type is changed from 10 to 11 digits.

Added data rules to the TN, NUMBER, PTY, COIN, and LCC fields.

MDFTA form (5502 Record) - This form is used for IMLT-2 (Integrated Mechanized Loop Testing) with a DFTAC (Distributing Frame Test Access Circuit). The MDFTA is used to define the connection between the DFTAC and the MDF (Main Distributing Frame) TTC (Test Trunk Circuit) as well as the DFTAC LTP (Logical Test Port) and the LEN of the dedicated line from the DFTAC to an LU (Line Unit).

Changed the Valid OE TYPE and NUMBER entries. OE TYPE of "M" is no longer supported. The "G" type is changed from 10 to 11 digits.

MLHG form (5110 Record) - This form is used to define Multi-Line Hunt Group information and define MUPH (Multiple Position Hunt) for nondata link attendant console positions.

Added data rule to the MLHG and FEATURE GROUP A fields.

MLHLN form (5111 Record) - This form defines the individual Terminal Numbers assigned to a particular MLHG. Each MLHG/Terminal Number must be assigned an equipment number and specific options and features. Every MLHG number assigned on the MLHLN form must be defined on the MLHG form (5110-1/2/3 Record).

Changed the Valid OE TYPE and NUMBER Entries. OE TYPE of "M" is no longer supported. The "G" type is changed from 10 to 11 digits.

Added data rules to the MFRI and SM REROUTE fields.

NAILUP form (5207 Record) - The NAILUP form contains data to directly link ("nailup") two ports. The Controlling Port is the port requesting the nailup connection; the Non-Controlling port is the port receiving the nailup connection. The nailup connection assigns a semi-permanent path through the SM (or the SM and the CM) between a port on one piece of peripheral equipment to a port on another piece of peripheral equipment.

Changed the Valid C OE (Type) and C OE (Number) entries. OE TYPE of "M" is no longer supported. The G type was changed from 10 to 11 digits.

ODBTS form (5905 Record) - This form is used to reserve DPIDB (Directly connected Peripheral Interface Data Bus) time slots for DSL (Digital Subscriber Line) users with the ODB (On-demand B-channel Packet Switching) feature.

The entry of "ISLU2" was added to the UNIT TYPE entries.

Valid entries for UNIT were changed to 0 - 42.

OFCOPT form (5509 Record) - The OFCOPT form must be completed for a 5ESS Switch and is used to supply various miscellaneous office options and parameters. This form is required at the time of initial translations for all offices.

New BRI TYPE entries "I2TCKT" and "I2UCKT" were added.

RDAPORT form (5911A/B Record) - This form is used to set up the data for the RPA (Remote Protocol Access) feature at the Access Switch. The Access Switch is defined as a switch that is maintained by a CSC (Customer Service Center). The CSC is a work center where protocol analysis is done.

The definition for RDTA OE Type of "D" is changed. RDTA OE Type of "K" and "N" were added.

Data rules were added to the RDTA OE field.

RTERM form (5174-1/2/3/4 Record) - The RTERM form (5174 Record) is used by the switch owner to define

all remote terminals connected to the IDCU (Integrated Digital Carrier Unit) equipment. Two types of RTs (remote terminals) can be connected to an IDCU: TR008 and TR303.

Valid entries for UNIT NUMBER was changed to 0 - 42.

Data rules are added to GENERAL and RT INTERFACE and CHANNEL UNIT fields.

TRUNK form (5204 Record) - This form is used to define each member of a Trunk Group in a 5ESS Switch office. The trunk information that is entered on this record is unique to the individual member of a Trunk Group. Trunk information that is common to the entire Trunk Group is entered on the TKGRP form (5202 Record).

Changed the VALID TRKOE TYPE and NUMBER Entries. OE TYPE of "M" is no longer supported. The "G" type is changed from 10 to 11 digits.

4. GLOSSARY

Acronyms used in this section are expanded below.

AP	Application Processor
BRI	Basic Rate Interface
CSC	Customer Service Center
CMP	Communication Module Processor
DACS	Digital Access And Cross Connect System
DFTAC	Distributing Frame Test Access Circuit
DI	Data Interface
DSO	One 64 Kilobit Per Second Channel Of A T1 Line
ELI	Electric Line Interface
IDLC	Integrated Digital Loop Carrier
IDCU	Integrated Digital Carrier Unit
IMLT	Integrated Mechanized Loop Testing
LSI	Loop Side Interface
LTP	Logical Test Port
MAN	Metallic Access Network
MDF	Main Distributing Frame
IOP	Input/Output Processor
ISDN	Integrated Services Digital Network
ISLU2	Integrated Services Line Unit - 2

PIDB	Peripheral Interface Data Bus
POTS	Plain Old Telephone Service
RPA	Remote Protocol Access
RSM	Remote Switching Module
RT	Remote Terminal
SLC	Subscriber Loop Carrier
TTC	Test Trunk Circuit

SEC. 9F: SMP60 (CORE60) - ENHANCED SWITCHING MODULE PROCESSOR FOR SM-2000

1. FEATURE DESCRIPTION

The Enhanced SMP60 (Switching Module Processor 60) for SM-2000 is available with 5E10 and later Software Releases. It is also referred to as the CORE60 board.

The SMP60/CORE60 processor board provides improved processor performance over the SMP40/CORE40 board.

The feature number is 95-5E-2422.

1.1 User Specified Variables

The operation of the switching module equipped with the SMP60/CORE60 processor will not be materially different from the operations of SM-2000 Release 1. The SMP60/CORE60 circuit pack designation is UN560.

1.2 Other Features Required

The customer must have SM-2000 offices or new office starts to use this feature. The feature is also applicable to HSM-2000, EXM-2000 and CDX-2000.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	RC View	Division	Section
EQIM	5700-1/2	18.1	8	2

EQIM form (5700-1/2 Record) - The 5700-1/2 Records are used to define Switching Module Equipage Assignments. Added a data rule to the UNIT TYPE field requiring BRD0 CLI for CONTROLLER 0 and 1 to be entered for UNIT TYPE of "SM2000".

EQUIPMENT ASSIGNMENT - This section provides a listing of ODA forms and associated CLI values. CLI values to support the SMP60/CORE60 core processor board were added.

SEC. 9G: HOST SM-2000

1. FEATURE DESCRIPTION

The Host SM-2000 feature is available with 5E10 and later and has AT&T feature number 99-5E-1591. This feature expands the number of remote SMs that can be linked to a Host SM-2000. The number of RMS that a single HSM (Host SM) can host is increased from a ratio of 1:5 to 1:30. A single HSM-2000 may terminate 24 channel umbilicals or 30 channel umbilicals, but not both.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDU/ EQDUP	5730	8	17	19.4 20.4
EQIM	5700	8	2	18.1
RSMLNK	5517	3	5Q	18.5 18.9

EQDU/EQDUP form (5730 Record) - This form is used to define the SM and Digital Line/Trunk Unit information. A data rule was added to the SM field to specify "HOST" as a value for DFI USAGE.

EQIM form (5700 Record) - This form is used to define SM equipage assignments. A data rule was added to the SM-2000 UNIT TYPE field to specify "HIM" as a valid SM USAGE for an SM-2000.

RSMLNK form (5517 Record) - This form is used to define the assignment of the umbilical links between the HIM (Host SM) and the RSM (Remote SM). Information was added to the General section to describe the Host SM-2000 and a data rule was added to the HOST field.

SEC. 9H: SWITCHING MODULE PROCESSOR UNIT 5 - (SMPU5)

1. FEATURE DESCRIPTION

The SMPU5 is referred to as the SM-2005 unit. It is available with 5E11 and later Software Releases. The SM-2005 unit contains SMP (Switching Module Processor) circuit packs. It is an enhancement of the SM-2000 unit. The following summarizes the primary differences between the SM-2000 and the SM-2005.

- The SM-2000 unit accommodates a larger number of peripheral equipment than other SM types; the DSU3 shelf is external to the SM-2000 unit; the SM-2000 has four memory board slots.
- The SM-2005 unit is redesigned to consolidate the SMP unit into a more compressed design; up to 6 LDSC3/GDSC3 boards are accommodated in this unit, thus eliminating the DSU3 shelf; the SM-2005 has two memory board slots.

The SM-2005 development consists of three fundamental pieces:

- a new backplane which physically integrates the DSC3 boards into the SM-2005 unit,
- an upgraded APC (Application Controller) pack,
- the consolidation of the power supplies and the control/display function into a single board.

The feature number for the SM-2005 feature is 99-5E-3227.

2. FEATURE ASSIGNMENT

The SM-2005 is defined on the EQIM form (5700 Record).

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDSC3	5852	8	54	19.18
EQGDSC3	5860	8	63	19.19
EQIM	5700	8	2	18.1
Equipment Assignment	N/A	8	1	N/A

EQDSC3 form (5852 Record) - This form is used to define the DSC3 unit which provides the LDSUF (Local Digital Services Unit Function) providing tone generators and decoders required for the expanded capacity of the SM-2000. The UNIT OFFSET field was expanded from 0 - 17 to 0 - 23. For SM-2005, UNIT OFFSET must be greater than 17.

EQGDSC3 form (5860 Record) - This form is used to define the GDSF (Global Digital Service Function) on the DSU3 for the SM and the SM-2000. A maximum of 1 DSU3 is allowed per SM and 2 per SM-2000 unit). The UNIT OFFSET field was expanded from 0 - 17 to 0 - 23. For the SM-2005, UNIT OFFSET must be greater than 17.

EQIM form (5700 Record) - This form is used to define the SM and the SM-2000. Unit Type of "SM2005" was added for the SM-2005 unit.

Equipment Assignment - This section of the TG-5 identifies CLI values for equipment. CLI information for

the SM-2005 was added.

SEC. 9I: LOCAL DIGITAL SERVICE FUNCTION TECHNOLOGY UPGRADE ON THE SM-2000 SWITCHING MODULE

1. FEATURE DESCRIPTION

This feature is available with 5E12 and later Software Releases. It provides a technology upgrade for the Local Digital Service Function (LDSF) circuit pack for the SM-2000.

A new circuit pack, UN590 (pumpable) is introduced which replaces the UN363. A new CLI value of 0000001 hex, is introduced.

The feature number for this feature is 97-5E-2894.

See also Division 2, Section 7R for information on the LDSF technology upgrade for the SM.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQDSC3	5852	8	54	19.18
Equipment Assignment	N/A	8		N/A

EQDSC3 form (5852 Record) - This form is used to define the Digital Service Circuit for the SM-2000. The CLI value field is used to define the pack identification.

Equipment Assignment - This TG-5 section contains the CLI information.

SEC. 9J: TR-303 INTERFACE ON THE DNU-S (DIGITAL NETWORKING UNIT - SYNCHRONOUS OPTICAL NETWORK)

1. FEATURE DESCRIPTION

The TR-303 Interface on the DNU-S (Digital Networking Unit - Synchronous Optical Network) feature is available with 5E12 and later Software Releases. It provides the capability to assign a TR-303 RDT (Remote Digital Terminal) to DS1 facilities terminating on a DNU-S (contained with a EC-1). This feature provides the same set of TR-303 services on the DNU-S as are provided on the IDCU (Integrated Digital Carrier Unit), with the exception of DS1 maintenance capabilities, PLS (Protection Line Switching) and Hairpins.

(This feature does not provide the TR-008 or PUB-43801 functionality found on the IDCU, since DNU-S does not support the TR-008 interface.)

Service activation is done exactly the same as for TR-303 lines on an IDCU. The only difference is that a new OE (Office Equipment) type ("A") and Equipment Number ("INEN") are implemented. Line maintenance capabilities for lines on the TR-303 DNU-S interface are identical to the IDCU. This includes TLWS (Trunk and Line Work Station) testing, MLT testing, DSL Performance Monitoring, DSL digital testing, and craft I/O.

The feature number for this feature is 99-5E-2466.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DLS	5900	5	1H	23.8
DSLUSR	5908	5	1I	23.2/23.8
EMRNM	5108	3	1H	4.9
EMROFC	5116	3	1P	4.9
EQVT	5858	8	3S	20.24
LINE	5109	3	1I	1.6
MEASSUM	5563	3	5BG	13.7/13.8
MISLINK	5637	4	32B	6.11
MLHLN	5111	3	1K	1.6
MTNDR	5550	3	6A	1.9
NAILUP	5207	3	2F	7.11
ODBCTUR	5915	5	1N	23.19
RTERM	5174	3	1S	18.15
SLJOB	5555	3	5BA	14.16
SLEN	5551	3	5AX	14.13
TRUNK	5504	3	2C	5.5

DSL form (5900 Record) - This form is used to define the attributes of a DSL (Digital Subscriber Line). OE type of "A" was added for the TR-303 DNU-S feature.

DSLUSR form (5908 Record) - This form is used to define the TN(s) associated with the DSL user. The OE on this form associates a user with a particular DSL assigned from the DSL form. OE type of "A" was added for the TR-303 DNU-S feature.

EMRNM form (5108 Record) - This form is used to define Remote Site or Local SM Stand-Alone emergency telephone numbers. Data rules were added to include the OE type of "A" for the TR-303 DNU-S feature.

EMROFC form (5116 Record) - This form is used to define emergency telephone numbers which can be

re-routed to other SMs or RSMs. Data rules were added to include the OE type of "A" for the TR-303 DNU-S feature.

EQVT form (5858 Record) - This form is used to define the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S. The APPLICATION TYPE field was added to support the TR-303 DNU-S feature.

LINE form (5109 Record) - This form is used to define the OE number and features for each TN (Telephone Number) in a 5ESS Switch. OE type of "A" and data rules were added for the TR-303 DNU-S feature.

MEASSUM form (5563 Record) - This form is used to define traffic measurements for specified units. Valid entries and data rules were added for the TR-303 DNU-S feature.

MISLINK form (5637 Record) - This form is used to define MIS LINK assignments which provide the capability to provision a MIS (Management Information System) SM Event Link for ACD/BRCS on all valid DSLs. OE type of "A" and data rules were added for the TR-303 DNU-S feature.

MLHLN form (5111 Record) - This form is used to define the individual Terminal Numbers assigned to a particular MLHG. OE type of "A" and data rules were added for the TR-303 DNU-S feature.

MTNDR form (5550 Record) - This form is used to define the individual TNs with Distinctive Ringing. OE type of "A" and data rules were added for the TR-303 DNU-S feature.

NAILUP form (5207 Record) - This form is used to directly link ("nailup") two ports. OE type of "A" was added for the TR-303 DNU-S feature.

ODBCTUR form (5915 Record) - This is a **NEW** form introduced to support the TR-303 DNU-S feature. It is used to reserve cut through time slots for DSL users with the On-Demand B-Channel Packet Switching feature.

RTERM form (5174 Record) - This form is used to define remote terminals connected to the IDCU (Integrated Digital Carrier Unit), or, effective with 5E12 and later Software releases, the DNU-S (Digital Networking Unit - SONET). Two types of remote terminals can be connected to an IDCU: TR-008 and TR-303. The DNU-S is applicable only to the TR-303. Added new valid entries for the UNIT TYPE and UNIT NUMBER fields for the TR-303 on DNU-S feature.

SLJOB form (5555 Record) - This form is used to define the test jobs for scheduled SLIM2 (Subscriber Line and Instrument Measurements-2) test session. This form relates test sets, threshold lists, equipment numbers, etc., to be tested and the types of lines to be allowed to be tested. OE type of "A" and data rules were added for the TR-303 DNU-S feature.

SLLN form (5551 Record) - This form is used to define the range of subscriber office equipment numbers that are to be tested by the SLIM2 feature. OE type of "A" and data rules were added for the TR-303 DNU-S feature.

TRUNK form (5204 Record) - This form is used to define trunk parameters. Added a data rule for the "NEN" equipment type.

Grow in the DNU-S

EQDNUS 5855 Record Div. 8, Sec. 57
SM = 1 - 192 DNUS = 0 - 7

DSL 5900 Record Div. 5, Sec. 1H
DSL OE = "A"

Grow in the STE/STS

EQSTE 5857 Record Div. 8, Sec. 59
SM = DNUS = 0 - 7

DSLUSR 5908 Record Div. 5, Sec. 1I
DSL OE = "A"

Grow in the VT/DS1 with
APPLICATION TYPE

EQVT 5858 Record Div. 8, Sec. 60
SM = DNUS = 0 - 7 APPLICATIONTYPE = TR303 or TR303CTRL

EQPSU 5741 Record Div. 8, Sec. 22
SM = PSU TYPE =

*TR303CTRL: Carries
TMC and EOC Channels

ODBTUR 5915 Record Div. 5, Sec. 1N
SM = PSU = 0 ODB TS LIST: PSU SHELF = 0 - 4 RESERVED T/S = 0 - 786

Grow in the TR303 RDT
for the DNU-S

RTERM 5174 Record Div. 3, Sec. 1S
SM = UNIT TYPE = DNUS UNIT NUMBER = 0 - 7 RT INTERFACE = TR303

Assign the line.

LINE 5109 Record Div. 3, Sec. 1I
OE = A

Figure 1 PROVISIONING SEQUENCE FOR TR303 RDT ON A DNU-S

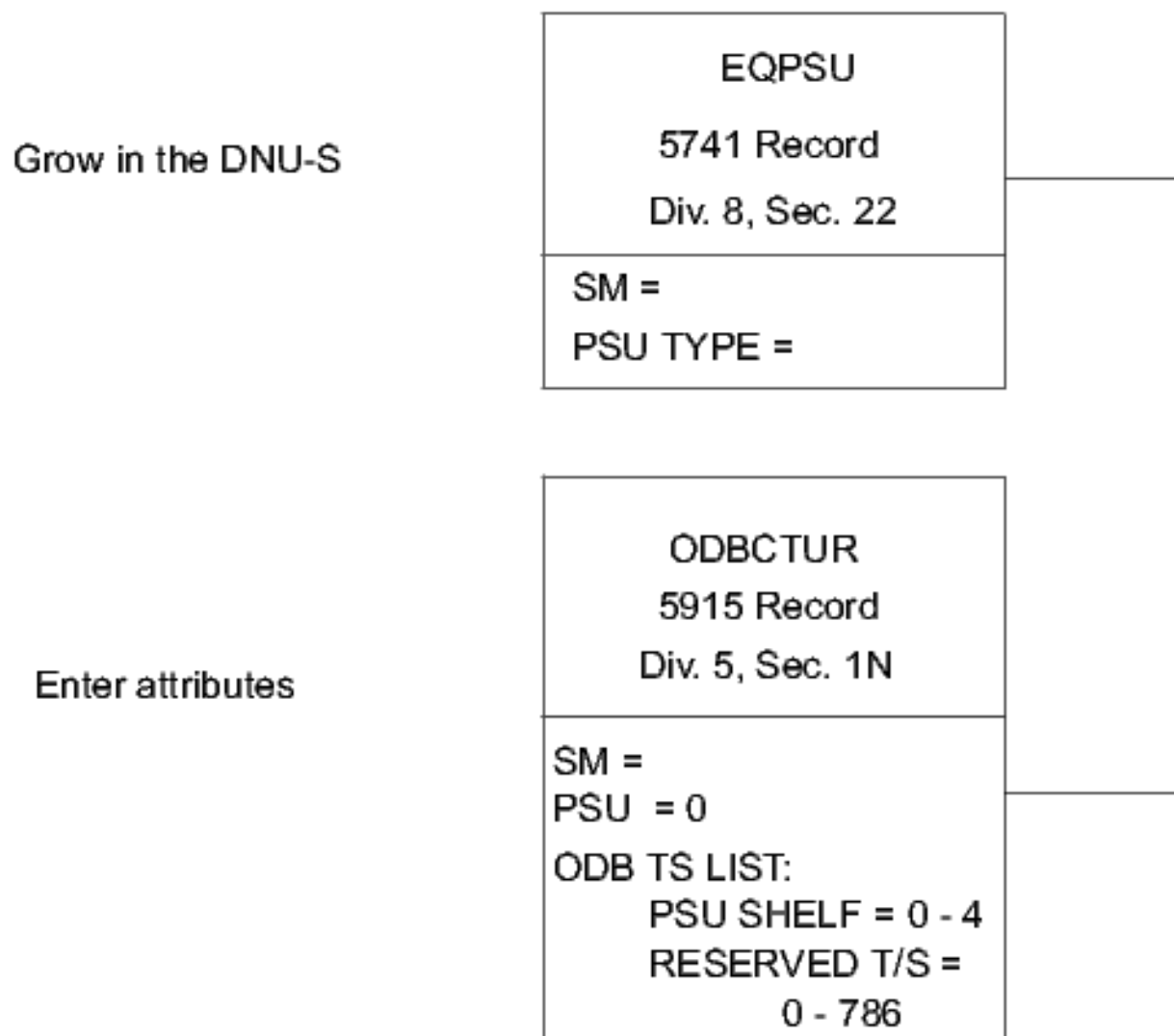


Figure 2 RESERVING ODB TIME SLOTS ON THE PSU SHELF

SEC. 9K: ISDN U-INTERFACE ON AIU

1. FEATURE DESCRIPTION

This features adds ISDN (Integrated Services Digital Network) capability for the AIU (Access Interface Unit) using the BRI (Basic Rate Interface) U-Interface. This feature does not support the BRI T-Interface.

The feature number for this feature is 99-5E-2855.

2. TRANSLATIONS REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DSL	5907	5	1H	23.8
DSLAP	5963	6	6A	24.7
DSLUSR	5908	5	1I	23.2/23.8
EQAIU	5745-1/2	8	64	19.16
EQAIUP	5746	8	65	20.16
EQIDCU	5846	8	48	19.12
EQISLU	5731	8	18	22.5
MEASSUM	5563	3	5BG	13.7/13.8
MISLINK	5637	4	32B	6.11
ODBTS	5905	5	1F	23.13
RDTAPORT	5911-A	5	1L	22.17

DSL form (5900 Record) - This form is used to define the attributes of a DSL (Digital Subscriber Line). Added OE type of "E".

DSLAP form (5963 Record) - This form is used to define the DSL Application Pack. Added OE type of "E" and data rules, and valid entries for the REL PIDB field.

DSLUSR form (5908 Record) - This form is used to define the TN(s) associated with the DSL user. The OE on this form associates a user with a particular DSL assigned from the DSL form. Added OE type of "E".

EQAIU form (5745-1/2 Record) - This form is used to define AIU (Access Interface Unit) equipment. A new application board was added to provide the ISDN U-Interface lines.

EQAIUP form (5746 Record) - This form is used to define AIU packs. Added one field: SEAL CUR. The SEAL CUR field defines whether the sealing current will be sent to the line from the ANSI U-Interface non-remote power application pack.

EQIDCU form (5846 Record) - This form is used to define IDCU (Integrated Digital Carrier Unit) units. Data rules were added to the IDCU, and PIDB TYPE fields.

EQISLU form (5731 Record) - This form is used to define ISLU (Integrated Services Line Unit) assignments. Data rules were added to the PIDB TYPE field.

MEASSUM form (5563 Record) - This form is used to define traffic measurements for specified units. Added new valid entries: "ADPIDB" and "APSODB" and data rules for AIU-ISDN.

MISLINK form (5637 Record) - This form is used to define MIS (Management Information System) Links to provision an MIS system. OE type of "E" and data rules were added. Added valid entries to the DPIDB field.

ODBTS form (5905 Record) - This form is used to reserve DPIDB (Directly connected Peripheral Interface Data Bus) time slots for DSL (Digital Subscriber Line) users with the ODB (On-demand B-Channel Packet Switching) feature. Added "AIU" as a valid entry type and valid entries and data rules for the DPIDB field.

RDAPORT form (5911-A Record) - This form is used to define the remote digital test access port and TN assignment. Added OE value of "E" and data rules.

SEC. 9L: SS7-PSU ON SM/EXM-2000

1. FEATURE DESCRIPTION

The CCS7-PSU on SM/EXM-2000 (Switching Module/Extended Switching Module - 2000) feature is available for 5E12 and later Software Releases. It provides an SM-based SS7 (Signaling System 7) signaling interface for the 5ESS-2000 Switch (SMs and SM-2000s). This interface is used for SS7 signaling during normal operation when communication exists with the host 5ESS-2000 Switch in addition to stand-alone operation (if provisioned).

Prior to this feature, all switching modules send their SS7 signaling messages to the CNI (Common Network Interface) signaling platform for message transport to the SS7 network. In the unlikely event that the switching module would lose connection to the CM (Communication Module), SS7 call processing would be interrupted due to a lack of direct signaling communication through the CM and the AM (Administrative Module) to the CNI platform.

With this feature, the existing trunk query provided by the CNI Ring to send messages was replaced by a circuit query. Essentially, this feature enhanced the 5E11 ISUP trunk query capabilities to offer more flexibility (in both manual and automatic requests) as well as to report more information. (The term "circuit query" is used to align this enhancement with Bellcore terminology.) Two new fields were added to the OFCOPT form to allow customer specified query intervals.

Each SM-based signaling interface has its own unique SS7 point code and connects to the SS7 network through dedicated signaling links. As configured, each SM-based signaling interface appears to the SS7 network as a unique signaling end point, although physically they are part of a single 5ESS-2000 Switch. With this feature, in addition to the ANSI (American National Standards Institute) format, point codes can now be defined in the AT&T format. In addition, the CCTT form (6014 Record) was modified to allow Remote Global Title Translations to occur by specifying a direct TCAP Translation Type to a DPC (Destination Point Code).

A new form, CCSTCAP (5567 Record), was introduced to provide the capability to determine, on an SM/EXM-2000 basis, whether a TCAP (Transaction Capability Application Part) application can use the CNI (Common Network Interface) or a particular GSM (Global Switching Module) for its SS7 message transport. Note that this feature provides an SM-based SS7 signaling interface which supports ISUP trunks and TCAP services provisioned to use the interface on the SM (any SM type). The following provisioning sequence should be followed:

- The customer provisions an ISUP trunk group to use it for SS7 message transport by setting the ORIG PT CODE field on the TKGRP form (5202 Record) to match the OPC (Originating Point Code) field on the CCGSM form (6008 Record).
- The customer provisions a TCAP service (only NS800, LASS, ISVM, ACND, ASP, AIND01) to use an SS7 PSU on the CCSTCAP form (5567 Record). All originating queries for the service provisioned will use the SS7 PSU for message transport.

The SS7 PSU provides an alternative (to CNI) signaling interface on the SM in 5E12. Applications such as ISUP and TCAP services can be provisioned to use it or continue to send their messages to CNI for transport to the SS7 network. The TCAP applications that are currently supported are provided on the CCSTCAP form (where PLATFORM can be set to non-zero).

Three new traffic measurements were added to support this feature:

- PC (Point Code)
- SCCP (Signaling Connection Control Port) for SM-2000s.
- SL (Signaling Link)

These measurement capabilities were added to the MEASSUM form.

The feature number for this feature is 99-5E-3114.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCGSM	6008	9	10H	16.1
CCPBD	6012	9	10M	16.22
CCSGT	6015	9	10N	16.23
CCSTCAP	5567	3	5BH	8.42
CLKSET	6005	9	10E	16.7
CLU	6020	9	10T	16.9
LNKSET	6003	9	10C	16.5
MEASSUM	5563	3	5BG	13.8/13.7
NID	6019	9	10S	16.8
OFCOPT	5559	3	5I	8.15
PC	6006	9	10F	16.10
CCTT	6014	9	10O	16.24

CCGSM form (6008 Record) - This form is used to define data used for the global switching module. New point codes were added to support this feature.

CCPBD form (6012 Record) - This form is used to define the primary and backup destinations for SCCP signaling. New point codes were added to support this feature.

CCSGT form (6015 Record) - This form is used to maintain the single fixed or primary plus secondary digit string for Global Translations. New point codes were added to support this feature.

CCSTCAP form (6567 Record) - This new form is used to define the CCS Platform (Common Network Interface or Global Switching Module) and the type of Application for its SS7 signaling message.

CLKSET form (6005 Record) - This form is used to define the link sets that comprise the combined link set.

CLU form (6020 Record) - This form is used to define the MTP (Message Transport Part) cluster route sets that supports the SS7 (Signaling System 7) PSU (Packet Switch Unit) MTP Routing Enhancements feature. For more information on this feature, see Division 2, Section 4A522.

LNKSET form (6003 Record) - This form is used to define CCS7 signaling link sets. New point codes were added to support this feature.

MEASSUM form (5563 Record) - This form is used to define traffic measurements for specified units. Valid entries and data rules for the new measurement types "PC", "SCCP", and "SL" were added. A new field, ROP (Receive Only Printer) was added to allow craft to select measurement types for printing (added also to Recent Change Views 13.7/13.8).

NID form (6019 Record) - This form is used to define network route sets.

OFCOPT form (5559 Record) - This form is used to define office parameters. Two new fields were added. The CQM RSND (Circuit Query Message Re-Send) field is used to define the circuit query re-send timer value in seconds (from 10 - 15). The CQ START TIME field is used to specify the hours past midnight that the daily automatic office wide circuit query will start (from 0 to 23 hours; blank indicates that Circuit Query is not activated).

PC form (6006 Record) - This form is used to define point code and alternate link set routing. New point codes were added to support this feature.

CCTT form (6014 Record) - This form is used to define whether the global title data in the called party address will receive Global Title Translation or Point Code Extraction treatment. Added the Remote Global Title Translations DPC.

SEC. 9M: 4-WIRE LINE ON DNU-S

1. FEATURE DESCRIPTION

Available with 5E12 and later, the 4-Wire Line on DNU-S (Digital Network Unit - SONET) feature provides the ability to provision a DNU-S digital port with the 4WINDIV class of service. The 4WINDIV class of service allows a TN (Telephone Number) or MLHG (Multi-Line Hunt Group) number to be provisioned on a DNU-S digital port. BRCS (Business/Residence Custom Services) features (i.e., Call Forwarding Busy Line - All Calls or Individual Dial Plan Intercom Dialing) can also be provisioned to the TN or MLHG number.

This feature provides equivalent functionality to the existing 4-Wire Lines on DFI (Digital Facility Interface).

The feature number for the 4-Wire Line on DNU-S is 99-5E-3611.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
LINE	5109-1	3	1I	1.1
MLHLN	5111-1	3	1K	1.6

LINE form (5109-1 Record) - This form is used to define the TN associated with the 4-Wire Line on DNU-S NEN (Networking Equipment Number).

MLHLN form (5111-1 Record) - This form is used to define the MLHG member associated with the 4-Wire Line on DNU-S NEN.

SEC. 9N: TRCU3 - OPTICALLY REMOTED SM-2000

1. FEATURE DESCRIPTION

The TRCU3 - Optically Remoted SM-2000 feature (99-5E-3404) is available as a software update to 5E12 and for deployment as part of 5E13 Software Release.

This feature provides the capability to remote an EXM-2000 (Extended Switch Module - 2000) via the TRCU3 (Transmission Rate Converter Unit 3). The TRCU3 is a new unit that is replacing the discontinued TRCU2. It provides additional functionality specifically by providing a direct termination of NCT/NCT2 (Network Control and Timing) links from the 5ESS-2000 Switch. The TRCU3 unit shelf accommodates two OC-3/OC-12 service groups, each made up of new NCT/NCT2 function packs and a complement of DDM-2000 circuit packs (system controller (1), overhead controller (1), time generation system (2), and Optical Line Interface (2)). The NCT/NCT2 function packs provide the capability to terminate NCT/NCT2 signals from the Communications Module mapping it into STS-1 (Synchronous Transport Level) SONET (Synchronous Optical Network) for transmission to the OLIU (Optical Link Interface) OC-3/OC-12. The NCT/NCT2 function packs in the TRCU3 will occupy the DS3 function pack slot. Two new TRCU3 function packs will be provided as follows:

- An NCT2 function pack terminating one NCT2 link per board for EXM-2000.
- An NCT function pack terminating one NCT link per board for ORM.

This provides the capability to remote Switching Modules, SMs, and SM-2000, over SONET.

From the switch perspective, the integrated TRCU3/DDM-2000 is transparent. The NCT/NCT2 link is virtually connected across this interface to the NLI (Network Link Interface) or DLI (Dual Link Interface) at the far end. Externally, the TRCU3 unit has the attributes of a new multiplexor unit which must support interactions with the existing Transmission Operations Systems.

2. FEATURE ASSIGNMENT

Two forms support the TRCU3 hardware. The EQCMTRCU form is used for the provisioning of each TRCU3/TRCU2 shelf and the EQTRCUPATH form is used for provisioning each TRCU path between the host TRCU and the remote TRCU. See Figure 1.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	RC View	Division	Section
EQCMTRCU	5812	17.18	8	32
EQTMSLINK	5851	17.12	8	53
EQTRCUPATH	5814-1/2/3	17.23	8	38
Equipment Assignment	Not Applicable	Not Applicable	8	1

EQCMTRCU form (5812 Record) - This form is used to define the physical location of the TRCU (Transmission Rate Converter Unit). The TRCU TYPE field is modified to accept a new value "TRCU3".

EQTMSLINK form (5851 Record) - This form is used to translate the TMS (Time Multiplexed Switch) links for the ORM (Optical Remote Module), the SM-2000, and the EXM-2000 (SM-2000 ORM). A new no change field, TRCU PATH, has replaced fields TRCCKT, TRCUNUM and TRCCLI to implement the TRCU3 feature. The fields TRCCKT, TRCUNUM and TRCCLI are deleted and moved to the EQTRCUPATH form.

EQTRCUPTH form (5814-1/2/3 Record) - This form is used to define the path between the host and remote TRCU for a TRCU model 1, TRCU model 2, or TRCU model 3, in the SM or SM-2000 class processors. This is a new form to support the TRCU3 feature.

EQUIPMENT ASSIGNMENT - This section describes the CLI assignments for various input forms. Added new CLI values for the EQTRCUPTH form.

4. GLOSSARY

DDM	Dual Digital Multiplexer
DLI	Dual Link Interface
DS3	Digital Signal Level 3
NCT	Network Control and Timing Signal
NCT2	Network Control and Timing Signal Type 2
NLI	Network Link Interface
OLIU	Optical Line Interface Unit
ORM	Optically Remote Switching Module
SM	Switching Module
SONET	Synchronous Optical Network
STS	Synchronous Transport Level

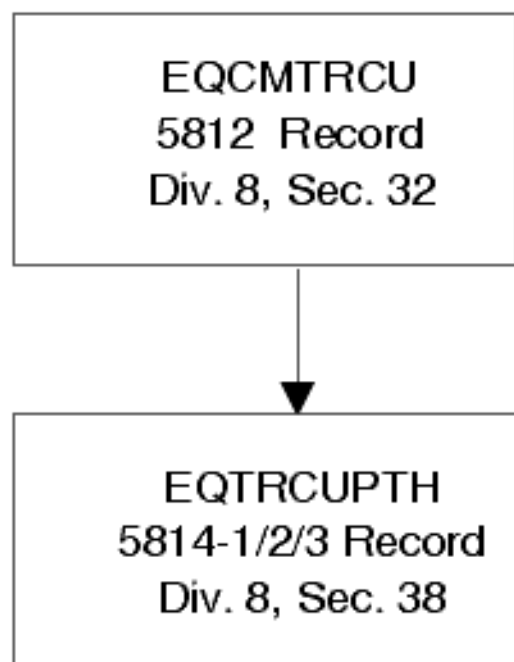


Figure 1 FORM FLOW FOR TRCU3 PROVISIONING

SEC. 90: REMOTE (EXTENDED) ACCESS INTERFACE UNIT

1. FEATURE DESCRIPTION

The Remote AIU (Access Interface Unit) feature is available as a 5E12 and later Software Update. This feature provides the capability to configure a remote location for an AIU unit from an SM-2000 Switch.

Within the 5ESS-2000 Switch user interface, the UNIT TYPE for remote AIU appears as "EAIU" which means "Expansion" AIU. This terminology is used to refer to the NAR (North American Region) remote AIU application. For the NAR application, the AIU can be configured adjacent to and/or in a remote site location, whereas in the International application, a remote location is typically used.

The NAR Remote AIU has the following characteristics:

- can be remoted over a DLTU2/DFI2 TI facility or a DNU-S facility,
- uses an E1 facility interface instead of PICB/PIDB,
- uses MH Time Slots for the communication channel,
- uses standard AIU application packs,
- test pack capability,
- capacity of 512 lines without test pack; 480 lines with test pack.

The AIU requires 64 Time Slots per PIDB pair (must be grown as pairs) per unit. The RAIU requires 32 Time Slots per PIDB (can be grown individually).

The feature number for this feature is 99-5E-3560. (For more information on the AIU, see Division 2, Section 7K.)

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
Equipment Assignment	Not applicable.	8	1	Not applicable.
EQAIU	5745	8	64	19.16
EQAIUP	5746	8	65	20.16
EQVT	5858	8	60	20.24
MTBCOMP	5557	3	5BC	14.18
ODBTS	5905	5	1F	23.13
PSU Time	Not applicable.	2	1BK	Not applicable.
Slot Assignment	5940	5	5A	22.11
RISITE	5957	5	5N	22.24
RPMA	5202	3	2A	5.1

Equipment Assignment - This TG-5 section documents CLI values for all equipment. New CLI values were added for the Remote AIU feature for the EQAIU and EQAIUP forms.

EQAIU form (5745 Record) - This form is used to define the AIU (Access Interface Unit). The following fields were added to support the Remote AIU feature:

- AIU TYPE
- AIU SIZE
- RCOMDAC1 EXT REF
- SITE ID
- CBL SERIES
- CBL DISTANCE
- TEST TYPE 0
- TEST TYPE 1
- TRANSPORT TYPE
- DLTU/DNUS
- PK/DG
- FAC/STS
- VT
- EQSTAT

The following fields were modified:

- PIDB TYPE
- DI
- PIDB/PSU SHLF

EQAIUP form (5746 Record) - This form is used to define AIU Application Packs. AIU Test Pack capability was added with the implementation of the RAIU feature.

EQVT form (5858 Record) - This form is used to define the Virtual Tributary and the DS1 (Digital Signal Level 1) on a DNU-S (Digital Networking Unit - Sonet). Two AIU APPLICATION TYPES were added: "AIUC" and "AIUD".

MTBCOMP form (5557 Record) - This form is used to define the SLIM2 (Subscriber Line and Instrument Measurements-2) metallic testing compensation values. With the implementation of the Remote AIU feature, the SM and UNIT NUMBER fields were added as an enhancement to support the AIU and future capabilities. In addition, the naming conventions for the compensation values were modified on the screen format.

ODBTS form (5905 Record) - This form is used to reserve DPIDB (Directly connected Peripheral Interface Data Bus) time slots for DSL (Digital Subscriber Line) users with the ODB (On-demand B-channel Packet Switching) feature. A data rule for the UNIT TYPE field was modified to include reference to the AIU.

PSU Time Slot Assignment - This TG-5 section discusses requirements for time slot assignment. The Required PIDB Time Slots by Unit table (Figure 2) was updated to include information for the Remote AIU.

RISITE form (5940 Record) - This form is used to define site configurations for Remote Peripheral Alarms. This form was previously used to define Remote ISLUs. Effective with the 5E12 Software Release, the name of this form was changed from Remote Integrated Services Sites and can now be used to define remote AIU units. The ALARM SM field name was renamed SM; the ALARM RISLU field was renamed RP NO (Remote Peripheral Number).

RPMA form (5957 Record) - The Remote Peripheral Site Miscellaneous Alarms form is available for 5E12

and later. This new form defines information about RPMA scan points.

TKGRP form (5202 Record) - The Trunk Group form is used to define information common to an entire trunk group. A data rule for the "LTPSLIM" trunk class was updated to define requirements for assignment of a SLIM RI on the EQAIUP form.

SEC. 9P: STS-1 EXTERNAL ECHO CANCELLATION

1. FEATURE DESCRIPTION

The STS-1 (Synchronous Transport Signal - 1) External Echo Cancellation feature is available for 5E13 and later Software Releases. The feature number is 99-5E-3487. This feature provides the capability for each 5ESS-2000 Long Distance Platform Switch equipped with DNU-S's (Digital Networking Unit - SONETs (Synchronous Optical Networks)) to perform broadband echo cancellation on an external echo canceler on a per call basis. In order to provide per call control of the external echo cancelers on the echo cancellation equipment, the 5ESS-2000 Switch must send messages to the external echo cancelers' frame to tell it when to turn the echo cancelers on and off.

When a call enters the service provider's network, the 5ESS-2000 Long Distance Platform Switch detects whether the call is a voice or data call. This is done by reading the parameters in the call setup message. The switch sends a message to the external echo cancelers' frame via TCP/IP (Transmission Control Protocol/Internet Protocol) to turn off echo cancellation for the call if the switch determines that the call is a data call. In addition, the echo cancelers are turned off if the call is a voice band call utilizing a modem.

2. FEATURE ASSIGNMENT

For 5E13 and later, see Figure 1 for the provisioning form flow.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
DNU2EEC	5861	8	68	19.22
ENETLINK	5827	8	67	19.21
ENETPIPE	5826	8	66	19.20
EQIM	5700	8	2	18.1
OFCOPT	5509	3	51	8.1
TRUNK	5204	3	2C	5.5

DNU2EEC form (5861 Record) - This form is used to associate STS-1s on a DNU-S with STS-1s on an External Echo Canceler. This is a new form added for 5E13.

ENETLINK form (5827 Record) - This form is used to define the ethernet links connected to a MH (Message Handler). The value for the ENET LINK NBR field increased from 0 to 0 - 69. The SERV TYPE field was modified from a no change field to a required field. The NUM PORT field changed from a modifiable field to a no change field. Both the HW ADDR 0 SIDE 1 and HW ADDR 1 SIDE 1 fields are no longer required fields.

ENETPIPE form (5826 Record) - This form is used to define the ethernet pipes connected to a MH (Message Handler). The SERV TYPE field was added. The EIB IP ADDR 0, EIB IP ADDR 1, HUB IP ADDR 0, and HUB IP ADDR 1 fields were changed from modifiable to no change fields. The values for SND PORT and RCV PORT were modified from 1983 to 1500 or 1983.

EQIM form (5700 Record) - This form is used to define SM (Switching Module) equipage assignments. The EEC SM field was added.

OFCOPT form (5509 Record) - This form is used to define office parameters. The EEC ACT field was added.

TRUNK form (5204 Record) - This form is used to define trunk parameters. Added the EEC ACTIVE no

change field.

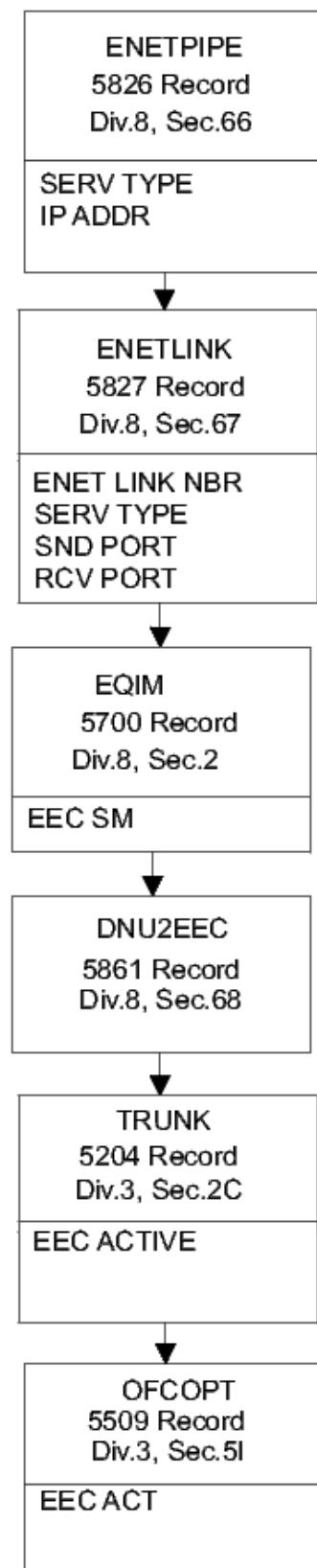


Figure 1 FORM FLOW FOR STS-1 EXTERNAL ECHO CANCELLATION

SEC. 9Q: DNU-S VT GROUP NUMBER

1. FEATURE DESCRIPTION

The DNU-S (Digital Networking Unit - SONET) VT (Virtual Tributary) Group Number feature is available with 5E13 and later Software Releases. This feature only affects customers with DNU-S equipment.

This feature provides the capability to satisfy Bellcore generic requirements for provisioning of DNU-S VT facilities (DS1). The intent of the requirement and this feature is to provide a standardized numbering scheme for all switch owners implementing a SONET interface. To implement this feature:

- the existing VT field was split to form two new fields: VT GROUP and VT MEMBER,
- the NEN OE field was expanded from 10 to 11 digits,
- the valid entry range for the STS field was modified,
- a new OE subfield, STE (SONET Termination Equipment), was introduced (coincident with this feature).

This change occurs as part of a retrofit to 5E13 and is not optioned and/or secured in any way aside from retrofit. The new numbering scheme is "equivalent" in overall capacity to the old scheme in that 28 distinct tributaries are still supported (28 VTs versus 7 VT Groups with 4 VT Members each).

The specific forms/fields affected are identified below. Also see the EQVT form (5858 Record) which provides a conversion cross reference for the VT field versus the VT GROUP and VT MEMBER fields.

The feature number for this feature is 99-5E-4424.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
AIU	5745	8	64	19.16
CCLNK	6004	9	10D	16.6
EQSTE	5857	8	59	20.12
EQVT	5858	8	60	20.24
LINE	5109	3	1I	1.1
MLHLN	5111	3	1K	1.6
NAILUP	5207	3	2F	7.11
PRIGRP	5211	3	2M	5.2
RDTAPORT	5911	5	1L	22.17
RTERM	5174	3	1S	18.15
TRUNK	5204	3	2C	5.5
XAT	5909	5	1J	23.40

AIU form (5745 Record) - This form is used to define AIU equipment. Removed the VT field and added the FAC/STE, STS, VTG, and VTM fields and related data rules.

CCLNK form (6004 Record) - This form is used to define the external link set member for the CCS7 (Common Channel Signaling System No. 7). The NEN format was modified for the new VT numbering scheme.

EQSTE form (5857 Record) - This form is used to define the STE facility in the DNU-S. The valid entry range for the STE field was modified from 0 - 5 to 1 - 6.

EQVT form (5858 Record) - This form is used to define Virtual Tributary and DS1S (Digital Signal Level 1 SONET) facilities on a DNU-S. The VT field was replaced with the VT GROUP and VT MEMBER fields; added the STE field.

LINE form (5109 Record) - This form is used to define Office Equipment numbers (OE NUMBER) and features for a telephone line. The NEN OE was modified.

MLHLN form (5111 Record) - This form is used to define an individual Terminal Number assigned to a Multi-Line Hunt Group. The NEN OE was modified.

NAILUP form (5207 Record) - This form is used to define data to directly link two ports. The NEN OE was modified.

PRIGRP form (5211 Record) - This form is used to define Primary Rate Interface Group channels. The NEN OE was modified.

RDAPORT form (5911 Record) - This form is used to define data for Remote Digital Test Access Port protocols. The NEN OE was modified.

RTERM form (5174 Record) - This form is used to define Remote Terminals. The UNIT TYPE and RT FAC TERMINATION fields were modified.

TRUNK form (5204 Record) - This form is used to define each member of a trunk group. The NEN OE format was modified.

XAT form (5909 Record) - This form is used to define T1 facilities (digital lines and trunks) with X.25 Packet Switching services on a subscription basis using Q.931 signaling. The NEN OE format was modified.

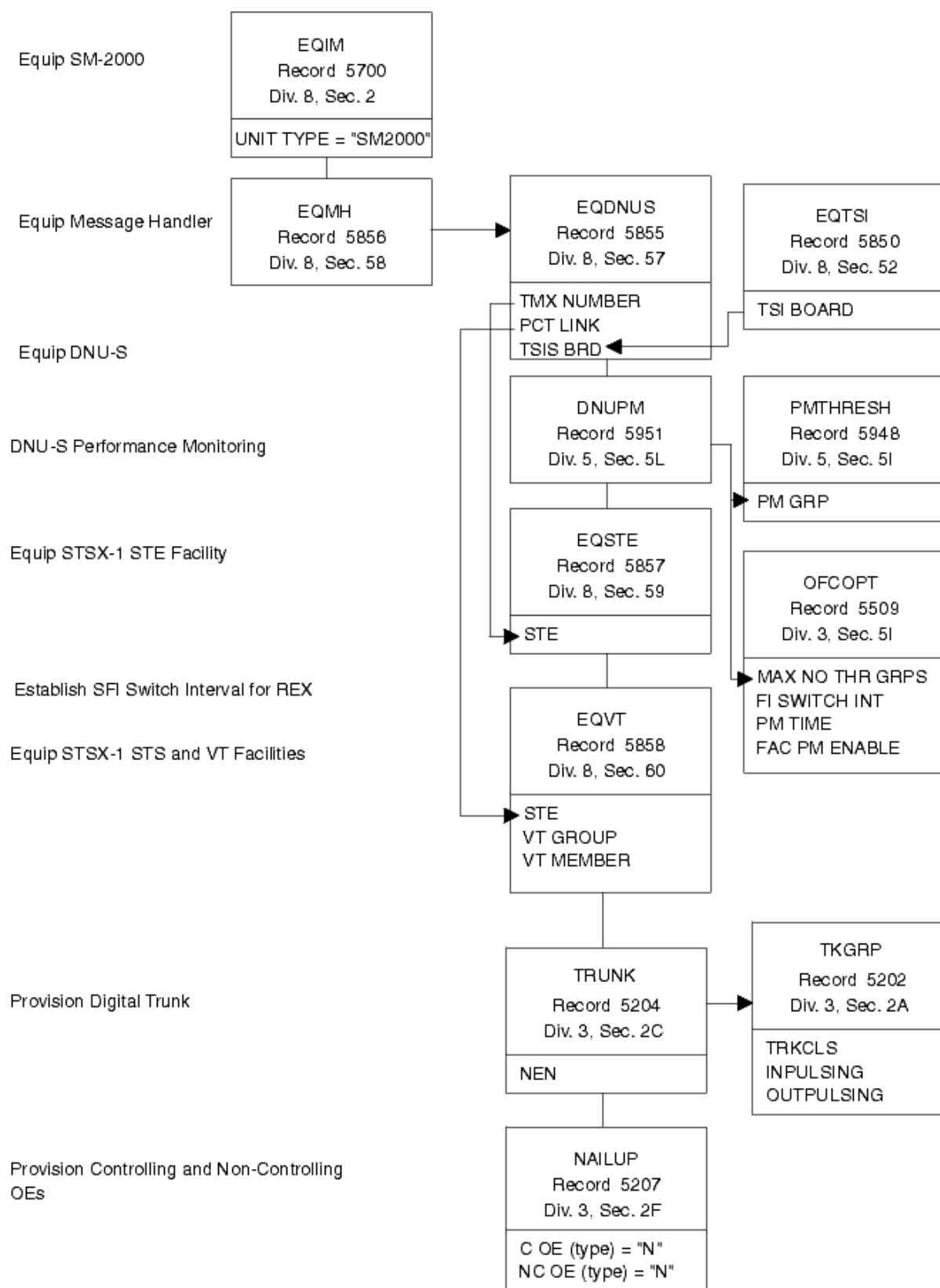


Figure 1 FORM FLOW FOR DNU-S VT GROUP NUMBER

SEC. 9R: DNUS-S PATH TRACE

1. FEATURE DESCRIPTION

The DNU-S (Digital Networking Unit - SONET) Path Trace feature is available with 5E13 and later Software Releases. It provides the capability to provision fixed length transmission character strings so that the receiving STS (Synchronous Transport Signal) PTE (Path Terminating Equipment) can verify its continued connection to the intended transmitting STS PTE.

The feature number for this feature is 99-5E-4425.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQSTE	5857-1/2	8	59	20.12

EQSTE form (5857 -1/2 Record) - This form is used to define the STE (SONET Termination Equipment) and STS equipment in the DNU-S. Two fields were added (TRANSMIT and EXPECTED) to allow up to 62 characters to be provisioned to provide end-to-end verification of the STS-1 (Synchronous Transport Signal Electrical-1) path. The record was split into two pages to accommodate this change.

SEC. 9S: REMOTE SWITCHING MODULE ON DIGITAL NETWORKING UNIT - SONET

1. FEATURE DESCRIPTION

The RSM (Remote Switching Module) on DNU-S (Digital Networking Unit - SONET (Synchronous Optical Networking)) feature is available as a 5E13 Software Update. This feature provides the capability to support a non-SM-2000 RSM via a DNU-S on a Host SM-2000. This feature only applies to DNU-S units that utilize the STS (Synchronous Transport Signal) facility interface, not the OFI (Optical Facility Interface). This feature also implements an enhanced circuit pack, KTU1-B, which is a technology upgrade over the previous issue (KTU1).

The feature number for this feature is 99-5E-4209.

2. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
RSMLNK	5517	3	5Q	18.5
EQVT	5858	8	60	20.24

RSMLNK form (5517 Record) - This form is used to define the assignment of the Umbilical Links between the HSM (Host Switching Module) and the RSM. For this feature, a UNIT TYPE field was added to define either a DLTU or a DNU-S; three new fields were added (STS, VTG, and VTM) to support the DNU-S, and three FAR END fields were modified to support the DNU-S.

For the DNU-S case, the following fields are affected:

- HOST (UNIT TYPE) = "DNUS"
- STE = 1 - 6
- STS = 1
- DG = 0 - 1
- VTG = 1 - 7
- VTM = 1 - 4

A corresponding EQVT form must be defined.

For the DLTU case, the following fields are affected:

- HOST (UNIT TYPE) = "DLTU"
- DLTU = 0 - 5
- DFI = 1 - 10
- FAC = 0 - 1

EQVT form (5858 Record) - This form is used to define the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S. For this feature, a new transport APPLICATION TYPE of "RSM"

was added to carry the signaling for the RSM umbilicals. The following data conditions must exist:

VT MODE must be "DMI"

FRAME must be "ESF"

ZCS must be "N"

NOTE: When "RSM" is not entered, VT MODE must be "RB". In addition, the SM, DNUS, DATA GROUP, STE, and STS values must be defined on a corresponding EQSTE form (5857 Record).

SEC. 9T: MULTIPLEX ACCESS INTERFACE UNIT (XAIU)

1. BACKGROUND

The local AIU (Access Interface Unit) as originally designed (see Division 2, Section 7K) requires one pair of cables per PI (Peripheral Interface) attached to the COMDAC (Common Data and Control Circuit), and one pair of cables per PICB (Peripheral Interface Control Bus). A typical AIU with two PIDBs (Peripheral Interface Data Buses) on each COMDAC requires 12 cables between the AIU and the MCTSI (Module Controller/Time Slot Interchange) (2 COMDACs with one pair of PICB cables and two pairs of PIDB cables each). If the AIU is in a cabinet with six units total, the cabinet requires 72 CB/PIDB (Control Bus\Peripheral Interface Data Bus) cables. At the SMP (Switching Module Processor) end, an SM-2000 might have 5 cabinets attached to it, for a total of 360 PICB/PIDB cables.

A typical PICB/PIDB cable takes about 10-15 minutes to install, due to the need to route the cable through cable ducts, find the attachment location by counting pins on connectors, and tying and binding the cable to other cables. On average, several minutes more are required per cable, to debug the installation. A typical cabinet requires approximately 18 hours just for the installation of the PICB/PIDB cabling (72 cables at 15 minutes per cable).

In addition, the number of cables arriving at the MCTSI makes cable routing difficult and error-prone, and makes installing cable duct covers very difficult. A similar problem exists at factory system test, where the cabinet must be cabled to test equipment.

The number of cables can be dramatically reduced by using a fiber-optic link between the MCTSI and the AIU. The XAIU (MultipleX AIU) feature, previously known as MPLI (Multi-Peripheral Link Interface) replaces these cables. This feature can reduce the manufacturing interval as well as the required installation resources.

2. FEATURE DESCRIPTION

2.1 99-5E-4596

The XAIU (MultipleX Access Interface Unit) feature is available in the 5E14 and later Software Releases. The feature number for this feature is 99-5E-4596.

The XAIU is designed to resolve the PICB/PIDB cable problem for local AIUs installed on the SM-2000 Switch. It takes the place of the existing PICB/PIDB AIU in the local office, reducing the cabling to each cabinet, and allowing a greater distance (up to 2000 feet) between the AIU and the SM-2000.

The XAIU feature introduces two new units to the system:

PDXU - The PDXU (PCT (Peripheral Control and Timing) Data Exchanger Unit) is made up of two PCTDX (PCT Data Exchanger) circuits. The PCTDX contains one PLI (Peripheral Link Interface) paddle board, the PCT Fiber, and one FCD (Fiber Common Data).

XAIU - The XAIU uses the same shelf as the RAIU (Remote Access Interface Unit). The difference between the RAIU and the XAIU is in the cabinet. The XAIU cabinet adds two new packs at the bottom of the cabinet beside the fan unit, or at the top of a cabinet that has some empty shelf locations.

To terminate the fiber optic cables, a new pack, the FCD, will be introduced which terminates the PCT fibers from the SM-2000 and distributes the data to each shelf in the cabinet. The cabling from the FCD to each shelf in the cabinet can be installed at the factory, with every cabinet having the same cabling.

The XAIU reuses the existing PLI paddle board that is used in the DNU-S (Digital Networking Unit - System) application. The FCD board is a simplified version of the CD (Common Data) pack in the DNU-S, and QCOMDAC (Quad PIDB COMDAC) that terminates the cables from the FCDs is a simplified version of the RCOMDAC (RAIU COMDAC) with the T1/E1 frames removed. The use of the PCT link limits XAIU to the SM-2000 platform only, since classic SMs (Switching Modules) do not support PCT links.

The software impact occurs in two areas:

- maintenance of the new fiber optic link, termed the PDXU (PCT Data EXchanger Unit) and
- new code to allow the AIU to be supported on a PCT link.

Although XAIU is a Central Office vehicle, XAIU call processing software reuses some RAIU/EAIU software, since control of the COMDAC is done via the MH (Message Handler) rather than using PICB control. However, the XAIU and RAIU differ in the way that per-call signaling is done. The XAIU uses A-D bit signaling for call processing signals (offhook, etc.) because the PCT link provides a full 16 bit path to the SI (System Integrity Subsystem). The RAIU uses message based signaling for call signals because the T1/E1 facilities support only eight bits per channel, not enough to support additional signaling information.

XAIU will support two fiber pairs per cabinet with each fiber carrying either a full PCT (768 time slots, or 24 time slot groups at 32 time slots per group) or one-half PCT (384 time slots, or 12 time slot groups at 32 time slots per group).

Six configurations are envisioned: half-PCT configurations with two, three, four, and six XAIUs, a full-PCT configuration with six AIUs, and a four cabinet with two full PCTs. The shelves in the half-PCT configurations are all cabled with two TSGRPs (Time Slot Groups) to each COMDAC, the unused TSGRPs cannot be connected to an adjacent unfilled frame. These configurations are expected to be the most common needs of our customers. These configurations are expected to be the most common needs of our customers.

XAIU Configuration Table

Configuration	Fiber Link	AIUs/ Cabinet	Line Concentration	Call Volume
Low traffic 5E14 and later	Two half-PCTs	6	approx. 5:1	7 CCS or less
Medium 1 (Option 2) traffic 5E14 FR 6, 5E15 FR2 and later 99-5E-7727	Two half-PCTs	4	approx. 3.3:1	12 CCS or less
Medium (Option 1) traffic 5E14 FR3, 5E15 BMI and later 99-5E-7726	Two full PCTs	6	approx. 2.5:1	14 CCS or less
High traffic 5E14 and later	Two full PCTs	4	approx. 1.7:1	21 CCS or less

Note that each configuration is pre-wired at the factory to gain installation and cost benefits; therefore, there is a fixed mapping of the time slot groups on the PCT Links to the XAIU shelves. The fixed mapping means that each shelf has an upper limit on the TSGRPs that serve it. The architecture supports the ability to have the pre-wired TSGRPs only partially equipped, which may be useful to marketing.

Overall, the XAIU replaces all the PICB/PIDB cables to an entire cabinet with two fiber pairs. Installation time for the PICB/PIDB cables to a cabinet can be reduced to approximately 10 minutes, and office installation time can be significantly reduced. It should be noted that some time is still required for the installation of MTBs

(Metallic Test Buses) and any external Ring Generator connections. Reduction of the PICB/PIDB connection time makes the most dramatic improvement, and thus is the only connection time being considered as part of this feature. For additional architecture information on the XAIU, please refer to AIU ADS (Access Interface Unit Architecture Design Specification).

2.2 99-5E-7726 — Medium Option 1

For 5E14 FR 3 and later, the Medium Option 1 configuration was added. Refer to the above XAIU Configuration Table for configuration values.

2.3 99-5E-7727 — Medium Option 2

For 5E14 FR 6 and 5E15 FR2 and later, the Medium Option 2 configuration was added. Refer to the above XAIU Configuration Table for configuration values.

2.4 99-5E-7571 — XAIU Broadband

For 5E15 FR2 and later, the Broadband capability was added for the XAIU. To achieve this capability, the BROADBAND field on the EQAIU form (5745-3 Record) must be set to "Y".

3. FEATURE ASSIGNMENT

For 5E14 and later, to provision this feature:

Insert the PDXU form (see Figure 1) or to delete this form (see Figure 2).

Insert the XAIU form (see Figure 3) or to delete this form (see Figure 4).

4. TRANSLATIONS REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQAIU	5745-3	8	64	19.16
EQPDXU	5868	8	72	19.23

EQAIU form (5745-1/2 Record) - This form is used to define AIU (Access Interface Unit) equipment. Added the XAIU CONFIG, PDXU, SHELF, TSGRP LIMIT, PASSWORD, and the (XAIUTSGRP) EQSTAT fields and the related data rules.

EQPDXU form (5868 Record) - This form is used to define the PDXU (PCT Data Exchanger Unit). This is a new form added to support this feature.

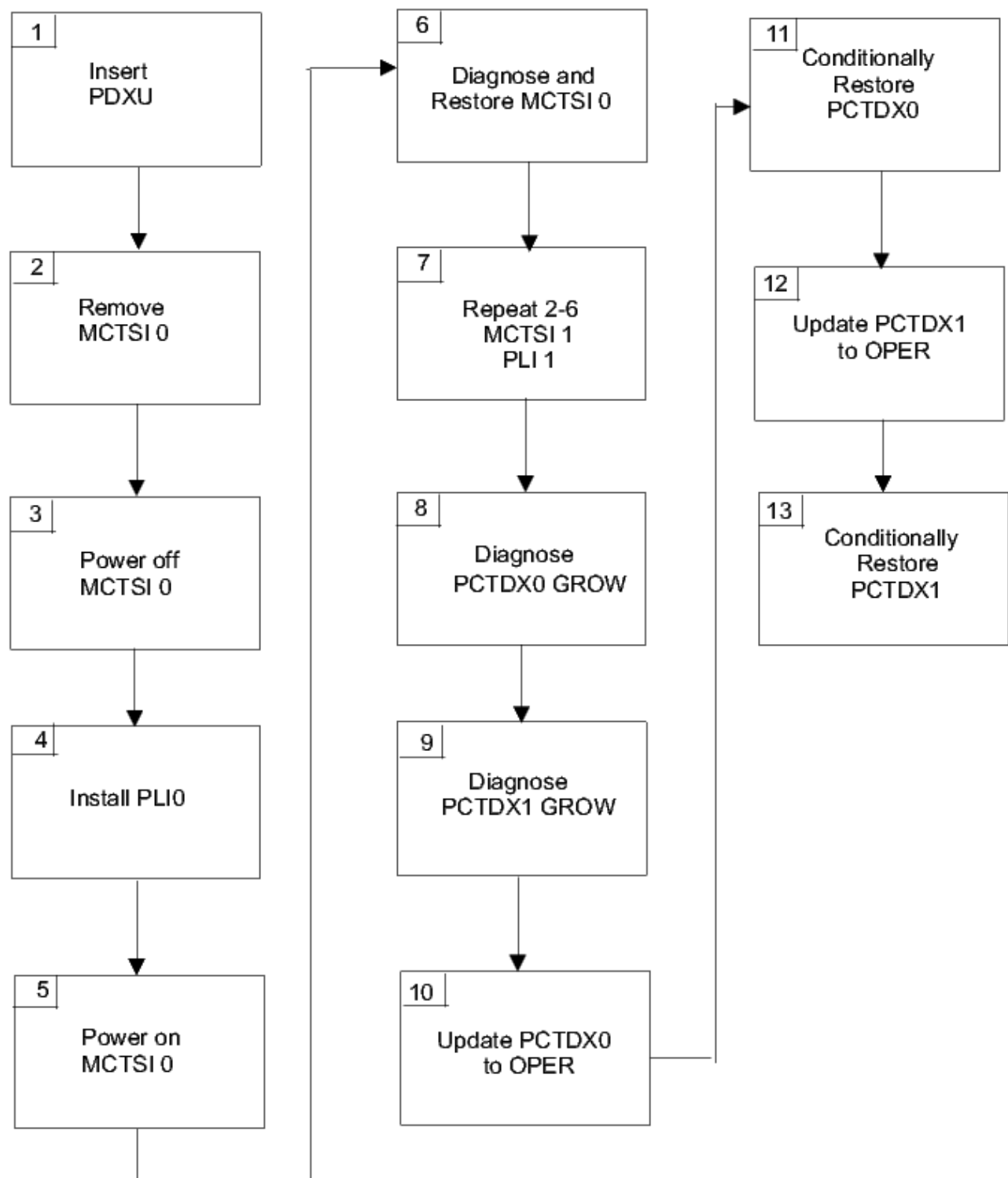


Figure 1 FORM FLOW FOR XAIU FEATURE PCT DATA EXCHANGER UNIT INSERT PROCEDURE

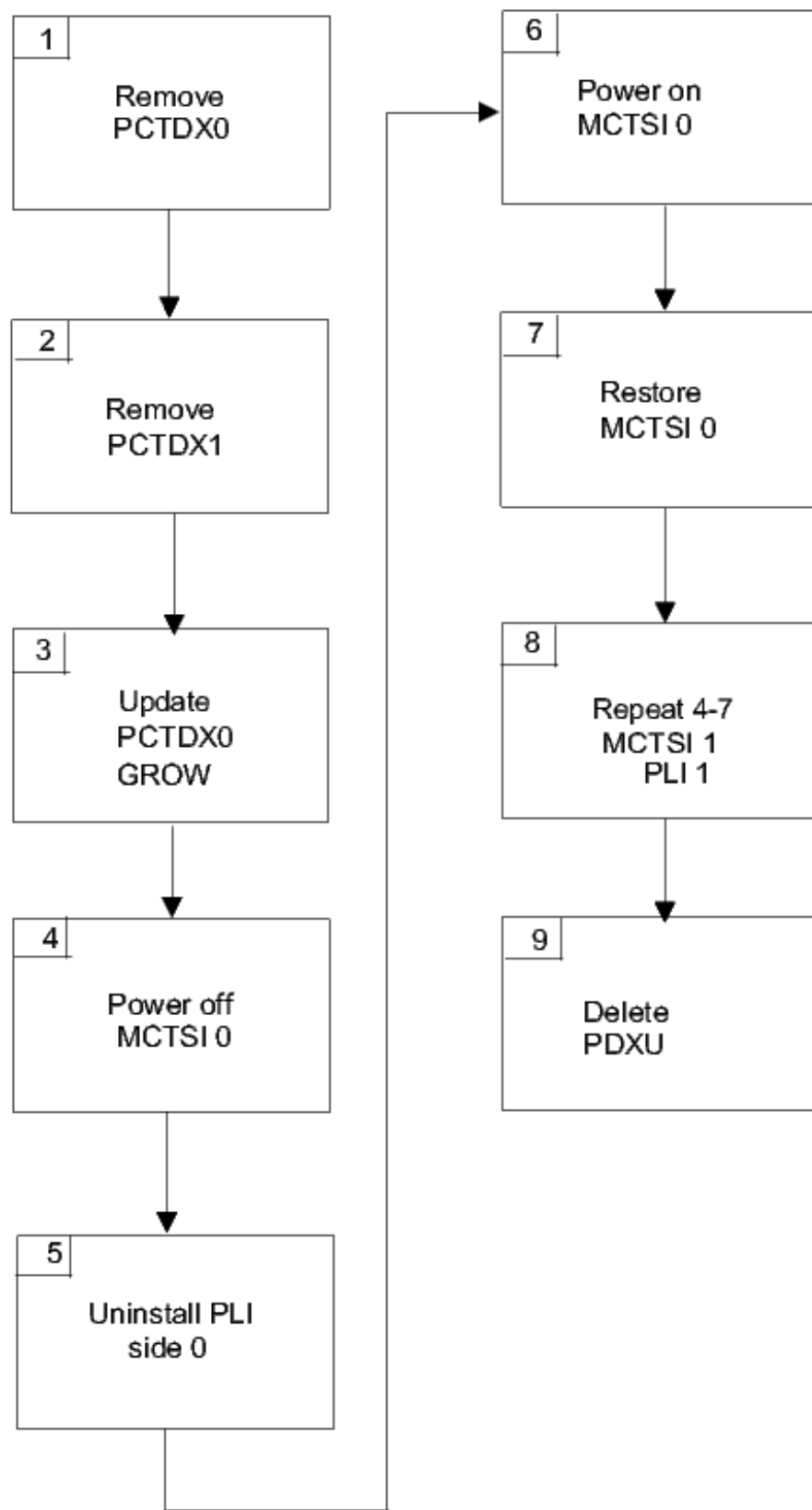


Figure 2 FORM FLOW FOR XAIU FEATURE PCT DATA EXCHANGER UNIT DELETE PROCEDURE

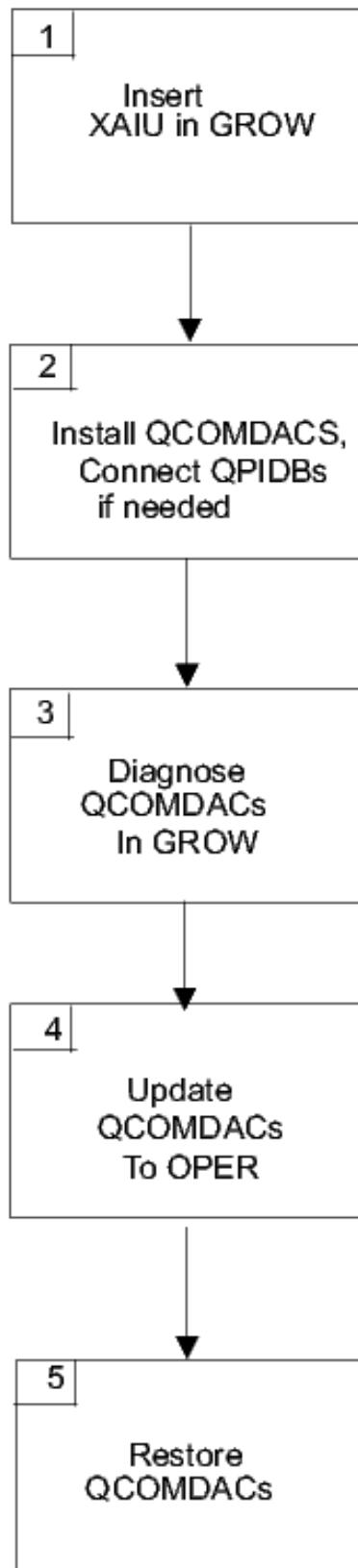


Figure 3 FORM FLOW FOR XAIU FEATURE XAIU INSERT PROCEDURE

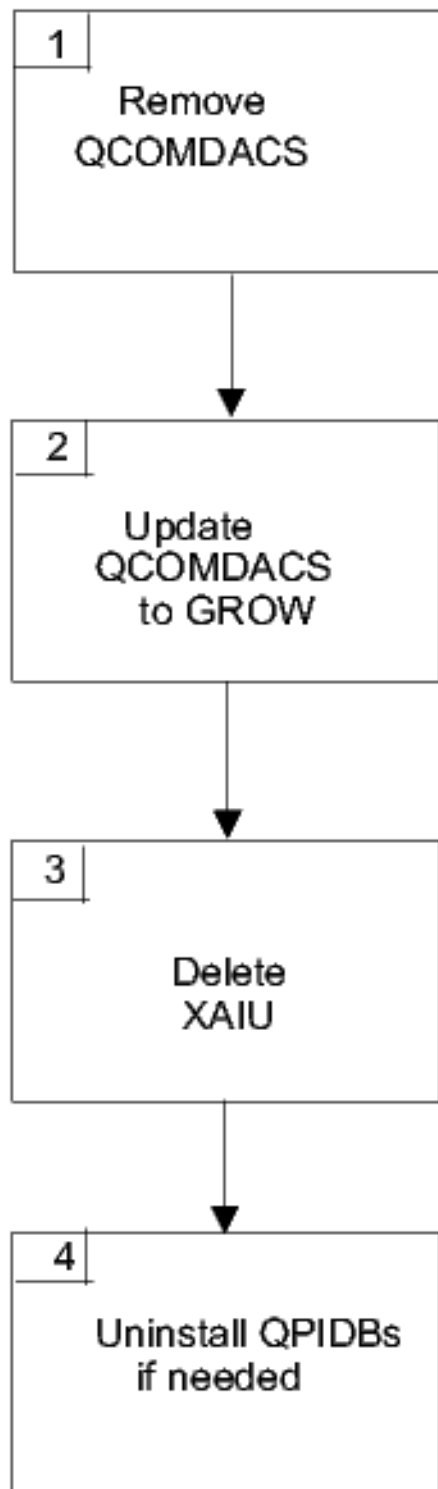


Figure 4 FORM FLOW FOR XAIU FEATURE XAIU DELETE PROCEDURE

SEC. 9U: SUPPORT BOTH TAP AND MTB CONNECTIONS ON EAIU

1. FEATURE DESCRIPTION

The Support Both TAP (Test Access Pack) and MTB (Metallic Test Bus) Connections on EAIU (Expansion Access Interface Unit) feature is available with the 5E14 Feature Release 4 Software Release. It is effective for 5E12 and later. This feature provides the capability to provide a line testing configuration for EAIUs (remoted) that supports the assignment of both a MTB from the host MMSU (Modular Metallic Service Unit) to the EAIU and a TAP (Test Access Pack) located in the EAIU. Prior to this feature, TEST TYPE of "M" (Metallic Test Bus) was restricted from assignment on the EQAIU form (5745 Record). This feature removes that restriction.

The feature number for this feature is 99-5E-7657.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQAIU	5745	8	64	19.16

EQAIU form (5745 Record) - This form is used to define AIU units. A data rule was modified to allow TEST TYPE of "M" which was previously restricted.

SEC. 9V: OPTICALLY EXTENDED CONTROL AND DATA UNIT

1. FEATURE DESCRIPTION

1.1 OXU

Available with 5E15 and later Software Releases, the OXU (Optically eXtended control and data Unit) feature (99-5E-4288) provides the ability to connect peripheral units to an SM-2000 using PIDBs (Peripheral Interface Data Buses) and PICBs (Peripheral Interface Control Buses) via optical links. The primary reason for optical links is to enable the SM-2000 to be located at a distance of more than the PIDBs/PICBs limited range of 28 feet. With this feature it is now possible to connect peripheral units up to 2000 feet from the SMC (Switching Module Controller) cabinet of the SM-2000. This allows peripheral units from several SMs to remain in their existing location to be reconnected onto an SM-2000 class processor. The SM-2000 supports up to eight OXUs.

To implement this feature, two new units are introduced:

Application Controller Expansion Unit - EQAPCX (5831 Record) — provides the OXU APCO (Application Controller Board Optical Extension) between the SM and the SM-2000.

Extended Control and Data Unit - EQXCDU (5832 Record) — duplicate, single shelf unit which provides PICB/PIDB access between the SM and the SM-2000 via optical PCT (Peripheral Control and Timing) links to the PLI/TSI (Peripheral Link Interface/Time Slot Interface unit) up to 2000 feet.

Both of these forms introduced new CLI (Change Level Indicator) values. The EQAPCX form has one CLI field for the UN651 board. The EQXCDU form has 4 CLI fields for the UN599 board. See the Equipment Assignment section, Division 8, Section 1.

Twenty ODA forms were modified to add a new INTF UNIT (Interface Unit) field to assign the OXU. The valid entry range for this field is 0 - 8; 0 indicates non-OXU. Note that on five of these forms (indicated below) the INTF UNIT field is a non-entry, display only field for both RC (Recent Change) and ODA (Office Data Administration).

EQAIU
EQCI
EQDI
EQDCLU/EQDCLP
EQDCTU
EQDS (display only)
EQDSC3
EQDUP
EQFIU (ODA only; display only)
EQIDCU
EQISLU
EQISTF (display only)
EQLU
EQMSU
EQPSU
EQRA
EQRCLK (display only)
EQRISLU (display only)
EQTU

EQGDSC3

The following data rules highlight the interaction restrictions between the EQXCDU form and existing equipment forms:

- The SM/INTF UNIT/DATA GRP combinations entered on any of the modified equipment forms mentioned above must be defined on a EQDI form or a EQXCDU form, and
- The EQSTAT on the matching EQDI or EQXCDU form must be greater than or equal to the equipment status value ("O", "G", or "U") on the equipment form (e.g., "O" is greater than "G" which is greater than "U").
- When INTF UNIT is greater than 0 and DATA GRP is 0, these Data Groups are defined on the EQXCDU form.

Except for the above restrictions, existing provisioning rules apply.

1.2 Scaling of DLTU1 and DCLU Units

Relocating DLTU1s (Digital Line Trunk Units 1) and DCLUs (Digital Carrier Line Units) from SMs to OXUs present special challenges in that prior to this feature, these units were not SM-2000 supported. Part of the OXU feature is to provide support of these units for SM-2000 and to increase the number of units (scaling) which can be supported. These modifications were implemented in two steps, affecting two software releases. SM-2000 support was made available in 5E14 as a Software Update (SU #00-0009) to enable DLTU1 and DCLU units to be supported on the SM-2000 platform. This means that the DLTU1 and DCLU units are supported on SM-2000 in 5E14 with valid entries of 0 - 5 and 0 - 7, which allows 6 DLTU1s and 8 DCLUs. Scaling of these units, that is, increasing the number of units supported, was implemented with the 5E15 BMI (Beginning of Managed Introduction) with valid entries of 0 - 11 and 0 - 15, respectively, allowing 12 and 16 units supported. (Note that the screen field size for the DLTU and DCLU entries may vary. On some screens, the DLTU and/or DCLU fields are 2-digit fields, while on others the field size is 3-digits. Nonetheless, the valid values are 0 - 7 and 0 - 15, respectively.)

After a retrofit to 5E15, the DLTU1 will still share resources with the DLTU2. Therefore, with the maximum limits scaled upward, all 12 units can be DLTU1, all 12 units can be DLTU2s (no fully loaded with DFI2s), or the sum of DLTU1 plus DLTU2 must be no more than 12 per SM-2000. The maximum number of T1 facilities supported per SM-2000 remains at 120.

The scaling expanded the valid entry range on fifteen ODA forms with DEN/SLN (Digital Equipment Number)/SLC Line Equipment Number) equipment number fields that allow DLTU1 and DCLU equipment assignments. As mentioned above, the valid entry range was increased as follows:

DLTU/DEN — from 0 - 5 to 00 - 11

DCLU/SLN — from 0 - 7 to 00 - 15

The DLTU segment of the DEN field entry range was expanded on the following forms:

CCLNK
EQAIU
EQDCLU/EQDCLP
EQDSX

EQDU/EQDUP
PRIGRP
RSMLNK
XAT

The DCLU segment of the SLEN field entry range was expanded on the following forms:

SLCCU
SLCRT
EQDCLU/EQDCLP

There is a secondary impact of the scaling of the DEN and/or SLEN unit numbers on the following forms:

LINE
MLHLN
TRUNK
NAILUP

NOTE: Additional Notes:

- a. On the EQRISLU form which is applicable only to SMs, the DLTU range will be limited to 0 - 5.
- b. On the RSMLNK form, the value of Near End DLTU will be limited to 0 - 5 while the Far End DLTU assignment supports the 0 - 11 range; Near End entries apply only to SMs while Far End entries may correspond to SM-2000 or SM processors.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
CCLNK	6004	9	10D	16.6
EQAIU	5745	8	64	19.16
EQAPCX	5831	8	83	18.18
EQCI	5848	8	50	18.2
EQDCLU/ EQDCLP	5810	8	30	19.6
EQDCTU	5751	8	26	19.9
EQDI	5849	8	51	18.3
EQDS	5740	8	21	19.5
EQDSC3	5852	8	54	19.18
EQDSX	5721	8	14	Not Applicable
EQDU/ EQDUP	5730-1/ 5730-2	8	17	19.4/20.4
EQFIU	5753	8	28	20.4
EQGDSC3	5860	8	63	19.19
EQIDCU	5846	8	48	19.12
EQISLU	5731	8	18	22.5
EQISTF	5823	8	37	19.11
EQLU	5710	8	9	19.1
EQMSU	5750	8	25	19.7
EQPSU	5741	8	22	22.2
EQRA	5821	8	35	19.10
EQRCLK	5723	8	16	8.11
EQRISLU	5732	8	19	22.9
EQTU	5720	8	13	19.2
EQXCDU	5832	8	84	18.19

LINE	5109	3	1I	1.1
MLHLN	5111	3	1K	1.6
PRIGRP	5211	3	2M	5.2
RSMLNK	5517	3	5Q	18.5
SLCRT	5106	3	1F	18.10
SLCCU	5107	3	1G	18.11
TRUNK	5204	3	2C	5.5
NAILUP	5207	3	2F	7.11
XAT	5909	5	1J	23.40
Equipment Assignment	N/A	8	1	N/A

SEC. 9W: PCT INTERFACE TO THE IWG

1. FEATURE DESCRIPTION

The PCT (Peripheral Control and Timing) Interface to the IWG (Inter-Working Gateway) feature is made available for the 7R/E PLS (Packet Local Solution) Release 3.0 and 5E15 Feature Release 1. The feature number is 99-5E-7556. This feature allows customers to connect PCT links on a SM-2000 to a PCT-EC (Echo Cancellation) card on an IWG. The IWG provides the conversion of the TDM (Time Division Multiplex) circuits to/from the ATM (Asynchronous Transfer Mode) Virtual Circuits. A new PCT-EC card was developed to interface to the 5ESS Switch over the standard PCT links. The 5ESS Switch has a new virtual peripheral unit called the IWG interface.

This maintenance feature provides the following:

- (De)growth of the IWG Interface, IWGLI (Inter-Working Gateway Link Interface), and MHEIB (Message Handler Ethernet Interface Board).

- Full and Selective initialization of the IWG Interface and IWGLI.

- Fault recovery and reporting of the IWG Interface, and ethernet link.

- Diagnostics of the IWG Interface and IWGLI.

- MCC (Master Control Center) pages, and maintenance status of the IWG Interface, IWGLI, and MELNK (Message Handler Ethernet Link).

- ASM (Administrative Services Module) GUI (Graphical User Interface) page which also provides the maintenance status of the IWG Interface, IWGLI, and MELNK. It also displays OC-3 (Optical Carrier 3) routing status (blocked or unblocked).

- IPDC (Internet Protocol Device Control) message processing, based on IPDC version 0.15.

- Interface to call processing for PCT link time slot hunting and OC3 link selection.

- Audits for data being introduced for the new peripheral.

In addition to this feature, the following features are needed to provide IVTOA (Integrated Voice Telephony over ATM):

- 99-5E-7554, ATM Global Routing and Signaling

- 99-5E-7555.A, BICC (Bearer Independent Call Control) ATM Call Processing

- 99-5E-7555.B, PLS (Packet Local Solution) OAM&P (Operations, Administration, Maintenance and Provisioning) Interface via OLM/ASM (OneLink Manager/Administrative Services Module)

- 99-5E-7555.C, Terminal Maintenance and CCS7 Signaling (Common Channel Signaling, CCITT Version 7)

The PCT Interface to the IWG feature depends on the infrastructure provided by the GUI Interface for the DNU-S (Digital Network Unit-SONET) and DLTU (Digital Line and Trunk Unit) feature (99-5E-7391).

2. FEATURE ASSIGNMENT

The EQIWG form (5764 Record) supports the PCT Interface to the IWG feature. To activate this feature, grow an IWG on the EQIWG form. No other feature activation is needed.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ENETLINK	5827	8	67	19.21
ENETPIPE	5826	8	66	19.20
EQDI	5849	8	51	18.3
EQIM	5700	8	2	18.1
EQIWG	5874	8	82	19.26

ENETLINK form (5827 Record) - This form is used to define the ethernet links connected to a MH (Message Handler). For 5E15 and later, the "VTOA" valid entry and a data rule were added to the SERV TYPE field.

ENETPIPE form (5826 Record) - This form is used to define the ethernet pipes connected to a MH. For 5E15 and later, the "VTOA" valid entry and a data rule were added to the SERV TYPE field.

EQDI form (5849 Record) - This form is used to define the Data Interface for the SM-2000. For 5E15 and later, a data rule was added to the TSI BOARD field.

EQIM form (5700 Record) - This form is used to define Switching Module equipage assignments. For 5E15 and later, a new header IWG OPTIONS and new field VTOA SM field were added to support the PCT Interface to the IWG feature.

EQIWG form (5874 Record) - This form is used to define the units of IWG (Inter-Working Gateway) which is the bridge between a SM and an ATM (Asynchronous Transfer Mode) switch. For 5E15 and later, this new form was added to support the PCT Interface to the IWG feature.

4. GLOSSARY

ASM	Administrative Services Module
ATM	Asynchronous Transfer Mode
DLTU	Digital Line and Trunk Unit
DNU-S	Digital Network Unit-SONET
GUI	Graphical User Interface
IPDC	Internet Prot
IVTOA	Integrated Voice Telephony over ATM
IWG	Inter-Working Gateway
IWGLI	Inter-Working Gateway Link Interface
MCC	Master Control Center
MELNK	Message Handler Ethernet Link

MH	Message Handler
MHEIB	Message Handler Ethernet Interface Board
OC3	Optical Carrier 3
OLM	OneLine Manager
PCT	Peripheral Control and Timing
PLS	Packet Local Solution
SM	Switching Module
TDM	Time Division Multiplex

SEC. 9X: SET GLOBAL DSN BIT AND TEST DSN FOR VCDX

1. FEATURE DESCRIPTION

The Set Global DSN (Digital Switch Network) BIT and Test DSN for VCDX (Very Compact Digital Exchange) feature is available for 5E13 and later Software Releases. The feature number is 99-5E-4673. This feature allows an SM-2000 VCDX to be provisioned as a DSN office, and verification of DSN functionality on a loaded SM-2000 VCDX. The feature provides the following MLPP (Multi-Level Precedence Preemption)/DSN features:

PAT (Precedence Access Threshold)

Individual Dialing Plan to support the MLPP feature

Routing to Access Lines and PBX (Private Branch Exchange) trunks (assuming the MLPP feature is assigned)

Speed Calling/Abbreviated Dialing to Make MLPP Calls

Authorization and Account Code Dialing to Make MLPP Calls

MLPP Screening - map precedence levels, and route code valued and destinations to desired treatment for specified classes of users (using screening index)

Dual Homing - support a PBX homed to two different DSN offices

DSN AMA (Automatic Message Accounting) - precedence level recorded

DSN MDR (Message Detail Recording) - precedence level recorded

Tones and Announcements - PAT limitation, blocked precedence, unauthorized precedence, preemption tone, and blocked preemption

MLPP feature on 2-wire lines, 4-wire lines, custom ISDN (Integrated Services Digital Network) lines, and 4-wire E&M trunks

COI (Community of Interest) - groupings of MLPP users for purposes of screening MLPP calls with regard to allowed precedence levels and calling areas

Support of MLHGs with the MLPP feature assigned (analog and custom ISDN) - queuing and preemption interactions

Hotline Service

Support for the MLPP feature on trunks, including interswitch trunks and PBX trunks (i.e., trunk types - TIERNID, TIEPNID, VONPNID, VONRNID, NONRCD, EORNID, EOPNID, SATPID, SATNID) - precedence level signaling, friendly and preemptive hunting, and preemption

Support for MLPP on PRI (Primary Rate Interface) and MLPP on SS7 (Signaling System 7) trunks

Support for ISAT (Integrated Services Attendant) Interactions with MLPP - MLPP queuing, MLPP displays, in addition to the non-DSN ISAT feature (e.g., busy verify, attendant recall, etc.)

In addition, this feature provides MLPP versions of the following features:

Call Forwarding

Call Pickup

Multi-Way Calling, including Call Hold, Transfer, and Conference Calling

Distinctive Ringing

Custom ISDN features - Shared DN (Destination Number), Multiple Call Appearance, Displays, Distinctive Ringing, and Feature Button Origination

DSM Measurements

This feature does not provide POLYGRID Routing and the DSN Network Management features.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQCORE	5701	8	3	17.1

EQCORE form (5701 Record) - This form is used to define Core Unit Assignments in a 5ESS Switch office such as the Message Interface Control Unit, the Time Multiplexed Switch and the Message Interface Control Unit Subunits. It is intended to be used as an Office Record for those 5ESS Switch offices that are not utilizing an Operational Support System (e.g., RMAS) for generation of Office Records. For 5E13 and late, a data rule was modified for the VCDX OFFICE field pertaining to the DSN OPTION field on the OFCOPT form (5509 Record).

3. GLOSSARY

3.1 Acronyms

AMA	Automatic Message Accounting
COI	Community of Interest
DN	Directory Number
DSN	Digital Switch Network
ISAT	Integrated Services Attendant
ISDN	Integrated Services Digital Network
MDR	Message Detail Recording
MLHG	Multi-Line Hunt Group
MLPP	Multi-Level Precedence Preemption
PAT	Precedence Access Treshold
PBX	Private Branch Exchange

PRI	Primary Rate Interface
SS7	Signaling System 7
VCDX	Very Compact Digital Exchange

SEC. 9Y: DNU-S Support for B-Synchronous DS1 Mapping to VT1.5

1. BACKGROUND

Prior to this feature, only A-Synchronous DS1 virtual tributary mapping was supported.

2. FEATURE DESCRIPTION

Available with the 5E13 and later Software Releases, the DNU-S Support for B-Sync DS1 Mapping to VT1.5 B-Synchronous mapping to the VT1.5 (99-5E-4151) feature provides B-Synchronous mapping capability. To support this feature, a new valid entry, "BSYNC", was added to the VT TYPE field on the DNU-S Virtual Tributary form (5858 Record). See Division 8, Section 60.

- **NOTE:** If VT TYPE is "BSYNC", the far end and any network elements along the path, must also be setup/compatible with "BSYNC".

3. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQVT	5858	8	60	20.24

EQVT form (5858 Record) - This form is used for equipage of the VT (Virtual Tributary) and the DS1S (Digital Signal Level 1 SONET) facility on a DNU-S. A new value entry of "BSYNC" was added for the VT TYPE field.

SEC. 9AA: EAIU/RAIU EMERGENCY STAND ALONE CAPABILITY

1. FEATURE DESCRIPTION

Available with 5E15, Feature Release 3 and later Software Releases, the EAIU/RAIU Emergency Stand Alone Capability (99-5E-7682) feature allows the AIU to process 911 calls when the AIU is in a stand alone mode. A new field was added to the AIU form to indicate if the feature is activated. If the new field, EMERG STAND ALONE, is set to "Y", AIU TYPE must equal "EAIU".

Operation in stand alone mode is accomplished with the BZ-RS (BZ-Remote Survivability) hardware. The BZ-RS is housed in a Miscellaneous Cabinet with the two Primary T1s from the switch terminating on it, and two other primary T1s going from it to the RCOMDACs in the EAIU. If the RCOMDACs detect that communication on BOTH primary T1/E1s has been lost, the BZ-RS will take control over the E/RAIU. When the BZ-RS has detected that T1/E1 communication has been restored, it will relinquish control back to the SM.

This feature requires and is limited to the following:

- an ASM (Administrative Services Module) must be present in the host office
- the ASM must be running software version 4.0.36 or greater
- only newly added EAIUs are supported, that is, no conversion is available.
- only POTS loop-start calls are supported.

2. TRANSLATION REQUIREMENTS

New Or Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
EQAIU	5745	8	64	19.16

EQAIU form (5745 Record) - This form is used to define AIU units. A new field, EMERG STAND ALONE, was added to activate this feature.

SEC. 10: ATM TRANSPORT SOLUTION FEATURES

SEC. 10A: DIRECT CONNECT IWG CALL CONTROL

1. FEATURE DESCRIPTION

The Direct Connect IWG Call Control feature has feature number 99-5E-8268 and is being deployed for the Beginning Managed Introduction in the 5E15 FR4.3 Software Release.

The Direct Connect IWG Call Control feature provides a method of sending Sapphire message via out-of-band signaling links between a PSM (Packet SM) and its associated IWGs (Inter-Working Gateway(s)). An out-of-band signaling link is one that is separate from the voice or bearer path, compared with an in-band signaling link where the signals and bearer share the same path. With this feature, no single point of failure causes an IWG to lose its call control links. Two cards - an ENET (Ethernet) card and an RTS (Route Server Module) card - are added to the IWG slot layout for this feature. The call control links go from the PSM (one physical link per MCTSI side via the MHEIB) to the MH Hub associated with the MCTSI side. From each MH Hub, one physical link goes directly to an IWG CPU card associated with the MH Hub, and another physical link goes to an ENET card now placed in the IWG. Spanning trees are used to determine which (if any) link using the ENET card is active. The new cards decrease the maximum capacity available per IWG to 2688 DS0s. Also associated with this feature are some minor changes in the 5ESS provisioning of the call control IP and MAC addresses.

2. FEATURE ASSIGNMENT

The 5ESS provisioning of VTOA Ethernet connections uses two concepts: an MEPIPE, provisioned on RC/V View 19.20 (ODA form ENETPIPE (5826-1/2 Record), is the link from the MCTSI to the MH Hub for that MCTSI and an MELNK, provisioned on RC/V View 19.21 (ODA form ENETLINK (5827-1/2 Record), which is the link from the PSM to the IWG. One MEPIPE needs to be provisioned for each MCTSI on a PSM. One MELNK needs to be provisioned for each IWG supported by the PSM. The MELNK carries the call control messages between the PSM and the IWG. For each PSM, the two Ethernet Interface Board (EIB) IP addresses on RC/V view 19.20 shall be different. The SM's secondary IP addresses shall be provisioned on the IWG at the other end of the MELNK. For RC/V View 19.21, IP address 0 for both Sides 0 and 1 shall be the same. On RC/V View 19.21, IP address 1 for both Sides 0 and 1 shall be the same. IP address 0 shall be different than IP address 1 on RC/V View 19.21 and shall be different than the IP addresses on RC/V View 19.20 for the same PSM. The IP addresses in this requirement shall be used for testing, but may differ in customer networks. The Verified IP addresses are provisioned according to the scheme specified in Table 1 of Figure 2. The Verified IP addresses are provisioned on the 5ESS according to the scheme specified in Table 2 of Figure 3.

Each MELNK is assumed to use the primary link between the active MCTSI side and the IWG. Upon failure of an MEPIPE between an MHEIB and a Hub (including either end), the SM's MCTSI's will do a side switch. At the IWG end of the MELNK, Sapphire call control messages would be received by the same CPU but through its secondary link. Alternatively, if the active IWG CPU fails, the call control messages would then be transmitted via the other IWG CPU via the secondary link to the same MCTSI side - no MCTSI side switch would be involved in an IWG CPU failure. All the other IWG on the same PSM is not impacted. If an ENET or RTS card failed carrying active Sapphire traffic, the call control messages would then be transmitted via the primary link through the appropriate MH Hub to the MCTSI. QOS not a consideration. An MCTSI side switch will occur only when either the last IWG fails or the associated MH Hub fails.

Verified IP Addressing Scheme

Table 1 of Figure 2 details the IP addressing and PVC numbering conventions to be tested for this feature. See also Figure 1 for an example. Figure 1 also depicts the subnet relationships listed in the rightmost column of Table 1 of Figure 2. Subnet A is for the direct links (including the PSM's and MH Hub's IP addresses). The

secondary links are constructed using a VPN (Virtual Private Network) setup by the RTS (Route Server) card placed in the IWG by this feature. For the VPN, subnet B is for the RTS card's IBM (In-band Management) interface - the portion of the VPN between the RTS card and the IWG CPU. Subnet C is for the RTS card's Ethernet interface - the portion of the VPN between the RTS card and the ENET card.

Figure 1 provides an IP addressing scheme example, showing the Subnets given in Table 1 of Figure 2. Subnet A is for the direct links (including the PSM's and MH Hub's IP addresses). The secondary links are constructed using a VPN (Virtual Private Network) setup by the RTS (Route Server) card placed in the IWG by this feature. For the VPN, subnet B is for the RTS card's IBM (In-band Management) interface - the portion of the VPN between the RTS card and the IWG CPU. Subnet C is for the RTS card's Ethernet interface - the portion of the VPN between the RTS card and the ENET card.

Table 2 of Figure 3 indicates how some of the entries in Table 1 of Figure 2 should be used for provisioning Ethernet Pipes and Links on RC/V Views 19.20 and 19.21. This numbering scheme is required only for verifying the system - the requirement is stated in more general terms to allow customer flexibility. This feature modifies the 5ESS IP addressing provisioning rules to allow more flexibility in assigning IP addresses to the IWGs, PSMs and the MH-Hubs.

3. TRANSLATION REQUIREMENTS

New and Modified ODA Forms				
Form Name	Record Number	Division	Section	RC View
ENETPIPE	5826-1/2	8	66	19.20
ENETLINK	5827-1/2	8	67	19.21

IP Addressing Scheme Example

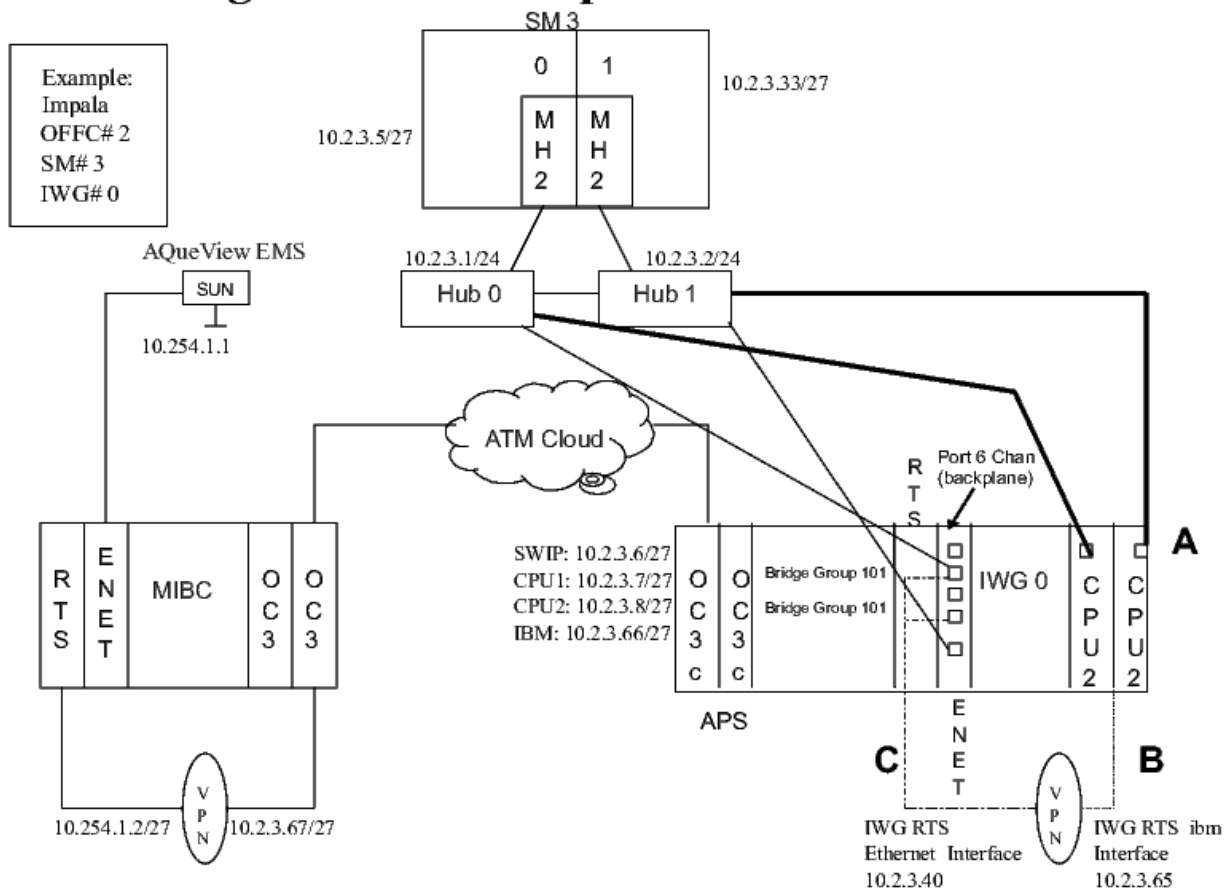


Figure 1 IP ADDRESSING SCHEME EXAMPLE

Component	IP Address / Bit Mask	Notes - Possible Formula Values for Last Octet	SUBNET
Call Control IP Addresses			
MH Hub 0	10. OFFC#. SM#. 1 /24		A
MH Hub 1	10. OFFC#. SM#. 2 /24		A
PSM - MHEIB - SIDE 0	10. OFFC#. SM#. 5 /27		A
PSM - MHEIB - SIDE 1	10. OFFC#. SM#. 33 /27		A
IWG Switch IP	10. OFFC#. SM#. ((IWG# + 2) * 3) /27	.6, .9, .12, .15, .18, .21 / 255.255.255.224	A
IWG CPU 1 (Slot 16)	10. OFFC#. SM#. ((IWG# + 2) * 3) + 1 /27	.7, .10, .13, .16, .19, .22 / 255.255.255.224	A
IWG CPU 2 (Slot 17)	10. OFFC#. SM#. ((IWG# + 2) * 3) + 2 /27	.8, .11, .14, .17, .20, .23 / 255.255.255.224	A
IWG RTS Ethernet Interface	10. OFFC#. SM#. (IWG# + 40) /27	.40, .41, .42, .43, .44, .45 /255.255.255.224	C
IWG RTS In-Band Interface (Router)	10. OFFC#. SM#. (IWG# * 32) + 65 /27	.65, .97, .129, .161, .193, .225 /255.255.255.224	B
IWG ibm (In-Band Management)	10. OFFC#. SM#. (IWG# * 32) + 66 /27	.66, .98, .130, .162, .194, .226	B

		/255.255.255.224	
OA&M (EMS + MIBC) IP Addresses			
EMS - AQV Server	10. 254. 1. 1 /24		
MIBC Ethernet Interface	10. 254. 1. 2 /24		
MIBC RTS ATM Interface (Router)	10. OFFC#. SM#. (IWG# * 32) + 67 /27	.67, .99, .131, .163, .195, .227	
		/255.255.255.224	
Note: OFFC# = 1 - 250; IWG# = 0 - 5; SM# = 1 - 192			

Table 1 - Verified IP Addressing. This scheme will be used for testing purposes to verify a multioffice configuration. Customer IP addressing schemes may differ.

Figure 2 VERIFIED IP ADDRESSING SCHEME

RC/V 19.20 (MEPIPE) Assignment Rules - red entries can be found in the Verified IP Addressing table.	
RC/V 19.20 Field Name	Field Entry
RC 19.20 IP ADDR 0 - EIB	PSM - MHEIB- SIDE 0
RC 19.20 IP ADDR 1 - EIB	PSM - MHEIB- SIDE 1
RC 19.20 HW ADDR 0 - EIB	MAC Address provided by system software
RC 19.20 HW ADDR 1 - EIB	MAC Address provided by system software
RC 19.20 IP ADDR 0 - HUB	MH Hub 0
RC 19.20 IP ADDR 1 - HUB	MH Hub 1
RC 19.20 HW ADDR 0 - HUB	MAC Address from Hub 0 console interface
RC 19.20 HW ADDR 1 - HUB	MAC Address from Hub 1 console interface
RC/V 19.21 (MELNK) Assignment Rules - red entries can be found in the Verified IP Addressing table.	
RC/V 19.21 Field Name	Field Entry
RC 19.21 IP ADDR 0 - SIDE 0	IWG Switch IP
RC 19.21 IP ADDR 1 - SIDE 0	IWG ibm (In-Band Management)
RC 19.21 HW ADDR 0 - SIDE 0	IWG CPU 0's MAC address - from AQV or IWG Console interface
RC 19.21 HW ADDR 0 - SIDE 1	IWG CPU 1's MAC address - from AQV or IWG Console interface
RC 19.21 IP ADDR 0 - SIDE 1	IWG Switch IP
RC 19.21 IP ADDR 1 - SIDE 1	IWG ibm (In-Band Management)
RC 19.21 HW ADDR 1 - SIDE 0	IWG RTS card's MAC address - from AQV or IWG Console interface
RC 19.21 HW ADDR 1 - SIDE 1	IWG RTS card's MAC address - from AQV or IWG Console interface

Table 2 - RC/V 19.20 and 19.21 Field Entries.

Figure 3 RC/V 19.20 AND 19.21 FIELD ENTRIES

SEC. 10B: TRAFFIC MEASUREMENTS AND NETWORK MANAGEMENT FOR PLS4.0

This section has been removed from the TG-5.

SEC. 10D: PSAX SEPARATE BICC TIMERS

This section has been removed from the TG-5.